

**CASE FILE
COPY**

Source of Acquisition
CASI Acquired

NASA SP-5021(10)

CUMULATIVE

**Index
to
NASA Tech Briefs**

1963-1969



February 1970

National Aeronautics and Space Administration

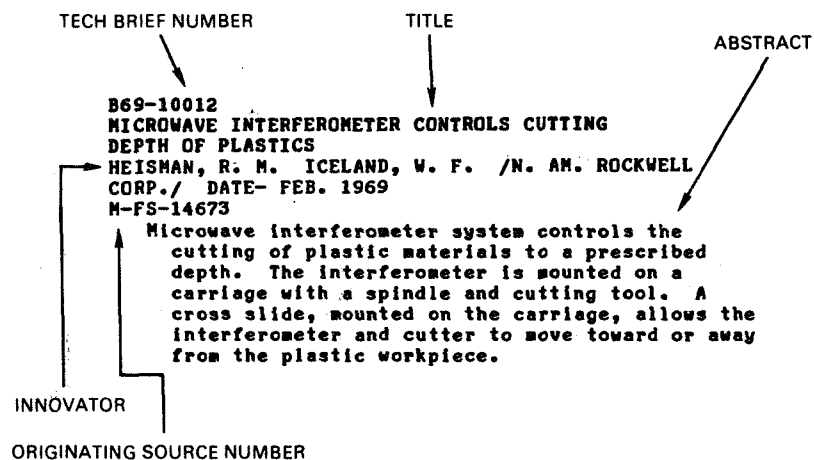
This document is available from the Clearinghouse for Federal Scientific and Technical Information (CFSTI), Springfield, Virginia 22151, for \$10.00.

Introduction

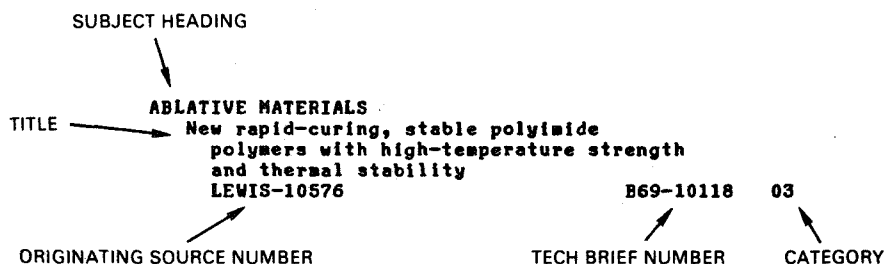
Tech Briefs are short announcements of new technology derived from the research and development activities of the National Aeronautics and Space Administration. These briefs emphasize information considered likely to be transferrable across industrial, regional, or disciplinary lines and are issued to encourage commercial application.

This *Cumulative Index to NASA Tech Briefs* lists those published from 1963 through 1969. The main listing is divided into six categories: Electrical (Electronic), Physical Sciences (Energy Sources), Materials (Chemistry), Life Sciences, Mechanical, and Computer Programs.

A typical entry has these elements:

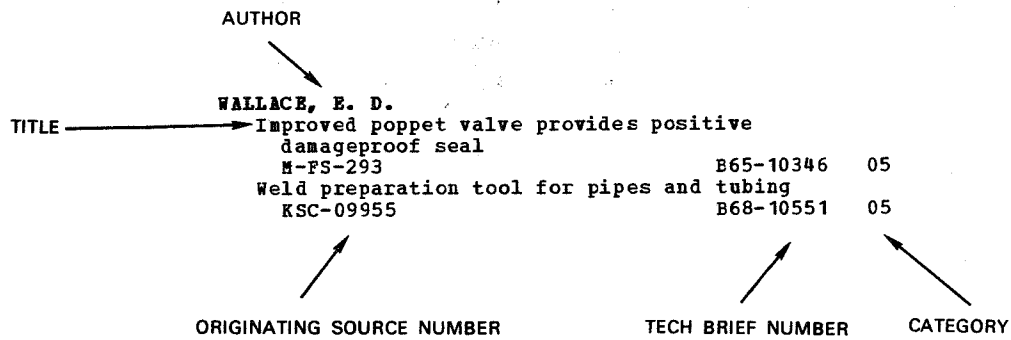


To help users locate information of value, four indexes are provided. The first is a subject index, arranged alphabetically:



Note that in this index several routes are opened for obtaining further information. If the title seems promising, the Tech Brief number and category may be used to locate the abstract, which will be found in the main section arranged sequentially by Tech Brief number within each category. Further, the Tech Brief number can of course be used for obtaining a copy of the original Tech Brief.

The second index is a personal author index arranged alphabetically.



The third index relates all items by the originating source and number to the Tech Brief number and category.



The fourth index relates all items by the Tech Brief number and category to the originating source and number.



Availability of Tech Briefs

Subscriptions to Tech Briefs may be purchased from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151 (Attention: Code 410.4).

This index lists six categories of Tech Briefs. The Tech Briefs issued in 1970 will be divided into nine categories. The charge for an annual subscription to all nine categories is \$20. Subscription rates for single categories are:

Electronics/Electrical	\$6.00
Electronic/Electrical Systems	3.00
Physical Sciences	4.00
Materials/Chemistry	5.00
Life Sciences	2.50
Mechanics	3.00
Machinery, Equipment, and Tools	2.50
Fabrication Technology	2.50
Computer Programs	3.00

A complete set of Tech Briefs issued prior to 1970 may be purchased for \$110. All Tech Briefs issued in 1963 or 1964 may be purchased for \$10; and all Tech Briefs issued in each year since then for \$20 per year.

Requests for individual copies of Tech Briefs, and questions regarding the Tech Brief program, should be directed to:

TECHNOLOGY UTILIZATION DIVISION (Code UT),
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Washington, D.C. 20546

This cumulative index replaces all previous issues of the *Index to NASA Tech Briefs* (NASA SP-5021). It was prepared by the Scientific and Technical Information Facility operated for the National Aeronautics and Space Administration by Informatics Tisco, Inc.

TABLE OF CONTENTS

Category 01	Electrical (Electronic)	1
Category 02	Physical Sciences (Energy Sources)	86
Category 03	Materials (Chemistry)	113
Category 04	Life Sciences	151
Category 05	Mechanical	157
Category 06	Computer Programs	213
Subject Index		I-1
Personal Author Index		I-745
Originator/Tech Brief Number Index		I-839
Tech Brief/Originator Number Index		I-859

01 ELECTRICAL (ELECTRONIC)

B63-10006

SETTING OF ANGLES ON MACHINE TOOLS SPEEDED BY
MAGNETIC PROTRACTOR

VALE, L. B. DATE- MAY 1964

ARC-5

An adjustable protractor facilitates transference of angles to remote machine tools. It has a magnetic base incorporating a beam which can be adjusted until its shadow coincides with an image on the screen of a projector.

B63-10024

SOLENOID PERMITS REMOTE CONTROL OF STOP WATCH
AND ASSURES RESTARTING

KODAL, C. DATE- JUN. 1964

PRC-17

Stop watch which may be remotely controlled by the use of a solenoid mechanism is described. When the solenoid is energized, the coil spring pulls the lever arm and starts the balance wheel. When it is not energized, the spring pulls the lever and stops the watch.

B63-10027

INCREASED PERFORMANCE RELIABILITY OBTAINED
WITH DUAL /REDUNDANT/ OSCILLATOR SYSTEM

NOLIS, W. M. /IBM/ DATE- MAR. 1964

GSFC-36

Two crystal-controlled oscillators, each with an associated buffer stage, provide an output at a common point. The circuit design gives high reliability control of output frequency and amplitude.

B63-10033

INDIUM FOIL WITH BERYLLIA WASHER IMPROVES
TRANSISTOR HEAT DISSIPATION

HILLIARD, J. JOHN, J. E. A. DATE- APR. 1964

REAN- SEE ALSO NASA-TN-D-1753

GSFC-42

Indium foil, used as an interface material in transistor mountings, greatly reduces the thermal resistance of beryllia washers. This method improves the heat dissipation of power transistors in a vacuum environment.

B63-10091

MODIFIED FILTER PREVENTS CONDUCTION OF
MICROWAVE SIGNALS ALONG HIGH-VOLTAGE POWER
SUPPLY LEADS

MATHISON, R. P. DATE- MAY 1964

JPL-63

Very lossy powdered iron material, in the lining of a polyester resin, replaces the dielectric material in the short coaxial transmission line of a simple filter. The lossy material absorbs microwave signals along high voltage power supply leads.

B63-10118

STEPPING SWITCH WITH SIMPLE ACTUATOR PROVIDES
MANY CONTACTS IN SMALL SPACE

MILLER, J. V. DATE- MAY 1964

JPL-122

To reduce the space required for a stepping switch with many contacts, a simple electromechanical actuator with a maximum number of wipers has been incorporated into a compact assembly. This small sized unit is inexpensive to fabricate.

B63-10174

MODULAR CHASSIS SIMPLIFIES PACKAGING AND
INTERCONNECTING OF CIRCUIT BOARDS

ARENS, W. E. BOLINE, K. G. DATE- MAY 1964

JPL-236A

A system of modular chassis structures has simplified the design for mounting a number of printed circuit boards. This design is structurally adaptable to computer and industrial control system applications.

B63-10193

REMOVABLE PREHEATER ELEMENTS IMPROVE OXIDE
INDUCTION FURNACE

LEIPOLD, M. H. DATE- JAN. 1964

JPL-288

Heat and corrosion resistant preheater elements are used in oxide induction furnaces to raise the temperature to the level for conducting electricity. These preheater elements are then removed and the induction coil energized.

B63-10227

ELECTROMECHANICALLY OPERATED CAMERA SHUTTER
PROVIDES UNIFORM EXPOSURE

FORD, A. G. DATE- MAR. 1964

JPL-357

A unidirectional camera shutter employing a solenoid and mechanical linkages permits uniform exposure and minimizes distortion of the image formed in the camera.

B63-10229

FLANGE ON MICROWAVE ANTENNA SUBREFLECTOR CUTS
GROUND NOISE

POTTER, P. D. DATE- MAY 1964

JPL-362

The subreflector of a microwave antenna has been redesigned so that its outer edge has a conical flange. This reduces noise by causing ground energy radiation to cancel out before entering the antenna.

B63-10238

SHAPED SUPERCONDUCTOR CYLINDER RETAINS INTENSE
MAGNETIC FIELD

HILDEBRANDT, A. F. WAHLQUIST, H. DATE- MAY 1964

JPL-381

The curve of the inner walls of a superconducting cylinder is plotted from the flux lines of the magnetic field to be contained. This shaping reduces maximum flux densities and permits a stronger and more uniform magnetic field.

B63-10250

LEVEL OF SUPER-COLD LIQUIDS AUTOMATICALLY
MAINTAINED BY LEVELOMETER

TENER, W. M. DATE- MAR. 1964

JPL-397

A levelometer system, in which the level of cryogenic liquid to be controlled affects the level of an electrolyte, automatically switches a pump on and off. A pressure sensitive diaphragm can also throw a microswitch to start or stop the pump.

B63-10255

TRANSFLUXOR CIRCUIT AMPLIFIES SENSING CURRENT
FOR COMPUTER MEMORIES

MILLIGAN, G. C. DATE- MAR. 1964

JPL-406

To transfer data from the magnetic memory core to an independent core, a reliable sensing amplifier has been developed. Later the data in the independent core is transferred to the arithmetical section of the computer.

B63-10258

DOUBLE-THROW MICROWAVE DEVICE SWITCHES TWO
LINES QUICKLY

CLAUSS, R. STELZRIED, C. T. DATE- FEB. 1964

JPL-410

By combining a single-throw microwave switch with a microwave circulator in a circuit, two input lines can be switched quickly. There is only a brief transition time when both /or neither/ of the two lines are connected to an output line.

B63-10262

IGNITING SYSTEM FOR MERCURY LAMPS
PROTECTS TRANSISTORIZED SUSTAINING SUPPLY

GUISINGER, J. E. DATE- JUL. 1964

JPL-421

01 ELECTRICAL(ELECTRONIC)

A current from a sustaining power supply flows through the mercury vapor lamp and, as there are no resistors in series with this supply, the power is efficiently used. This high voltage igniting device protects the transistorized high current, low voltage power supply.

B63-10264
NOVEL HORN ANTENNA REDUCES SIDE LOBES,
IMPROVES RADIATION PATTERN
POTTER, P. D. DATE- APR. 1964
JPL-425

A horn antenna, combining two propagation modes at selected power ratios, reduces side lobes, and improves the radiation characteristics. Noise and unwanted signals are considerably suppressed.

B63-10280
METER ACCURATELY MEASURES FLOW OF
LOW-CONDUCTIVITY FLUIDS
LOVE, E. G. DATE- MAY 1964
JPL-0021

An electromagnetic flowmeter has been adjusted to minimize the errors inherent in measuring the flow of low conductivity fluids. This is done through use of a direct-coupled, differential cathode follower, whose grid potential is adjustable with respect to ground levels.

B63-10284
SMALL DIGITAL RECORDING HEAD HAS PARALLEL BIT
CHANNELS, MINIMIZES CROSS TALK
ELLER, E. E. LAUE, E. G. DATE- MAY 1964
JPL-0029

A small digital recording head consists of closely spaced parallel wires, imbedded in a ferrite block to concentrate the magnetic flux. Parallel-recorded information bits are converted into serial bits on moving magnetic tape and cross talk is suppressed.

B63-10321
IMPROVED VARIABLE-RELUCTANCE TRANSDUCER
MEASURES TRANSIENT PRESSURES
MORTON, R. W. PATTERSON, J. L. DATE- MAY 1964
LANGLEY-10

A flush-diaphragm pickup and a feedback stabilized carrier amplifier are among the features incorporated into an improved variable-reluctance transducer. This low impedance device responds to steady-state as well as transient pressures.

B63-10338
OPTICS USED TO MEASURE TORQUE AT HIGH
ROTATIONAL SPEEDS
KRSEK, A., JR. TIEFERMAN, M. DATE- DEC. 1964
LEWIS-13

In measuring torque transmitted by a high speed rotation shaft, an apparatus has been devised which includes a shaft, an optical system and readout servomechanism. This highly accurate method uses only optical contact with moving part and is statically calibrated.

B63-10342
RADIANT HEATER FOR VACUUM FURNACES OFFERS HIGH
STRUCTURAL RIGIDITY, LOW HEAT LOSS
VARY, A. DATE- MAY 1964
LEWIS-39

Some problems associated with high temperature heaters for vacuum furnaces have been eliminated by the use of shaped filaments of refractory metal. These filaments, supported in cylindrical array by ceramic spacers, operate with high voltage, low current power.

B63-10440
NEW APPARATUS INCREASES ION BEAM POWER DENSITY
BALDWIN, L. V. SANDBORN, V. A. DATE- JUN. 1964
LEWIS-73

To increase ion engine or rocket power, an ion source and emitter, an ion beam focusing electrode, and an ion accelerator are incorporated into the system. In operation the space charge surrounding the ion emitter decreases, the ion beam density accelerates, and engine power increases.

B63-10443
IMPROVED SENSOR COUNTS MICROMETEOROID
PENETRATIONS
DAVISON, E. H. DATE- MAY 1964
LEWIS-76

A sensor, consisting of a thin dual-capacitor assembly with an outer film of thermal-control material, is used to detect micrometeoroid particles. A coincidence counting circuit is used to count the penetrations.

B63-10493
TWO-STAGE EMITTER FOLLOWER IS TEMPERATURE
STABILIZED
SCHMIDT, M. H. /MCDONNELL AIRCRAFT CORP./ DATE-
MAY 1964
MSC-20

Two-stage temperature stabilized circuit using two transistors is described. Increase in temperature causes the base-to-emitter voltage of n-p-n transistor to become less positive whereas the base-to-emitter voltage of p-n-p transistor becomes less negative, so the temperature-induced variation in $V_{sub 1}$ and $V_{sub 2}$ cancel out.

B63-10508
CIRCUIT SWITCHES LATCHING RELAY IN RESPONSE TO
SIGNALS OF DIFFERENT POLARITY
SMITH, L. S. /ELECTRO-OPTICAL SYSTEMS/ DATE- MAY
1964
WOO-055

A circuit using one power supply and two storage capacitors, which may be separately discharged in opposite directions through a relay in response to change in polarity of a signal, is described.

B63-10511
FREQUENCY-SHIFT-KEYER CIRCUIT IMPROVES PCM
CONVERSION FOR RADIO TRANSMISSION
MKSZAN, D. P. /WESTINGHOUSE ELEC. CORP./ DATE-
JUN. 1964
GSFC-80

A data logic circuit employing a fixed frequency, square-wave oscillator and flip-flop gates allows for the shifting from one frequency to the other at the end of a whole number of cycles of one shift frequency and at the beginning of a cycle of the second shift frequency.

B63-10512
LOW-COST TAPE SYSTEM MEASURES VELOCITY OF
ACCELERATION
HARTENSTEIN, R. DATE- JUN. 1964
GSFC-85

By affixing perforated magnetic recording tape to the falling end of a body, acceleration and velocity were measured. The measurement was made by allowing the tape to pass between a light source and a photoelectric sensor. Data was obtained from a readout device.

B63-10514
COMPUTER CIRCUIT WILL FIT ON SINGLE SILICON
CHIP
SMITH, C. DATE- JUN. 1964
JPL-513

A simplified computer logic circuit of two NAND/NOR gates and three additional inputs to accomplish the count and shift function is described. The circuit has capacity for parallel read-in, counting, serial shiftout, complement input and set and reset.

B63-10529
CONNECTOR FOR THERMOCOUPLE LEADS SAVES COSTLY
WIRE, MAKES RELIABLE CONNECTORS
MILLER, H. B. DATE- APR. 1964
LANGLEY-26

A connector for use in the thermocouple circuits which is silver-brazed to the metal thermocouple sheath on one end and crimped over the insulation of the flexible lead on the other, assures protection against breakage and abrasion. A moisture-proof insulating material is used to encapsulate the wire junctions.

B63-10536
HOT-AIR SOLDERING TECHNIQUE PREVENTS
OVERHEATING OF ELECTRICAL COMPONENTS

SPON- INNOVATOR NOT GIVEN /HUGHES AIRCRAFT CO./
DATE- FEB. 1964
GSFC-91

By using a hot-air gun with a small orifice, heat may be localized to the soldering area of the chassis. The solder is placed around the capacitor which is inserted in the mounting hole so the ring is in contact with the chassis.

B63-10537
SIMPLE CIRCUIT PROVIDES ADJUSTABLE VOLTAGE
WITH LINEAR TEMPERATURE VARIATION
MOEDE, L. W. /DATAMETRICS CORP./ DATE- MAR. 1964
JPL-W00-029

A bridge circuit giving an adjustable output voltage that varies linearly with temperature is formed with temperature compensating diodes in one leg. A resistor voltage divider adjusts to temperature range across the bridge. The circuit is satisfactory over the temperature range of minus 20 degrees centigrade to plus 80 degrees centigrade.

B63-10551
UNMANNED SEISMOMETER LEVELS SELF, CORRECTS
DRIFT ERRORS
SUTTON, G. /COLUMBIA UNIV./ DATE- MAY 1964
GSFC-100

Four-component, three-axis, feedback-controlled seismograph incorporates electronic circuitry for leveling and for monitoring the feedback signal required for servo-centering. Viscous damping of the earth-motion signal, compensation of the residual long-term drift, and centering of the seismometers are provided by automatic mechanisms.

B63-10553
TRANSISTORIZED TRIGGER CIRCUIT IS
FREQUENCY-CONTROLLABLE
SPON- INNOVATOR NOT GIVEN /DUKE UNIV./ DATE- JUN. 1964
GSFC-111

A trigger circuit employing two unijunction transistor oscillators, whose frequency is varied by changing the base-to-base voltage, provides variable electrical control of the frequency.

B63-10554
HIGH EFFICIENT SQUARE-WAVE OSCILLATOR
OPERATOR AT HIGH POWER LEVELS
SPON- INNOVATOR NOT GIVEN /DUKE UNIV./ DATE- JUN. 1964
GSFC-112

A square-wave oscillator circuit containing only simple resistor-capacitor combinations and transistors operates with high efficiency at relatively high power levels.

B63-10555
COMPUTER DETERMINES HIGH-FREQUENCY PHASE
STABILITY
NICHOLS, G. B. DATE- JUL. 1964
GSFC-113

Determination of phase stability of a high frequency signal using a computer is accomplished by a circuit using two auxiliary oscillators, multipliers and low-pass filters in cross correlation with the oscillator producing the signal of interest.

B63-10561
TINY SENSOR-TRANSMITTER CAN WITHSTAND EXTREME
ACCELERATION, GIVES DIGITAL OUTPUT
MOSSINO, R. L. ROBINSON, G. DATE- NOV. 1964
ARC-22

A self-pulsing oscillator transmits a pulsed signal. The time between pulses and the frequency are controlled by two networks. Variations in the component values in each of the two networks, due to environmental changes, appear as changes in frequency and time between pulses in the transmitted signal. Such a sensor is used to measure physical magnitudes.

B63-10567
SIMPLE CIRCUIT CONTINUOUSLY MONITORS
THERMOCOUPLE SENSOR
GREENWOOD, T. L. DATE- AUG. 1964
M-FS-61

A series circuit was developed to check the

continuity in thermocouple sensors. This method may be used in monitoring continuity in any dc voltage-operated control circuit.

B63-10572
DEVICE CALIBRATES VIBRATION TRANSDUCER AT
AMPLITUDES UP TO 20 G
GREENWOOD, T. L. DATE- AUG. 1964
M-FS-86

A piezoelectric transducer provides accurate calibration of vibration amplitudes to 20 g. The calibration system uses an electromagnetically driven resonant beam to generate mechanical vibrations at a fixed frequency.

B63-10579
SMALL FOAMED POLYSTYRENE SHIELD PROTECTS
LOW-FREQUENCY MICROPHONES FROM WIND NOISE
TEDRICK, R. N. DATE- MAY 1964
M-FS-123

A foamed polystyrene noise shield for microphones has been designed in teardrop shape to minimize air turbulence. The shield slips on and off the microphone head easily and is very effective in low-frequency sound intensity measurements.

B63-10596
FRONT AND BACK PRINTED CIRCUIT LAYOUTS
PRESENTED ON SINGLE SHEET
PERRY, J. DATE- OCT. 1964
GSFC-93

A diazo photographic process of clear plastic masters is used in reproducing front and back printed circuit layouts of differing intensity on a single sheet.

B63-10597
PRECISION GAGE MEASURES ULTRAHIGH VACUUM
LEVELS
HUDSON, J. B. SEARS, G. W. /GEN. DYN. CORP./
DATE- JUN. 1964
GSFC-114

Ionization gage in which internally generated X-rays are minimized is described. This gage permits the measurement of gas pressures in ultrahigh systems of micro-pico torr.

B63-10599
LIQUID SWITCH IS REMOTELY OPERATED BY LOW DC
VOLTAGE
MOORE, E. T. /DUKE UNIV./ DATE- MAY 1964
GSFC-119

A liquid switch which does not depend on any mechanical, gravitational, or inertial actuation is developed for use in space environments. It may be remotely operated on low dc voltage.

B63-10600
CIRCUIT CONTROLS TRANSIENTS IN SCR INVERTERS
MOORE, E. T. WILSON, T. G. /DUKE UNIV./ DATE-
JUN. 1964
GSFC-120

Elimination of starting difficulties in SCR inverters is accomplished by the addition of two taps of the output winding of the inverter. On starting or under transient loads, the two additional taps deliver power through diodes without requiring quenching of SCR currents in excess of normal starting load.

B63-10603
MONOSTABLE CIRCUIT WITH TUNNEL DIODE HAS FAST
RECOVERY
HEFFNER, P. DATE- MAY 1964
GSFC-132

A monostable multivibrator circuit using a tunnel diode makes it possible for the MSNV to exceed the performance of present multivibrators in two respects. The rise time of the output voltage is faster and the duty cycle is raised to approximately 95 percent.

B63-10606
NEW SINTERING PROCESS ADJUSTS MAGNETIC VALUE
OF FERRITE CORES
VINAL, A. W. /IBM/ DATE- MAY 1964
GSFC-129

A two-phase sintering technique based on time and temperature permits reversible control of the

01 ELECTRICAL (ELECTRONIC)

coercive threshold of sintered ferrite cores. Threshold coercivity may be controlled over a substantial range of values by selective control of the cooling rate.

B63-10609

TEMPERATURE-SENSITIVE NETWORK DRIVES ASTABLE MULTIVIBRATOR

SPON- INNOVATOR NOT GIVEN /RCA/ DATE- OCT. 1964 GSFC-137

Development of a simple circuit using two Zener diodes and five resistors, which provides a temperature-sensitive voltage to drive the astable multivibrator, is described.

B63-10613

CRYOGENIC WAVEGUIDE WINDOW IS SEALED WITH PLASTIC FOAM

CLAUSS, R. STELZRIED, C. T. DATE- JUN. 1964 JPL-559

Waveguide windows made with polystyrene preformed plastic and sealed with foamed-in-place plastic are useful in any microwave waveguide system using cryogenic cooling.

B64-10002

CIRCUIT RELIABILITY BOOSTED BY SOLDERING PINS OF DISCONNECT PLUGS TO SOCKETS

PIERCE, W. B. DATE- MAR. 1964 JPL-447

Where disconnect pins must be used for wiring and testing a circuit, improved system reliability is obtained by making a permanent joint between pins and sockets of the disconnect plug. After the circuit has been tested, contact points may be fused through soldering, brazing, or welding.

B64-10004

ULTRA-SENSITIVE TRANSDUCER ADVANCES MICRO-MEASUREMENT RANGE

ROGALLO, V. L. DATE- MAY 1964 ARC-26

An ultrasensitive piezoelectric transducer, that converts minute mechanical forces into electrical impulses, measures the impact of micrometeoroids against space vehicles. It has uniform sensitivity over the entire target area and a high degree of stability.

B64-10007

LOW-POWER TRANSISTORIZED CIRCUIT PROVIDES STAIRCASE WAVEFORM

BREEN, G. D. DATE- JUL. 1964 GSFC-48

A low input power transistorized circuit is used to generate a staircase waveform of high step uniformity. Other characteristics are low step droop, fast transition time, and no feedback.

B64-10010

MODIFIED RF COAXIAL CONNECTOR ENDS VACUUM CHAMBER WIRING PROBLEM

WEINER, D. DATE- MAY 1964 GSFC-150

A standard radio frequency coaxial connector is modified so that a plastic insulating sleeve can be mounted in the wall of a vacuum chamber. This eliminates ground loops and interference from cable connections.

B64-10016

COMPACT COAXIAL CONNECTOR FOR PRINTED CIRCUIT ADDS RELIABILITY

RADECKE, T. F. DATE- MAY 1964 MSC-57

Soldering and welding techniques are used to connect a coaxial cable to a printed circuit board. This device aids reliability control of equipment as standard connectors are bulky and heavy.

B64-10017

BLOCKING OSCILLATOR USES LOW TRIGGERING VOLTAGE

SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ DATE- DEC. 1964 MSC-58

To prevent premature triggering of a blocking oscillator, a smaller magnetic core is added to

the conventional oscillator circuit. This serves as a second blocking oscillator and has a lower triggering threshold.

B64-10019

NEW METHOD USED TO FABRICATE GALLIUM ARSENIDE PHOTOVOLTAIC DEVICE

ELLIS, S. G. /RCA/ DATE- JUN. 1964 WOO-062

A new method for fabricating photocells, or solar cells, substitutes copper iodide for zinc diffusion. This produces a p-type surface layer and a photovoltaic junction.

B64-10024

EFFICIENT CIRCUIT TRIGGERS HIGH-CURRENT, HIGH-VOLTAGE PULSES

GREEN, E. D. /WESTINGHOUSE ELEC. CORP./ DATE- JUN. 1964 MSC-14

Modified circuit uses diodes to effectively disconnect the charging resistors from the circuit during the discharge cycle. Result is an efficient parallel charging, high voltage pulse modulator with low voltage rating of components.

B64-10042

OHMMETER SENSES DEPLETION OF LUBRICANT IN JOURNAL BEARINGS

ROSS, A. O. DATE- DEC. 1964 LEWIS-37

An ohmmeter is used as a sensor to determine when the lubricating oil in a high speed journal bearing becomes depleted.

B64-10064

DIGITAL LOGIC ELEMENTS PROVIDE ADDITIONAL FUNCTIONS FROM ANALOG INPUT

MATTY, T. C. /MCDONNELL AIRCRAFT CORP./ DATE- JUN. 1964 MSC-64

A dc analog input can be used to produce an integrator with high dynamic range or a position servo with inherent stability. This is done by a switching system using digital-to-analog converters and an electronic switch to obtain the desired outputs.

B64-10065

CONTINUITY TESTER SCREENS OUT FAULTY SOCKET CONNECTIONS

GOLDING, G. DATE- MAY 1964 JPL-596

A device, used before and after assembly, tests the continuity of an electrical circuit through each pin and socket of multiple connector sockets. Electrically insulated except at the contact area, a test probe is dimensioned to make contact only in properly formed sockets.

B64-10080

IMPROVED INSERTION-LOSS TESTER

FINNIE, C. J. SCHUSTER, D. DATE- JUN. 1964 JPL-358

An improved test method accurately measures the insertion loss of RF components while avoiding amplifier drift. Currents are balanced across a bridge transformer with shorted probes and then with each component to be tested. Differences in adjustments indicate the loss.

B64-10109

ANALOG DEVICE SIMULATES PHYSIOLOGICAL WAVEFORMS

HICKMAN, D. M. DATE- NOV. 1964 MSC-51

An analog physiological simulator generates representative waveforms for a wide range of physiological conditions. Direct comparison of these waveforms with those from telemetric inputs permits quick detection of signal parameter degradation.

B64-10114

AUXILIARY SILVER ELECTRODE ELIMINATES TWO-STEP VOLTAGE DISCHARGE CHARACTERISTIC OF SILVER-ZINC CELLS

CHREITZBERG, A. M. /ELEC. STORAGE BATTERY CO./ DATE- JUN. 1964

GSFC-169

In silver-zinc cells, an auxiliary silver electrode is electrically connected to the positive terminal only during discharge. This eliminates the two-step discharge characteristic of such cells.

B64-10118

USE OF PHOTOGRAPHS SPEEDS INSPECTION OF PRINTED-CIRCUIT BOARDS

STARK, E. /IBM/ DATE- JUL. 1964

MSC-72

Projected images of a printed circuit board and the engineering drawing are superimposed on a screen for visual comparison. This technique speeds inspection and reduces the incidence of error.

B64-10122

SIMPLE TRANSDUCER MEASURES LOW HEAT-TRANSFER RATES

LAUMANN, E. A. DATE- OCT. 1964

JPL-466

A simple transducer is used to measure low rates of convective and conductive heat transfer from a fluid to a cooled surface under steady-state conditions. Temperature drop is measured by two thermocouples imbedded in a rod of low thermal conductivity.

B64-10143

FIELD-EFFECT TRANSISTOR IMPROVES ELECTROMETER AMPLIFIER

MUNOZ, R. DATE- NOV. 1964

ARC-36

An electrometer amplifier uses a field effect transistor to measure currents of low amperage. The circuit, developed as an ac amplifier, is used with an external filter which limits bandwidth to achieve optimum noise performance.

B64-10144

RING COUNTER MAY BE ADVANCED OR RETARDED BY COMMAND SIGNAL

LIBBY, J. N. MOORE, H. D. DATE- JUL. 1964

GSFC-101

A power logic circuit, with bidirectional capability, is used to drive small loads in planned sequence. This is designed in the form of a shift register, with a reversible ring counter.

B64-10150

NOVEL CIRCUIT COMBINES PULSE STRETCHER WITH NOR GATE

CLIFF, R. A. DATE- OCT. 1964

GSFC-187

A pulse-stretching circuit added to a conventional NOR gate circuit detects a preselected state and produces a pulse that the pulse stretcher maintains for a long enough period to reset all counter stages.

B64-10158

EMISSION TESTER FOR HIGH-POWER VACUUM TUBES

LUNDY, C. DATE- OCT. 1964

JPL-628

A simple emission-testing circuit for high power vacuum tubes to check their output stability is described. With modification it may be useful in testing mercury-arc rectifiers.

B64-10163

FIELD EFFECT TRANSISTORS USED AS VOLTAGE CONTROLLED RESISTORS

SPON- INNOVATOR NOT GIVEN /IBM/ DATE- NOV. 1964

M-FS-174

Two new methods of incorporating field effect transistors into circuit designs have resulted in linear response of this type transistor over a wide range of controlled voltage levels. This increases its usefulness as a voltage-controlled resistor.

B64-10171

SUBMINIATURE BIOTELEMETRY UNIT PERMITS REMOTE PHYSIOLOGICAL INVESTIGATIONS

SPON- INNOVATOR NOT GIVEN /AMES/ DATE- OCT. 1964

ARC-39

A subminiature biotelemetry transmitter permits the measurement of biopotential response in humans or animals to controlled environmental stimuli without discomfort while engaged in normal activities.

B64-10173

HIGH-PASS RF COAXIAL FILTER REJECTS DC AND LOW FREQUENCY SIGNALS

BAILEY, J. W. MC AFEE, D. F. DATE- OCT. 1964

GSFC-73

A low-loss RF filter element for coaxial transmission provides dc isolation and eliminates low frequency signals. The characteristic impedance of the transmission line is not affected, as the design permits direct connection of the filter to the line.

B64-10200

BINARY SYSTEM GENERATES SIDEREAL RATE FROM STANDARD SOLAR RATE

GRANATA, R. MC CAUL, P. DATE- OCT. 1964

GSFC-190

A sidereal rate output from mean solar rate input is derived from a sidereal generator that uses digital division and multiplication techniques.

B64-10209

RASTER LINEARITY OF VIDEO CAMERAS CALIBRATED WITH PRECISION TESTER

SPON- INNOVATOR NOT GIVEN /RCA/ DATE- DEC. 1964

GSFC-200

The time between transitions in the video output of a camera is measured when registered at reticle marks on the vidicon faceplate. This device permits precision calibration of raster linearity of television camera tubes.

B64-10222

COMPACT CARTRIDGE DRIVES CODED TAPE AT CONSTANT READOUT SPEED

AUSTIN, D. C. DATE- OCT. 1964

JPL-472

To facilitate storage and repetitive reading of short-program coded tape, a cartridge case, containing mechanical drive and readout assemblies, has been fabricated. The drive transports the tape past a conventional pickup device during the reading function.

B64-10226

TEMPERATURE-COMPENSATION CIRCUIT STABILIZES PERFORMANCE OF VIDICONS

SPON- INNOVATOR NOT GIVEN /JET PROPULSION LAB./

DATE- NOV. 1964

JPL-486

A simple transistor circuit uses a thermistor to change the vidicon target potential in relation to temperature differences.

B64-10237

APPARATUS MEASURES CONCENTRATION OF SUSPENDED DROPLETS IN GAS STREAMS

BOOTH, F. W. DATE- DEC. 1964

LANGLEY-31

An apparatus, operating on the principle of wet and dry bulb thermometry, permits intermittent or continuous measurement of the concentration of droplets dispersed in a gas stream over a wide range of gas pressure.

B64-10255

ELECTRONIC DEVICE SIMULATES RESPIRATION RATE AND DEPTH

THOMAS, J. A. DATE- NOV. 1964

MSC-89

An oscillator circuit and a thermistor, in close proximity to a light bulb, periodically alter the heat output of the bulb by varying the voltage across its filament. Use of this simulator permits checkout tests on pneumographs.

B64-10258

DIGITAL CARDIOMETER COMPUTES AND DISPLAYS HEARTBEAT RATE

MITCHELL, V. M. DATE- NOV. 1964

MSC-93

To compute the heartbeat rate from the waveform output of an electrocardiogram, a digital

01 ELECTRICAL (ELECTRONIC)

- cardiometer with solid state circuit elements has been developed. This computes the beat every 15 seconds and visually presents the data on numerical display tubes.
- B64-10259**
PNEUMOTACHOMETER COUNTS RESPIRATION RATE OF HUMAN SUBJECT
GRAHAM, O. DATE- NOV. 1964
MSC-92
To monitor breaths per minute, two rate-to-analog converters are alternately used to read and count the respiratory rate from an impedance pneumograph sequentially displayed numerically on electroluminescent matrices.
- B64-10271**
IMPROVED TECHNIQUE FOR LOCALIZING ELECTROPOLISHING FEATURES NOVEL NOZZLES
SPON- INNOVATOR NOT GIVEN /GEN. DYN.
/ASTRONAUTICS/ DATE- NOV. 1964
WOO-101
Impingement electropolishing is accomplished by use of an electrolyte film, which is evenly distributed by an insulated nozzle designed to match the contour of the workpiece to be treated. The workpiece is connected to the positive terminal of a generator and the nozzle to the negative terminal.
- B64-10280**
SERVO SYSTEM FACILITATES PHOTOELASTIC STRAIN MEASUREMENTS ON RESINS
OTTS, J. W. DATE- NOV. 1964
JPL-504
To facilitate photoelastic measurements of the strains developed by stresses applied to birefringent resins, a servomechanism is employed.
- B64-10281**
PTC THERMISTOR PROTECTS MULTILOADED POWER SUPPLIES
LEVERONE, H. MANDELL, N. DATE- NOV. 1964
GSFC-236
A PTC /Positive-Temperature-Coefficient/ thermistor placed in series with each branch load of a multiloading circuit prevents power loss in parallel branches. This thermistor may be used in any circuit requiring current limiting or intended overload resetting.
- B64-10283**
MOUNTING FOR DIODES PROVIDES EFFICIENT HEAT SINK
SPON- INNOVATOR NOT GIVEN /RCA/ DATE- NOV. 1964
M-PS-197
Efficient heat sink is provided by soldering diodes to metal support bars which are brazed to a ceramic base. Electrical connections between diodes on adjacent bars are made flexible by metal strips which aid in heat dissipation.
- B64-10299**
RADIATION-DETECTOR OPTICAL-IMAGING DEVICE IS OF SIMPLIFIED CONSTRUCTION
SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ DATE- JAN. 1965
GSFC-251
A simplified radiation detector was designed which employs an activated continuous front surface consisting of either the diffused or barrier type of semiconducting material with a grid structure on the nonactivated side of the detector. Its form may be either a rectangular coordinate or a polar coordinate system.
- B64-10305**
TRANSISTORIZED CONVERTER PROVIDES NONDISSIPATIVE REGULATION
SPON- INNOVATOR NOT GIVEN /DUKE UNIV./ DATE- DEC. 1964
GSFC-238
A transistorized regulator converter efficiently converts fluctuating input voltages to a constant output voltage, avoiding the use of saturable reactors. It is nondissipative in operation and functions in an open loop through variable duty cycles.
- B64-10309**
WELDING PROCEDURES IMPROVES QUALITY OF WELDS, OFFERS OTHER ADVANTAGES
SPON- INNOVATOR NOT GIVEN /MARSHALL/ DATE- DEC. 1964
M-PS-32
An improved procedure for arc spot welding uses the SIGMA /Submerged Inert Gas Metallic Arc/ method. This has resulted in welds of higher quality than are obtainable by conventional means.
- B64-10320**
VOLTAGE GENERATOR SWEEPS OSCILLATOR FREQUENCY LINEARLY WITH TIME
SPON- INNOVATOR NOT GIVEN /HELPER, INC./ DATE- JAN. 1965
M-PS-219
A voltage-tuned oscillator circuit is described which sweeps the output signal frequency linearly exponentially varying with time.
- B64-10330**
ECONOMICAL FABRICATION PROCESS PRODUCES HIGH QUALITY JUNCTION TRANSISTORS
SPON- INNOVATOR NOT GIVEN /IBM/ DATE- DEC. 1964
JPL-SC-065
A convenient, three-step fabrication process, with a p-type layer of gallium arsenide vapor deposited on a starting wafer of germanium, is used to produce heterojunction-homojunction p-n-p transistors. These are of high quality with good injection efficiency and low capacitance.
- B64-10349**
BANDWIDTH SWITCHING IS TRANSIENT-FREE, AVOIDS LOSS OF LOOP LOCK
SPON- INNOVATOR NOT GIVEN /SPACE TECHNOL. LABS./ DATE- DEC. 1964
WOO-054
A circuit, in a wide bandwidth mode, overcomes transient-producing capacitance switching by maintaining an equivalent voltage at all times. Bandwidth switching may be done at any time, and integrity of the loop lock is maintained.
- B65-10001**
CIRCUIT CONVERTS AM SIGNALS TO FM FOR MAGNETIC RECORDING
SPON- INNOVATOR NOT GIVEN /RCA/ DATE- JAN. 1965
GSFC-227
Convert AM signals to FM for magnetic recording by relaxation-type voltage-controlled oscillator /VCO/. This circuit may be used in radar, telemetry, and test equipment.
- B65-10002**
TUNNEL-DIODE CIRCUIT FEATURES ZERO-LEVEL CLIPPING
BUSH, E. G. DATE- JAN. 1965
GSFC-241
Tunnel-diode circuit starts clipping action as input voltage crosses zero axis. This clipper circuit is effective as limiter in FM receiver.
- B65-10005**
COMPUTER MODIFICATION REDUCES TIME OF PERFORMING ITERATIVE DIVISION
SPON- INNOVATOR NOT GIVEN /IBM/ DATE- FEB. 1965
M-PS-166
Time reduction in performing iterative division results from using a serial-by-parallel divider employing a look-ahead feature that predetermines the sign relationships of several iterations before the computer cycle begins. This method can be employed in any data handling system performing high-speed division.
- B65-10006**
MODIFICATION INCREASES LIGHT OUTPUT OF INJECTION-LUMINESCENT DIODES
SPON- INNOVATOR NOT GIVEN /RCA/ DATE- JAN. 1965
REAN- SEE ALSO B64-10283
M-PS-192
Removing a section of the electrode area from the N-face of injection-luminescent diodes for pumping lasers substantially increases light output. Light is emitted from the N-face as well as from the four edges of the diode.

B65-10010

INEXPENSIVE, STABLE CIRCUIT MEASURES HEART RATE
VICK, H. A. DATE- JAN. 1965
MSC-95

Inexpensive transistorized circuit provides reliable analog indications of heart rate in response to preamplified electrocardiograph signal applied to its input.

B65-10011

CIRCUIT IMPROVEMENT PRODUCES MONOSTABLE MULTIVIBRATOR WITH LOAD-CARRYING CAPABILITY
GOLDMAN, N. E. SCHAFFERT, J. C. DATE- JAN. 1965
GSFC-34A

Improved circuit provides greater reliability and load-carrying capabilities for monostable multivibrator.

B65-10012

HELICAL COAXIAL-RESONATOR MAKES EXCELLENT RF FILTER

SPON- INNOVATOR NOT GIVEN /RCA/ DATE- JAN. 1965
GSFC-243

Isolation of closely spaced transmitting and receiving frequencies of an antenna without insertion loss by filtering the receiver input is accomplished by an inner conductor with two winding helices and an outer conductor of aluminum. A tuning slug is at either end of the inner conductor form.

B65-10013

ZENER DIODE FUNCTION GENERATOR REQUIRES NO EXTERNAL REFERENCE VOLTAGE

BOLTE, G. BURNS, R. DATE- JAN. 1965
JPL-0031

Function generator utilizing parallel impedance networks with zener diodes produces functions which are discontinuous in slope. The function generated appears at the output of the parallel network in the form of a voltage varying in time.

B65-10018

CARBON ARC IGNITION IMPROVED BY SIMPLE AUXILIARY CIRCUIT

SPON- INNOVATOR NOT GIVEN /RCA/ DATE- JAN. 1965
MSC-103

High voltage, low current pulse in series with arc power supply efficiently ignites a carbon arc. The easily and economically produced circuit is useful with arc burners and searchlights and with plasma jets.

B65-10023

MINIATURE STRESS TRANSDUCER HAS DIRECTIONAL CAPABILITY

SAN MIGUEL, A. SILVER, R. H. DATE- JAN. 1965
JPL-591

Miniature stress transducer uses a semiconductive piezoresistive element to detect stress only on specific axes. Measurement of internal mass stress is based on the compressive deformation of the transducer. The device is applicable to constant stress monitoring in building and dam structural parts.

B65-10025

LOGIC REDUNDANCY IMPROVES DIGITAL SYSTEM RELIABILITY

SPON- INNOVATOR NOT GIVEN /STANFORD RES. INST./
DATE- FEB. 1965
JPL-SC-069

Redundant-channel system automatically corrects any single error in a set of three binary signal channels. This system is especially applicable to digital computers where data is transmitted in parallel channels.

B65-10026

STEPPING MOTOR DRIVE CIRCUIT DESIGNED FOR LOW POWER DRAIN

SPON- INNOVATOR NOT GIVEN /HARVARD COLL./ DATE- FEB. 1965
GSFC-198

High power drain is eliminated by a circuit consisting of a divide-by-two stage, two identical inputs, a wiggle amplifier, driver, and power output stages to drive the step motor.

B65-10028

TRANSISTOR VOLTAGE COMPARATOR PERFORMS OWN SENSING

CLIFF, R. A. DATE- FEB. 1965
GSFC-228

Detection of the highest voltage input among a group of varying voltage inputs is accomplished by a transistorized voltage comparison circuit. The collector circuits of the transistors perform the sensing function. Input voltage levels are governed by the transistors.

B65-10030

LIBRARY OF DOCUMENTS COMPRESSED INTO LAP-HELD DISPLAY KIT

SPON- INNOVATOR NOT GIVEN /NATL. CASH REGISTER CO./ DATE- FEB. 1965
MSC-125

A lightweight Apollo flight kit containing microfilmed data is packaged in a hinged box with a viewing screen cover, and a writing surface. It is secured to the users lap.

B65-10033

PHOTOELECTRIC SEMICONDUCTOR SWITCH OPERATES WITH LOW LEVEL INPUTS

SPON- INNOVATOR NOT GIVEN /IBM/ DATE- FEB. 1965
JPL-SC-068

Photoelectric semiconductor switch with a buried emitter region avoids high-leakage currents across the emitter. It exhibits high emitter to collector transport efficiency beta at low signal levels.

B65-10041

PULSE HEIGHT ANALYZER OPERATES AT HIGH REPETITION RATES, LOW POWER

SPON- INNOVATOR NOT GIVEN /SPACE TECHNOL. LABS., INC./ DATE- FEB. 1965
WOO-046

Simple multistage transistor gating circuit provides a pulse height analyzer that operates at high repetition rates and low power. The circuit compares the input pulse heights to discrete reference voltages.

B65-10045

THERMISTOR CONNECTOR ASSEMBLY INCREASES ACCURACY OF MEASUREMENTS

SPON- INNOVATOR NOT GIVEN /ATLANTIC RES. CORP./
DATE- FEB. 1965
LANGLEY-62

Isolation of the thermistor from spurious heat transfer for accurately measuring ambient air temperatures is accomplished by a mounting consisting of a transparent plastic film bonded to a U-shaped phenolic board with depositions of aluminum on each face and upper edge, and a variable capacitor for fine tuning.

B65-10047

CIRCUIT DETECTS ERRORS IN ADDRESS CURRENTS FOR MAGNETIC CORE ARRAYS

SPON- INNOVATOR NOT GIVEN /IBM/ DATE- FEB. 1965
M-FS-234

Address current error detector generates a signal whenever any error producing conditions arise in magnetic core arrays. Can be used with test equipment and memory storage units.

B65-10048

MICROPARTICLE IMPACT SENSOR MEASURES ENERGY DIRECTLY

ALEXANDER, W. M. BERG, O. E. DATE- FEB. 1965
GSFC-252

Construction of a capacitor sensor consisting of a dielectric layer between two conductive surface layers and connected across a potential source through a sensing resistor permits measurement of energy of impinging particles without degradation of sensitivity. A measurable response is produced without penetration of the dielectric layer.

B65-10050

NULLING PYROMETER USES KERR CELL SHUTTER FOR FAST RESPONSE

SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ DATE- FEB. 1965

01 ELECTRICAL (ELECTRONIC)

NU-0010

Conventional pyrometer, in which Kerr cell replaces mechanical shutter and polarizers are added to filters, yields rapid shutter response.

B65-10051

METAL SHEATH IMPROVES THERMOCOUPLE USING GRAPHITE IN ONE LEG
SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ DATE- FEB. 1965
NU-0011

Thermocouple using graphite in one leg is sealed in a moistureproof metal sheath which permits high emf output and good mechanical strength.

B65-10052

ZENER DIODE IS STARTER FOR TRANSISTOR REGULATED POWER SUPPLY
SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ DATE- FEB. 1965
NU-0015

Zener diode in parallel with a silicon transistor supplies the starting current for a transistor-regulated power supply.

B65-10054

PULSE GENERATOR PERMITS NONDESTRUCTIVE TESTING OF COMPONENT BREAKDOWN VOLTAGE
SPON- INNOVATOR NOT GIVEN /HONEYWELL/ DATE- MAR. 1965
MSC-122

Nondestructive testing of the breakdown voltage of transistors and other electronic components is achieved by a simple relay circuit. The circuit operates by applying low-energy, high-voltage microsecond pulses to the components under test.

B65-10055

F M OSCILLATOR USES TETRODE TRANSISTOR
BOENSEL, D. W. DATE- MAR. 1965
JPL-82

Tetrode-driven crystal oscillator achieves large frequency variations for a given input signal. Frequency control is obtained by variation of the second base current of the tetrode.

B65-10056

VIBRATING-MEMBRANE ELECTROMETER HAS HIGH CONVERSION GAIN
COON, G. W. DIMEFF, J. DATE- APR. 1965
ARC-38

Vibrating-membrane transducer in a circuit can measure current below 10 to-the-minus 17 ampere. This electrometer has a high conversion gain and a minimum internal power consumption.

B65-10057

FEED-THROUGH HAS POLYTERMINAL FEATURE
SANDERS, L. H. DATE- MAR. 1965
M-PS-25

Feed-through connector with individual solder pots in the polyterminal side provides good connections with small amounts of solder and permits visual inspection of bonds. Polyterminal also provides a friction mechanical bond to position conductors prior to soldering.

B65-10059

METAL DIAPHRAGM USED TO CALIBRATE MINIATURE TRANSDUCERS
SPON- INNOVATOR NOT GIVEN /ASTRO-SPACE LABS./ DATE- MAR. 1965
M-PS-207

Dynamic comparative calibration system measures response of miniature pressure transducers. The system is composed of an electromechanically driven metal diaphragm, a calibrated and an uncalibrated transducer and an oscillator.

B65-10061

SIMPLE CONTROL DEVICE SENSES SOLAR POSITION
LONBORG, J. O. RANDALL, J. C. DATE- MAR. 1965
JPL-638

The amount of solar radiation incident on a specially prepared bimetallic strip is simply and reliably controlled by a light valve. This device is valuable for systems requiring temperature regulation.

B65-10062

PULSED PLASMA ACCELERATOR OPERATES REPETITIVELY WITHOUT COMPLEX CONTROLS
SABOL, A. P. DATE- MAR. 1965
LANGLEY-48

Self-repeating pulsed plasma accelerator operates with a wide variety of gases over a large range of pressures without complex control equipment. The accelerator combines a circular channel with a tangential channel at the entrance way of a high-velocity gas.

B65-10066

FUEL CELL SERVES AS OXYGEN LEVEL DETECTOR
SPON- INNOVATOR NOT GIVEN /GE/ DATE- MAR. 1965
JPL-SC-072

Monitoring the oxygen level in the air is accomplished by a fuel cell detector whose voltage output is proportional to the partial pressure of oxygen in the sampled gas. The relationship between output voltage and partial pressure of oxygen can be calibrated.

B65-10067

SENSITIVE LEVEL SENSOR MADE WITH SPIRIT LEVEL, GIVES ELECTRICAL OUTPUT
BRYANT, E. L. DATE- MAR. 1965
LANGLEY-49

Sensor incorporating a circular spirit level, electrical lamp and two pairs of photocells, provides an electrical indication of flat surface level deviation.

B65-10068

AUTOMATIC THERMAL SWITCH ACCELERATES COOLING-DOWN OF CRYOGENIC SYSTEM
WIEBE, E. R. DATE- MAR. 1965
JPL-655

Automatic switch uses short stainless steel tube with copper heat sinks to accelerate helium gas cooling and provides good thermal conductivity and good thermal insulation.

B65-10069

FEEDBACK OSCILLATOR FUNCTIONS AS LOW-LEVEL PULSE STRETCHER
SPON- INNOVATOR NOT GIVEN /SPERRY RAND CORP./ DATE- MAR. 1965
GSFC-261

Low trigger pulses of the pulse stretcher circuit are obtained by forward biasing the transistor oscillator. The loop gain is kept below unity and prevents free-running oscillation. Two parallel feedback loops improve the stretching capabilities.

B65-10072

SYNCHRONIZED PULSE GENERATOR NEEDS NO EXTERNAL POWER
CANCRO, C. A. JANNICHE, P. J., JR. DATE- MAR. 1965
GSFC-274

Simple circuit with high input and low output impedance generates a fast rise-time pulse synchronized with an input pulse of slower rise and fall times. Circuit requires no external power.

B65-10073

SYSTEM MEASURES ANGULAR DISPLACEMENT WITHOUT CONTACT
DAVIS, W. T. DATE- MAR. 1965
LANGLEY-46

Optic system coupled to an electronic detection and measuring system converts angular movement of reflected light to a direct readout, without any direct contact with the object.

B65-10076

LIGHT-SENSITIVE POTENTIOMETER MEASURES PRODUCT OF TWO VARIABLES
HAERTSCH, O. C. DATE- MAR. 1965
GSFC-240

The output voltage from a photoconductive potentiometer circuit using a galvanometer mirror reflecting the light beam is directly proportional to the product of the input voltage.

B65-10079

PHOTOELECTRIC SENSOR OUTPUT CONTROLLED BY
EYEBALL MOVEMENTSSPON- INNOVATOR NOT GIVEN /SPACO/ DATE- MAR. 1965
M-PS-274

The difference between the infrared absorption of the iris and infrared reflectivity of the eyeball controls the operation of a device consisting of an infrared source and amplifier, a cadmium selenide infrared sensor, and an infrared filter.

B65-10080

PHASE DETECTOR CIRCUIT SYNTHESIZES OWN
REFERENCE SIGNALSPON- INNOVATOR NOT GIVEN /FAIRCHILD STRATOS
CORP./ DATE- MAR. 1965
M-PS-247

Circuit with isolation amplifier connected to a frequency multiplier and synchronous phase detector synthesizes the phase reference signal from the phase modulated input signal.

B65-10085

TRANSDUCER SENSES DISPLACEMENTS OF PANELS
SUBJECTED TO VIBRATIONPEA, R. O. DATE- MAR. 1965
ARC-37

Inductive vibration sensor measures the surface displacement of nonferrous metal panels subjected to vibration or flutter. This transducer does not make any physical contact with the test panel when measuring.

B65-10086

SYSTEM SELECTS FRAMING RATE FOR SPECTROGRAPH
CAMERASPON- INNOVATOR NOT GIVEN /AM. OPT. CO./ DATE-
MAR. 1965
LANGLEY-55

Circuit using zero-order light is reflected to a photomultiplier in the incoming radiation of a spectrograph monitor to provide an error signal which controls the advancing and driving rate of the film through the camera.

B65-10087

APPARATUS MEASURES SWELLING OF MEMBRANES IN
ELECTROCHEMICAL CELLSHENNIGAN, T. J. DATE- APR. 1965
GSFC-280

Apparatus consisting of a pressure plate unit, four springs of known spring constant and a micrometer measures the swelling and force exerted by the polymer membranes of alkaline electrochemical cells.

B65-10089

TRANSDUCER MEASURES TEMPERATURE DIFFERENTIALS
IN PRESENCE OF STRONG ELECTROMAGNETIC FIELDSSPON- INNOVATOR NOT GIVEN /AMES/ DATE- APR. 1965
ARC-27

Measurement of temperature rise of cooling water under pressure and in strong electromagnetic fields is accomplished by a transducer using a magnetically shielded thermocouple arrangement. The thermocouple junctions are immersed in oil to isolate them from electric currents in the water.

B65-10091

SIMULATOR PRODUCES PHYSIOLOGICAL WAVEFORMS

EKEROOT, S. DATE- MAR. 1965
MSC-94

Physiological waveform simulator is capable of producing signals to simulate an axillary and a sternal electrocardiogram, blood pressure, respiratory rate and body temperature. This may be used to check out bioinstrumentation.

B65-10093

COMPUTER PROGRAMS SIMPLIFY OPTICAL SYSTEM
ANALYSISSPON- INNOVATOR NOT GIVEN /HONEYWELL/ DATE- APR.
1965
GSFC-306

The optical ray-trace computer program performs geometrical ray tracing. The energy-trace program calculates the relative monochromatic flux density on a specific target area. This program uses the ray-trace program as a subroutine to

generate a representation of the optical system.

B65-10096

DIGITAL SYSTEM ACCURATELY CONTROLS VELOCITY
OF ELECTROMECHANICAL DRIVENICHOLS, G. B. DATE- APR. 1965
GSFC-287

Digital circuit accurately regulates electromechanical drive mechanism velocity. The gain and phase characteristics of digital circuits are relatively unimportant. Control accuracy depends only on the stability of the input signal frequency.

B65-10097

VARIABLE VOLTAGE SUPPLY USES ZENER DIODE AS
REFERENCEKLEINBERG, L. L. LAVIGNE, R. C. DATE- APR. 1965
GSFC-262

Using a zener diode as the reference element, a simple transistorized circuit provides a stable variable reference voltage.

B65-10102

SIMPLE CIRCUIT FUNCTIONS AS FREQUENCY
DISCRIMINATOR FOR PFM SIGNALSBILLINGSLEY, J. DATE- APR. 1965
GSFC-267

Simple circuit monitors the frequency of PFM /Pulse Frequency Modulated/ telemetry signals. This discriminator can be used as a constant current integrator in such circuits as linear sweep and time delay.

B65-10103

IMPROVED MAGNETOMETER USES TOROIDAL GATING
COILSPON- INNOVATOR NOT GIVEN /CORNELL UNIV./ DATE-
APR. 1965
GSFC-249

Improved magnetometer employs a cylindrical, high permeability magnetic core with a toroidal gating coil and a solenoid pickup coil. Flux interaction can be reduced by electrostatically shielding the pickup coil from the gating coil. The magnetometer principle can be applied to navigation devices.

B65-10105

VARIABLE LOAD AUTOMATICALLY TESTS DC POWER
SUPPLIESBURKE, R. C., JR. SULLIVAN, R. M. DATE- APR.
1965
GSFC-291

Continuously variable load automatically tests dc power supplies over an extended current range. External meters monitor current and voltage, and multipliers at the outputs facilitate plotting the power curve of the unit.

B65-10108

MAGNETIC FIELD CONTROLS CARBON ARC TAIL FLAME

SPON- INNOVATOR NOT GIVEN /RCA/ DATE- APR. 1965
MSC-139

Polarity of two electromagnets placed near the exhaust flue cancels out a high carbon-arc field. The arc tail flame is correctly drawn to the exhaust flue and contamination is diverted. This device should reduce maintenance cycles on any arc-powered illuminator.

B65-10112

UNIJUNCTION FREQUENCY DIVIDER IS FREE OF
BACKWARD LOADINGFAIRBANKS, A. F. DATE- APR. 1965
JPL-WOO-010

Simple frequency divider composed of relaxation oscillators uses unijunction transistors to reduce backward loading to a minimum. This circuit design is applicable in timing devices and sync generators for television systems.

B65-10118

TRANSISTORIZED CIRCUIT CLAMPS VOLTAGE WITH
0.1 PERCENT ERRORSPON- INNOVATOR NOT GIVEN /RCA/ DATE- APR. 1965
GSFC-196

Transistorized clamping circuit clamps either of two voltage levels to input of digital-to-analog

01 ELECTRICAL (ELECTRONIC)

resistive matrix with 0.1 percent error. Clamping circuit technique has analog, digital, and hybrid circuit applications.

B65-10119
VARIABLE FREQUENCY TRANSISTOR INVERTERS USE
MULTIPLE CORE TRANSFORMERS
SPON- INNOVATOR NOT GIVEN /DUKE UNIV./ DATE- APR.
1965
GSFC-183

Magnetic-coupled multivibrators containing two or more square-loop cores with multiple windings in a single transformer package, provide indirect frequency control and improved operational characteristics. This multivibrator can be used for power oscillators, nonlinear magnetic circuitry and telemetry circuits.

B65-10120
MULTIPLE TEST TUBES STIRRED MECHANICALLY
LEON, R. J. STRONG, I. J. DATE- APR. 1965
ABC-42

Mechanical device simultaneously stirs multiple test tubes under controlled laboratory conditions. The invention provides a variable stirring rate, minimal amount of contamination of tube contents, unattended and simple operation, and easy maintenance and cleaning.

B65-10123
EFFICIENT THIN FILM HEATING ELEMENT TAKES
MINIMUM SPACE
BUSCH, A. H. DATE- APR. 1965
GSFC-289

Light, thin-film heating element is formed by vacuum deposition of metal onto a nonconductive surface to be heated. This small-sized heater has a very fast response time.

B65-10124
VARIABLE FREQUENCY MAGNETIC MULTIVIBRATOR
GENERATES STABLE SQUARE-WAVE OUTPUT
PAULL, S. DATE- MAY 1965
GSFC-AE-21

Variable frequency magnetic multivibrator operates in a full wave fashion to provide a stable square wave output over wide variations in temperature and power supply potential. This invention is applicable in clocks and control devices.

B65-10125
SIMPLIFIED ELECTROMETER HAS EXCELLENT
OPERATING CHARACTERISTICS
BRANTNER, R. E. DATE- MAY 1965
JPL-413

Simplified and improved electrometer circuit provides high-input impedance, stability of gain and operating point, linear response, and low power requirements.

B65-10127
TRAVELING-WAVE TUBE CIRCUIT SIMPLIFIES
MICROWAVE RELAY
ALLEN, W. K. IPPOLITO, L. J. NACE, D. A. DATE-
MAY 1965
GSFC-299

Circuit with a sawtooth-modulated traveling-wave tube, which acts as a frequency converter and as an amplifier, simplifies microwave transmission. Lower power losses and reduced size and weight are also realized in this circuit.

B65-10128
PIEZORESISTIVE GAGE TESTS PIN-CONNECTOR
SOCKETS
BOND, W. W. DATE- MAY 1965
JPL-675

Connector pin consisting of a piezoresistive crystal, retainer spring and a bridge circuit with voltmeter is used to test connector sockets and may be adapted for multiple socket testing.

B65-10137
INSTRUMENT CALIBRATES LOW GAS-RATE FLOWMETERS
COPELAND, A. C. FULTON, W. C. SMITHER, M. A.
DATE- MAY 1965
MSC-134

Electronically measuring the transit time of a soap bubble carried by the gas stream between two

fixed points in a burette calibrates flowmeters used for measuring low gas-flow rates.

B65-10138
HIGH-GAIN AMPLIFIER HAS EXCELLENT STABILITY
AND LOW POWER CONSUMPTION
KLEINBERG, L. I. DATE- MAY 1965
GSFC-272

Transistorized amplifier, in which an external reference voltage controls gain, combines high gain with stability and low power consumption. This circuit is useful in electronic servo and portable audio equipment.

B65-10139
SPHERICAL ELECTRODE ELIMINATES HIGH-VOLTAGE
BREAKDOWN
FINKE, R. C. VETRONE, R. H. DATE- MAY 1965
LEWIS-155

Spherical electrodes surrounding electrode-dielectric junctions eliminate high-voltage breakdown. The gap between the spherical electrode and the dielectric must be of an optimum size for proper operation. Modified, this electrode should be suitable as a high-voltage feedthrough between various liquid and gaseous media.

B65-10142
AUXILIARY CIRCUIT ENABLES AUTOMATIC MONITORING
OF EKG'S
SPON- INNOVATOR NOT GIVEN /TEX. INST. FOR
REHABILITATION AND RES./ DATE- MAY 1965 REAN-
SEE ALSO B65-10143 AND B65-10010
MSC-106

Auxiliary circuits allow direct, automatic monitoring of electrocardiograms by digital computers. One noiseless square-wave output signal for each trigger pulse from an electrocardiogram preamplifier is produced. The circuit also permits automatic processing of cardiovascular data from analog tapes.

B65-10143
DIGITAL-OUTPUT CARDIOTACHOMETER MEASURES RAPID
CHANGES IN HEARTBEAT RATE
VICK, H. DATE- MAY 1965 REAN- SEE ALSO B65-10010
AND B65-10142
MSC-133

Cardiotachometer circuits produce an output voltage proportional to the heartbeat rate on a beat-by-beat basis. This is less complex and less costly than the digital cardiometers.

B65-10145
LOGARITHMIC AMPLIFIER USES FIELD EFFECT
TRANSISTORS
STEWART, J. L. DATE- MAY 1965
JPL-509

Solid-state amplifier utilizes field effect transistors and planar junction diodes to provide a logarithmic response to a wide range of input signals.

B65-10146
FREQUENCY OFFSET IN LINEAR FM/CW TRANSPONDER
ELIMINATES CLUTTER
SPON- INNOVATOR NOT GIVEN /MELPAR/ DATE- MAY
1965
M-FS-249

Clutter is eliminated by offsetting the frequency of a transponder signal with respect to an interrogation signal. This improves the tracking of aircraft and spacecraft by FM/CW transponders.

B65-10151
ROTOR POSITION SENSOR SWITCHES CURRENTS IN
BRUSHLESS DC MOTORS
SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC.
CORP./ DATE- MAY 1965
GSFC-315

Reluctance switch incorporated in an induction motor is used for sensing rotor position and switching armature circuits in a brushless dc motor. This device drives the solar array system of an unmanned space satellite.

B65-10152
CIRCUIT REDUCES DISTORTION OF FM MODULATOR

SPON- INNOVATOR NOT GIVEN /RCA/ DATE- MAY 1965
GSFC-257

Correction circuit improves the linearity of a voltage-variable capacitor used to modulate a free-running oscillator. This improvement only applies to audio frequency modulation and will not correct for slowly varying dc input in some telemetry systems.

B65-10158

LASER BEAM TRANSMITS ELECTRIC POWER

SPON- INNOVATOR NOT GIVEN /RCA/ DATE- JUN. 1965
GSFC-293

Semiconductor laser beam supplies sustained level of electrical power to remote location not served by conventional conductors. This system would be useful where transmission of energy is critical, such as in nuclear reactors, or other hazardous environments.

B65-10159

SOLID-STATE SWITCHING USED TO SPEED UP CAPACITIVE INTEGRATOR

NEWCOMB, A. L., JR. DATE- JUN. 1965

LANGLEY-104

Capacitive integrator circuit using Silicon Controlled Switches /SCS/ insures output voltage linearly proportional to input pulse width. This circuit provides high input impedance and relatively low output impedance.

B65-10161

INTERFEROMETER COMBINES LASER LIGHT SOURCE AND DIGITAL COUNTING SYSTEM

SPON- INNOVATOR NOT GIVEN /MIT/ DATE- JUN. 1965
MSC-151

Measurement of small linear displacements in digital readouts with extreme accuracy and sensitivity is achieved by an interferometer. The instrument combines a digital electro-optical fringe-counting system and a laser light source.

B65-10165

SUPERCONDUCTOR MAGNETS USED FOR STAGGER-TUNING TRAVELING-WAVE MASER

SPON- INNOVATOR NOT GIVEN /RCA/ DATE- JUN. 1965
GSFC-292

Superconducting materials reduce size and weight of magnets used for stagger-tuning individual traveling-wave maser crystals. The invention is useful in microwave communication systems requiring a high information rate.

B65-10169

PHASE SHIFT FREQUENCY SYNTHESIZER IS EFFICIENT, SMALL IN SIZE

SPON- INNOVATOR NOT GIVEN /SPACE TECHNOL. LABS./ DATE- JUN. 1965

M-FS-250

Phase shift frequency synthesizer produces suppressed-carrier signals at the sum and difference frequencies. All unwanted frequencies are suppressed by this small-sized synthesizer.

B65-10178

DC TO AC CONVERTER OPERATES EFFICIENTLY AT LOW INPUT VOLTAGES

SPON- INNOVATOR NOT GIVEN /DUKE UNIV./ DATE- JUN. 1965

GSFC-130

Self-oscillating dc to ac converter with transistor switching to produce a square wave output is used for low and high voltage power sources. The converter has a high efficiency throughout a wide range of loads.

B65-10182

FORCE CONTROLLED SOLENOID DRIVES MICROWELD TESTER

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- JUN. 1965

WOO-125

Solenoid-driven device tests the integrity of a microweld joint between an electronic component lead wire and a wire ribbon by applying tension stress to the joint. Variable measured force is provided when either destructive or nondestructive testing is performed.

B65-10183

MODIFIED INTERELEMENT SPACING IMPROVES YAGI ANTENNA ARRAY

BECK, F. B. DATE- JUN. 1965

LANGLEY-130

Symmetrical antenna array is designed by adjusting the Yagi disk interelement spacing so that the grating lobe of the array factor coincides with the first sidelobe of the element pattern.

B65-10184

PRESSURE SENSOR RESPONDS ONLY TO SHOCK WAVE

SPON- INNOVATOR NOT GIVEN /BOEING CO./ DATE- JUN. 1965

M-FS-238

Pressure sensor responds only to high pressure crest of a shock wave, and will not respond to conditions of overpressure. The sensor uses plates of a battery to produce voltage output used to actuate an alarm signal or crew escape system.

B65-10187

CRYSTAL MEASURES-SHORT TERM, LARGE-MAGNITUDE FORCES

PFEIFFER, C. G. DATE- JUN. 1965

JPL-77

By using the magnitude of piezoelectric crystal response to distortion and compression, this device measures transient accelerations and their rate of change. The invention could be used in a servo control system by supplementing the accelerometer and taking over its function when its range was exceeded.

B65-10193

LOGIC CIRCUIT EXHIBITS OPTIMUM PERFORMANCE

HUSSON, C. DATE- JUN. 1965

LANGLEY-129

Performance of circuits are compared to determine the optimum circuit configuration for implementation into microelectronic functions. Comparison is made in terms of power drain, propagation time, and component variations with temperature and load.

B65-10194

ANALOG-TO-DIGITAL CONVERTER HAS INCREASED RELIABILITY AND REDUCED POWER CONSUMPTION

THORNWALL, J. C. DATE- JUN. 1965

GSFC-246

Eight-bit analog-to-digital converter decreases average power consumption and increases component reliability. The converter uses solid-state components in pulse operation and magnetic core components for minimizing power consumption. The magnetic core components also increase reliability.

B65-10195

DEVICE MEASURES FLUID DRAG ON TEST VEHICLES

FREEMAN, R. JUDD, J. H. LEISS, A. DATE- JUN. 1965

LANGLEY-34

Electromechanical drag balance device measures the aerodynamic drag force acting on a vehicle as it moves through the atmosphere and telemeters the data to a remote receiving station. This device is also used for testing the hydrodynamic drag characteristics of underwater vehicles.

B65-10196

INEXPENSIVE ELECTRICAL CONNECTOR IS MOISTURE AND CORROSION PROOF

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- JUN. 1965

MSC-164

Compression-sealed electrical connector made principally of plastic components is used in a corrosive atmosphere. This inexpensive and moistureproof connector can be modified to provide a multiple-pin connector.

B65-10197

IMPROVED SOLDERLESS CONNECTOR IS EASILY DISCONNECTED

SPON- INNOVATOR NOT GIVEN /HUGHES AIRCRAFT CO./ DATE- JUN. 1965

JPL-SC-060

Compression type solderless connector is easily

01 ELECTRICAL (ELECTRONIC)

disconnected and reassembled and resists vibration. The connector, which uses a tapered split sleeve that is tightened by a nut into a mating bug, is used in place of standard solder lugs and to connect unsolderable wire.

B65-10199
MODULAR THERMOELECTRIC CELL IS EASILY PACKAGED
IN VARIOUS ARRAYS
 EPSTEIN, J. DATE- JUN. 1965
 GSFC-339

Modular thermoelectric cells are easily packaged in various arrays to form power supplies and have desirable voltage and current output characteristics. The cells employ two pairs of thermoelectric elements, each pair being connected in parallel between two sets of aluminum plates. They can be used as solar energy conversion devices.

B65-10200
DENSITY TRACE MADE WITH COMPUTER PRINTOUT
 WILSON, M. DATE- JUN. 1965
 GSFC-322

Special drum for a computer-controlled printer improves density trace of scientific data. The drum provides uniformly shaped characters and evenly spaced variations of print density that precisely reflect data magnitude. This device plots temperature profiles, geographic contours, pressure gradients, electric potential gradients, and magnetic field configurations.

B65-10202
QUICK-DISCONNECT COUPLING PROVIDES SAFE
TRANSFER OF HAZARDOUS FLUIDS
 DE WITT, R. L. SCHMIDT, H. W. DATE- JUN. 1965
 LEWIS-125

Quick-disconnect coupling is used for uncoupling of plumbing during ground-to-vehicle transfer of cryogenic and hazardous fluids. The coupling allows remote positive control of liquid pressure and flow during the transfer operation, remote connection and separation capabilities, and negligible liquid spillage upon disconnection.

B65-10203
TINY BIOMEDICAL AMPLIFIER COMBINES HIGH
PERFORMANCE, LOW POWER DRAIN
 DEBOO, G. J. DATE- JUL. 1965
 ARC-41

Transistorized, portable, high performance amplifier with low power drain facilitates biomedical studies on mobile subjects. This device, which utilizes a differential input to obtain a common-mode rejection, is used for amplifying electrocardiogram and electromyogram signals.

B65-10204
VOLTAGE VARIABLE OSCILLATOR HAS HIGH PHASE
STABILITY
 HEARN, C. P. DATE- JUL. 1965
 LANGLEY-123

Two or more series RLC circuits are used with a negative feedback amplifier to make a voltage variable oscillator. This combination results in high phase stability and optimum frequency modulation.

B65-10206
SENSITIVE ELECTROMETER FEATURES DIGITAL
OUTPUT
 DOONG, H. DATE- JUL. 1965
 GSFC-288

Four-stage transistorized electrometer eliminates the need for a logarithmic compression network. It measures very low currents and produces a digital output directly indicative of the input current magnitude.

B65-10208
HYBRID COMPUTER TECHNIQUE YIELDS RANDOM
SIGNAL PROBABILITY DISTRIBUTIONS
 CAMEBON, W. D. DATE- JUL. 1965
 ABC-34

Hybrid computer determines the probability distributions of instantaneous and peak amplitudes of random signals. This combined digital and

analog computer system reduces the errors and delays of manual data analysis.

B65-10209
OSCILLATOR CIRCUIT MEASURES LIQUID LEVEL IN
TANKS
 SPON- INNOVATOR NOT GIVEN /IBM/ DATE- JUL. 1965
 M-FS-245

Oscillator circuits automatically measure the liquid level in tanks. The circuit employs a twin transmission line as a liquid level probe.

B65-10212
DETECTOR CIRCUIT COMPENSATES FOR VIDICON BEAM
CURRENT VARIATIONS
 SPON- INNOVATOR NOT GIVEN /RCA/ DATE- JUL. 1965
 GSFC-310

Signal detector circuit compensates for black level shifts in vidicons by dark current cancellation. It clamps the video signal to the dark current component of the signal. The device also compensates for background noise variation or transducer bias fluctuations in other repetitive pulse systems.

B65-10213
MULTIAXIAL ANALYZER DETECTS LOW-ENERGY
ELECTRONS
 LIND, D. L. OGILVIE, K. W. WILKERSON, T. D.
 DATE- JUL. 1965
 GSFC-329

Three curved plate energy analyzers coupled with three electron multiplier tubes detect and measure low energy electron flux in several directions simultaneously.

B65-10215
ELECTRICAL PROBE ENSURES RELIABLE CONTACT IN
SOCKET
 SPON- INNOVATOR NOT GIVEN /IBM/ DATE- JUL. 1965
 M-FS-315

Spring-loaded probe makes a reliable electrical contact by producing a circular wiping motion at the tip when inserted into a mating socket.

B65-10218
GRAPHITE ELEMENT SERVES AS RADIANT HEAT SOURCE
 DATE- JUL. 1965
 M-FS-105

Radiators using a graphite heating element as a radiant heat source have high heat flux and long operational lives. They are used to test the thermal resistance of materials.

B65-10221
INSTRUMENT ACCURATELY MEASURES EXTREMELY LOW
AIR DENSITIES
 SPON- INNOVATOR NOT GIVEN /ELECTRO-OPTICAL
 SYSTEMS/ DATE- AUG. 1965
 M-FS-193

Gauge accurately measures low air densities in high-vacuum systems. It relies on the detection of near-visible light radiated from nitrogen molecules present in the system.

B65-10223
VOLTAGE CONTROLLED OSCILLATOR IS EASILY
ALIGNED, HAS LOW PHASE NOISE
 SYDNOR, R. L. DATE- AUG. 1965
 JPL-510

Voltage Controlled Oscillator /VCO/, represented by an equivalent RF circuit, is easily adjusted for optimum performance by varying the circuit parameter. It contains a crystal drive level which is also easily adjusted to obtain minimum phase noise.

B65-10225
SIMPLE BCD CIRCUIT ACCURATELY COUNTS TO 24
 SPAFFORD, M. L. DATE- AUG. 1965
 GSFC-317

Ripple-through counter with divide-by-24 output pulse is used in digital control clocks to register hours and give a daily output signal. It uses commercially available digital modules that incorporate and/gates with flip-flops.

B65-10226
MAGNETIC-SHIFT-REGISTER CIRCUIT CONTROLS STEP

MOTOR OPERATION

VEILLETTE, L. J. DATE- AUG. 1965
GSFC-340

Magnetic-shift-register circuit controls bidirectional operations of a phase-pulsed step motor. The circuit draws no power in standby, is nonregenerative, and is insensitive to switching transients.

B65-10228

SIMPLE CIRCUIT PRODUCES HIGH-SPEED, FIXED DURATION PULSES

GARRAHAN, N. M. DATE- AUG. 1965
GSFC-285

Circuit generates an output pulse of fixed width from a variable width input pulse. The circuit consists of a tunnel diode in parallel with an inductance driven by a constant current generator. It is used for pulsed communication equipment design.

B65-10232

FIELD EFFECT TRANSISTOR PRESENTS HIGH INPUT IMPEDANCE IN AC AMPLIFIER

MARSHALL, J. H. DATE- AUG. 1965
JPL-500

Four-stage transistorized ac amplifier provides high input impedance and operates at low intrinsic noise levels. It is suited to carrier or narrow band sine wave applications.

B65-10233

HIGH-SPEED SQUARE-WAVE CURRENT LIMITER OPERATES EFFICIENTLY

SPON- INNOVATOR NOT GIVEN /LABKO SCI./ DATE- AUG. 1965

JPL-SC-073

Transistorized high speed circuit limits currents from a square-wave ac power supply. The current limiter resets after each half cycle of the square wave and thus minimizes power losses.

B65-10234

SIMPLE CIRCUIT REDUCES TRANSISTOR SWITCHING TIME

SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ DATE- AUG. 1965
GSFC-314

Silicon-Controlled Rectifier /SCR/, gated by a voltage divider, controls the potentiometer in transistorized switching circuits. The SCR acts as a gate to trigger the switching transistor only when the input signal reaches an amplitude that will switch the transistor rapidly.

B65-10237

BRUSHLESS DC MOTOR USES ELECTRON BEAM SWITCHING TUBE AS COMMUTATOR

STUDER, P. DATE- AUG. 1965
GSFC-345

Electron beam switching tube eliminates physical contact between rotor and stator in brushless dc motor. The tube and associated circuitry control the output of a dc source to sequentially energize the motor stator windings.

B65-10238

SOLID-STATE LASER TRANSMITTER IS AMPLITUDE MODULATED

BILDERBACK, R. DATE- AUG. 1965
MSC-121

Amplitude modulated laser transmitter affords radio frequencies unlimited bandwidth. The system, which is solid state and compact, uses a gallium arsenide diode that emits in the near infrared.

B65-10242

ELECTROMETER HAS AUTOMATIC ZERO BIAS CONTROL

SPON- INNOVATOR NOT GIVEN /APPLIED PHYSICS CORP./ DATE- AUG. 1965
GSFC-350

Zero biasing circuit in a vibrating reed type electrometer counterbalances residual potential. It charges a capacitor to the residual potential and connects that capacitor in series with the vibrating reed so that the voltages cancel. This enables the electrometer to read zero output potential in the absence of an input current.

B65-10243

NOVEL PROBE SIMPLIFIES ELECTRONIC COMPONENT TESTING

SYNER, W. F. DATE- AUG. 1965
GSFC-342

Test probe, in conjunction with standard equipment, tests axial-lead electronic components in their original packages. The probe can be modified to test any electronic component with automatic or nonautomatic equipment.

B65-10244

LIGHTWEIGHT COAXIAL CABLE CONNECTOR REDUCES SIGNAL LOSS

BREJCHA, A. G., JR. DATE- AUG. 1965
JPL-720

Connectors with milled interface surfaces for perfect electrical contact eliminate secondary-emission discharge and low signal loss in RF coaxial cables. The connectors which contain alignment and centering components for proper joint concentricity are used in communications systems designs.

B65-10247

SERVO CALORIMETER MEASURES MATERIAL HEATING RATE

GILMOUR, G. WILSON, J. H. /WESTINGHOUSE ELEC. CORP./ DATE- AUG. 1965
NU-0024

Servo calorimeter accurately measures the heating rate of a material exposed to nuclear radiation independently of the specific heat thermal conductivity of the material. The electrical power used is a direct measure of the nuclear heating rate.

B65-10249

MANUAL-FEED ADAPTER PERMITS MICROFILMING OF CONTINUOUS OSCILLOGRAPH OUTPUT

BENNETT, J. /WESTINGHOUSE ELEC. CORP./ DATE- AUG. 1965
NU-0029

A manual-feed adapter used with a microfilm recording unit permits continuous filming and reduces oscillograph output to manageable dimensions.

B65-10255

BORON TRIFLUORIDE NUCLEAR DETECTOR

PREAMPLIFIER USES SINGLE-CABLE CONNECTION

HECKELMAN, J. D. SHUMAKER, R. E. DATE- AUG. 1965
LEWIS-178

Preamplifier for a nuclear particle detector operates with a single interconnecting cable. Isolating and bypass networks permit this single cable operation.

B65-10257

INDUCTOR FLYBACK CHARACTERISTIC GIVES VOLTAGE

REGULATOR FAST RESPONSE

SMITH, G. D. DATE- AUG. 1965
GSFC-361

Voltage regulator alternately connects an inductor in parallel and in series with the input voltage source. This flyback voltage regulator provides a regulated dc voltage to varying loads from a varying dc supply and gives fast response to load and supply changes.

B65-10258

GAPPED TOROID PROVIDES INFINITE RESOLUTION

OF DELAY-LINE PICKUP

ROBINSON, G. B. DATE- AUG. 1965
GSFC-370

Gapped toroid magnetically coupled to a delay line provides continuous adjustment of the time delay line signal retrieval. A rotating screw moves the toroid pickup parallel to the delay line. This device can be used in signal detection devices and instrumentation equipment.

B65-10259

INCREASED JUNCTION LEAD INDUCTANCE BALLASTS

HIGH-FREQUENCY TRANSISTORS

GILBERT, G. J. /RCA/ DATE- SEP. 1965
GSFC-387

Segmentation of transistor bonding stripes and the inherent inductance of individual leads provides

01 ELECTRICAL (ELECTRONIC)

ballast for even current distribution across the junction of a high-frequency transistor.

B65-10260
SIMPLE PULSE COUNTING CIRCUIT COMPUTES SUM OF SQUARES
SCHAEFER, D. H. DATE- SEP. 1965
GSFC-391

Pulse counting circuit with an extra chain of flip-flops, delay lines, and gates computes the sum of the squares of the pulse sequences. A pulse train and the sum of the squares of the pulses are simultaneously completed.

B65-10263
INDEXING DEVICE ENSURES PROPER MATING OF ELECTRICAL CONNECTORS
JENKINS, L. M. SIMMONS, W. H. DATE- SEP. 1965
MSC-155

Indexing splines with modified standard male and female connectors eliminates the possibility of incorrect mating. Large stock quantities of differently indexed connectors are unnecessary since connectors from a single stock can be indexed as desired at installation time.

B65-10264
PLASTIC BAGS IN EVACUATED CHAMBER MAKE LIGHTWEIGHT GAS SAMPLING SYSTEM
SHAFFERNOCKER, W. M. /GE/ DATE- SEP. 1965
PRC-31

Portable, lightweight system collects the exhaust gas of an aircraft during flight for use in analyzing combustion efficiency. The system uses an evacuated chamber and plastic bags.

B65-10265
WELD LEAKS RAPIDLY AND SAFELY DETECTED
SPON- INNOVATOR NOT GIVEN /BOEING CO./ DATE- SEP. 1965
M-FS-362

Test method detects leaks that occur during hydrostatic pressure testing of welded joints in metal tanks. A strip of aluminum foil and a strip of water-soluble paper are placed over the weld. A voltage applied between the tank wall and the foil strip is monitored to detect a decrease in ohmic resistance caused by water leakage into the paper layer.

B65-10267
ELECTROMETER PREAMPLIFIER HAS DRIFT CORRECTION FEEDBACK
LABARTHE, L. C. /LABKO SCI./ DATE- SEP. 1965
JPL-SC-074

Negative feedback circuit corrects output drift in an electrometer. The negative feedback is used in the no signal state to maintain the output level at zero reference. Drift voltage storage in the signal on state is also used to provide a drift-free readout.

B65-10268
MULTIPLE TEST CHAMBER EXPOSES MATERIALS TO VARIOUS ENVIRONMENTS
JOHNSTON, R. L. DATE- SEP. 1965
MSC-179

Multiple compartment test chamber exposes several material specimens to various environmental conditions for prolonged periods. The specimens are individually mounted in chamber compartments, rotated to various positions, and measured through optical windows to determine progressive changes in the material properties.

B65-10269
SAMPLE DEVICE PRODUCES ACCELEROMETER CALIBRATION PULSE
SPON- INNOVATOR NOT GIVEN /LOCKHEED MISSILES AND SPACE CO./ DATE- SEP. 1965
M-FS-363

Shock-impulse exciter produces a remote checkout of the amplitude calibration and frequency response of a piezoelectric vibration accelerometer. The exciter employs a bimetal spring to apply a mechanical acceleration pulse of a known amplitude and frequency to the accelerometer.

B65-10271
COMPOSITE SEAL REDUCES ALKALINE BATTERY LEAKAGE
CLATTERBUCK, C. H. PLITT, K. P. DATE- SEP. 1965
GSFC-337

Composite seal consisting of rubber or plastic washers and a metal washer reduces alkaline battery leakage. Adhesive is applied to each washer interface, and the washers are held together mechanically.

B65-10273
ELECTROMECHANICAL FLOWMETER ACCURATELY MONITORS FLUID FLOW
GRANT, D. J. DATE- SEP. 1965
GSFC-357

Electromechanical flowmeter remotely and accurately monitors the flow rate and total volume of a transparent liquid discharged from a dispensing system. A dual dispensing tube system provides a relative reference level which permits compensation for temperature variations.

B65-10274
ELECTRONIC OHMMETER PROVIDES DIRECT DIGITAL OUTPUT
SEMYAN, J. DATE- SEP. 1965
GSFC-363

Self-balancing wheatstone bridge acts as all-electronic digital readout ohmmeter.

B65-10275
IMPROVED CIRCUIT MINIMIZES GENERATION TIME OF PSEUDONOISE CHECK BITS
ANDERSON, T. O. LUSBAUGH, W. A. DATE- SEP. 1965
JPL-698

Computer switching network consists of parallel and series combinations of mod 2 adders using the minimum number of gating levels. This network minimizes the propagation time in which a sequence of pseudonoise check bits are generated.

B65-10276
ADDED DIOXIDES INCREASE OUTPUT OF BALANCED MIXER CIRCUIT
ROBINSON, G. B. DATE- SEP. 1965
GSFC-354

Two diodes added to a conventional balanced mixer circuit increase the output signal level. The resulting half-wave carrier switch balanced modulator is used in radio equipment.

B65-10277
NONLINEAR FEEDBACK REDUCES ANALOG-TO-DIGITAL CONVERTER ERROR
MUNOZ, R. M. DATE- SEP. 1965
ARC-46

Nonlinear analog-to-digital converter measures the analog input level and continuously adjusts the digital readout scale sensitivity to effectively increase the accuracy. It is able to acquire more accurate low-level data.

B65-10278
MODIFIED DEVELOPER INCREASES LINE RESOLUTION IN PHOTSENSITIVE RESIST
SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ DATE- SEP. 1965
GSFC-386

Standard developer solution is mixed with dipropyl carbonate. This reduces swelling in the photosensitive resist and permits application of relatively thick films with minimal pinhole formation and increased line resolution.

B65-10279
INFLATABLE BLADDER PROVIDES ACCURATE CALIBRATION OF PRESSURE SWITCH
SMITH, N. J. /BOEING CO./ DATE- SEP. 1965
M-FS-367

Calibration of a pressure switch is accurately checked by a thin-walled circular bladder. It is placed in the pressure switch and applies force to the switch diaphragm when expanded by an external pressure source. The disturbance to the normal operation of the switch is minimal.

B65-10281
CIRCUIT MAINTAINS DIGITAL DECISION THRESHOLD

AT PRESET LEVEL

SPON- INNOVATOR NOT GIVEN /AVCO CORP./ DATE- SEP. 1965

M-PS-331

Optimum decision-level circuit maintains the decision threshold at any preselected percentage of the input-signal amplitude. Communications equipment involving recognition of transmitted digital information can benefit from this circuit.

B65-10282

CONSTANT-CURRENT REGULATOR IMPROVES TUNNEL DIODE THRESHOLD-DETECTOR PERFORMANCE

CANCRO, C. A. DATE- SEP. 1965

GSFC-239

Grounded-base transistor is placed in a tunnel diode threshold detector circuit, and a bias voltage is applied to the tunnel diode. This provides the threshold detector with maximum voltage output and overload protection.

B65-10284

FIELD-EFFECT TRANSISTOR REPLACES BULKY TRANSFORMER IN ANALOG-GATE CIRCUIT

SPON- INNOVATOR NOT GIVEN /RADIATION, INC./ DATE- SEP. 1965

GSFC-351

Metal-Oxide Semiconductor Field-Effect Transistor /MOSFET/ analog-gate circuit adapts well to integrated circuits. It provides better system isolation than a transformer, while size and weight are appreciably reduced.

B65-10286

UPPERCASE AND LOWERCASE COMPUTER PRINTOUT INCREASES READABILITY

HAND, W. W. /DOC., INC./ JONSBURG, M. B. DATE- SEP. 1965

HQ-12

Print chain of 120 characters facilitates production of computer printout in both uppercase and lowercase characters. Although the output speed is reduced, the use of the print chain increases the computer printout readability.

B65-10287

PHOTORESISTANCE ANALOG MULTIPLIER HAS WIDE RANGE

HARTENSTEIN, R. G. DATE- SEP. 1965

GSFC-360

Photoactivated bridge facilitates equal performance of analog multipliers over a wide frequency range. The multiplier operates from direct current to an upper frequency limited by either the light source or the closed-loop amplifier.

B65-10289

BORON NITRIDE HOUSING COOLS TRANSISTORS

SPON- INNOVATOR NOT GIVEN /SPACE TECHNOL. LABS./ DATE- SEP. 1965 REAN- SEE ALSO B63-10033 AND

B65-10186

WOO-079

Boron nitride ceramic heat sink cools transistors in r-f transmitter and receiver circuits. Heat dissipated by the transistor is conducted by the boron nitride housing to the metal chassis on which it is mounted.

B65-10290

FM/CW SYSTEM MEASURES AIRCRAFT ATTITUDE

SPON- INNOVATOR NOT GIVEN /MELPAR/ DATE- SEP. 1965

M-PS-276

FM/CW radar system measures attitude of an approaching aircraft relative to a ground station. The FM/CW transmitter on board the aircraft transmits through two antennas to a ground-based receiver.

B65-10293

ELECTROSTATICALLY DRIVEN DYNAMIC CAPACITOR EMPLOYS CAPACITIVE FEEDBACK

LONBORG, J. O. DATE- OCT. 1965

JPL-771

Three-part signal electrode provides capacitive feedback to an oscillator driven dynamic capacitor in an electrometer circuit.

B65-10298

TITANIUM DIAPHRAGM MAKES EXCELLENT AMPLITRON CATHODE SUPPORT

TEICH, W. W. /RAYTHEON CO./ DATE- OCT. 1965

GSFC-394

Cathode support structure designed around a titanium diaphragm prevents radial misalignment between the cathode and anode in amplitrons. The titanium exhibits low thermal conductivity, tolerates lateral thermal expansion of the cathode, and is a poor primary and secondary emission medium.

B65-10299

ELECTROPNEUMATIC RHEOSTAT REGULATES HIGH CURRENT

HAACKER, J. P. JEDLICKA, J. R. WAGONER, C. B. DATE- OCT. 1965

ARC-44

Electropneumatic rheostat maintains a constant direct current in each of several high-power parallel loads, of variable resistance, across a single source. It provides current regulation at any preset value by dissipating the proper amount of energy thermally, and uses a column of mercury to vary the effective length of a resistance element.

B65-10300

IMPURITY DIFFUSION PROCESS FOR SILICON SEMICONDUCTORS IS FAST AND PRECISE

MC LOUSKI, R. M. MC LOUSKI, R. M. SKOUSON, G. W. /WESTINGHOUSE ELEC. CORP./ DATE- OCT. 1965

GSFC-397

Impurity diffusion process produces precision silicon semiconductor junctions economically and fast. Oxide is deposited on a silicon wafer and a controlled concentration of impurity atoms in gaseous form is simultaneously introduced into the reaction.

B65-10301

REMOTE RAPIDLY VARYING PRESSURES ACCURATELY MEASURED

SPON- INNOVATOR NOT GIVEN /GE/ DATE- OCT. 1965

FRC-28

Transmitting-damping tube with one end closed, the other open to a pressure source, has a pressure sensor connected to a port close to the pressure source. This accurately measures transient or rapidly varying fluid pressures.

B65-10304

IMPROVED STRAIN-WIRE FLOWMETER HAS FAST RESPONSE TIME

DILLON, R. C. DUNBAR, W. R. DATE- OCT. 1965

LEWIS-241

Strain-sensitive resistance wires in a Wheatstone bridge arrangement form the sensing element of a flowmeter. The change in resistance of the wires is measured as a function of stream velocity. Thus the electrical output is a measure of both rapidly varying and steady fluid-flow rates.

B65-10305

THIN-FILM RESISTORS USED IN FUNCTIONAL ELECTRONIC BLOCKS

SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ DATE- OCT. 1965

GSFC-380

Vapor-deposited thin-film resistors replace diffused resistors in R-C tank circuits in a solid state electronic block. This allows an optimum parallel capacitance to be obtained for circuit applications requiring a high resistance and a low capacitance.

B65-10306

OPAQUE MICROFICHE MASTHEAD PERMITS EASY READING

LOWE, E. M. /DOC., INC./ DATE- OCT. 1965

HQ-7

White-pigmented backing applied to the reverse side of microfiche mastheads makes the area opaque and easily readable. This technique is of value for organizations involved in large volume information storage and retrieval.

01 ELECTRICAL (ELECTRONIC)

B65-10307

FREQUENCY CORRECTION DEVICE USES DIGITAL CIRCUITRY
SCHAEFER, D. DATE- OCT. 1965
GSFC-268

Signal acquisition and tracking system covering a wide range of frequencies uses a digital circuit to sample the frequency of an incoming signal and provide correction pulses to the voltage-controlled oscillator. The circuit can also sense the presence of a signal on any one of the input lines.

B65-10308

ELECTRONIC AMPERE-HOUR INTEGRATOR IS ACCURATE TO ONE PERCENT
PAULKOVICH, J. DATE- OCT. 1965
GSFC-203

Electronic ampere-hour integrator is based on current-to-frequency conversion. It operates on low power and is accurate to one percent. This device can measure the ampere-hour capacity of batteries and can be adapted for other functions.

B65-10309

THERMOELECTRIC ELEMENTS DIFFUSION-BONDED TO TUNGSTEN ELECTRODES
SPON- INNOVATOR NOT GIVEN /TYCO LABS./ DATE- OCT. 1965 REAN- SEE ALSO B65-10220
GSFC-346

Solid-state diffusion process bonds lead telluride and lead telluride-tin telluride thermoelectric elements to tungsten electrodes. The resulting bond is nonmagnetic and has high strength and low electrical and thermal resistance. This method is also used with tantalum electrodes.

B65-10310

THRESHOLD DETECTOR PRODUCES NARROW PULSES AT HIGH REPETITION RATES
GARRAHAN, N. M. DATE- OCT. 1965
GSFC-383

Solid state device generates fixed width output pulses from variable width input pulses in the nanosecond range. The circuit produces pulse repetition rates in the megacycle range and exhibits low power drain.

B65-10311

PCM MAGNETIC TAPE SYSTEM EFFICIENTLY RECORDS AND REPRODUCES DATA
COLE, P. T. DATE- OCT. 1965
GSFC-375

Split-phase PCM technique consists of data and clock signal recording and reproduction systems. This PCM magnetic tape system achieves a high packing density on the tape and provides a symmetrical reproduction of the recorded signal.

B65-10313

PLANETARY CAMERA CONTROL IMPROVES MICROFICHE PRODUCTION
CHESTERTON, W. L. LEWIS, E. B. /DOC., INC./ DATE- OCT. 1965
HQ-1 HQ-5

Microfiche is prepared using an automatic control system for a planetary camera. The system provides blank end-of-row exposures and signals card completion so the legend of the next card may be photographed.

B65-10314

HYBRID CIRCUIT ACHIEVES PULSE REGENERATION WITH LOW POWER DRAIN
CANCRO, C. A. DATE- OCT. 1965
GSFC-382

Hybrid tunnel diode-transistor circuit provides a solid-state, low power drain pulse regenerator, frequency limiter, or gated oscillator. When the feedback voltage exceeds the input voltage, the circuit functions as a pulse normalizer or a frequency limiter. If the circuit is direct coupled, it functions as a gated oscillator.

B65-10315

MAGNETOMETER MEASURES ORTHOGONAL COMPONENTS OF MAGNETIC FIELDS
SPON- INNOVATOR NOT GIVEN /SPECTRA PHYS./ DATE- OCT. 1965

GSFC-395

Driven magnetometer accurately measures the components of a low strength magnetic field in each of three mutually perpendicular directions. To accomplish this, it employs the principle of magnetic resonance in optically pumped rubidium vapor.

B65-10317

INSTRUMENT PERFORMS NONDESTRUCTIVE CHEMICAL ANALYSIS, DATA CAN BE TELEMETERED
TURKEVICH, A. /CHICAGO UNIV./ DATE- OCT. 1965
JPL-SC-078

Instrument automatically performs a nondestructive chemical analysis of surfaces and transmits the data in the form of electronic signals. It employs solid-state nuclear particle detectors with a charged nuclear particle source and an electronic pulse-height analyzer.

B65-10318

REMOTE CONTROL ELECTRICAL SWITCHING SYSTEM HAS 1000-OUTPUT CAPABILITY
SPON- INNOVATOR NOT GIVEN /IBM/ DATE- OCT. 1965
M-FS-380

Electromechanical remote control system has a capacity of 1000 individual on-off functions yet uses only seven pairs of telephone-type lines for interconnection. Installation and maintenance costs are decreased by using this system.

B65-10320

RUGGED PRESSED DISK ELECTRODE HAS LOW CONTACT POTENTIAL
DAY, J. L. MOSIER, B. /INST. OF RES. AND INSTRUMENTATION/ DATE- OCT. 1965 REAN- SEE ALSO B64-10025
MSC-158

Pressed-disk electrode with low contact potential monitors physiological processes. It consists of silver and silver chloride combined with bentonitic clay. The clay affords a surface that permits use over extended periods without contact deterioration.

B65-10322

CAM-OPERATED LIMIT SWITCH FEATURES SAFE FUSE REPLACEMENT
WEBER, G. J. /MCDONNELL AIRCRAFT CORP./ DATE- OCT. 1965
MSC-218

Two hermetically sealed, short travel, limit switches permit fuse replacement without danger of a spark or arcing. The switches are wired in parallel circuits and actuated by manually operated cams containing the circuit fuses.

B65-10324

SELENIUM BOND DECREASES ON RESISTANCE OF LIGHT-ACTIVATED SWITCH
SPON- INNOVATOR NOT GIVEN /IBM/ DATE- NOV. 1965
JPL-SC-101

Vitrified amorphous selenium bond decreases the ON resistance of a gallium arsenide-silicon light-activated, low-level switch. The switch is used under a pulse condition to prolong switch life and minimize errors due to heating, devitrification, and overdrawing.

B65-10325

DIRECT FORCE-MEASURING TRANSDUCER USED IN BLOOD PRESSURE RESEARCH
EIGE, J. J. /STANFORD RES. INST./ NEWGARD, P. M. PRESSMAN, G. L. DATE- NOV. 1965
ARC-53

Direct force measuring transducer acts as an arterial tonometer, gives a direct readout to instrumentation, and is unaffected by ambient noise. It uses a semiconductor strain gage which is deflected by pressure pulses in the artery. The deflection changes the resistance of the gage and alters the voltage reading on the associated instrumentation.

B65-10328

FEED-THROUGH CONNECTOR WITHSTANDS HIGH TEMPERATURES IN VACUUM ENVIRONMENT
KREISMAN, W. S. /GEOPHYS. CORP. OF AM./ DATE- NOV. 1965

GSFC-442

Feed-through connector with sealing action augmented by any temperature increase can be used through the wall of a vacuum device. It retains vacuum integrity through successive cycles of high temperature.

B65-10329

BAKING ENABLES MCLEOD GAUGE TO MEASURE IN ULTRAHIGH VACUUM RANGE
KREISMAN, W. S. /GEOPHYS. CORP. OF AM./ DATE- NOV. 1965

GSFC-440

Accurate measurements in the ultrahigh vacuum range by a conventional McLeod gage requires degassing of the gages-glass walls. A closed system, in which mercury is forced into the gage by gravity alone, and in which the gage components are baked out for long periods, is used to achieve this degassing.

B65-10333

COMMUNICATION SYSTEM USES MODULATED LASER BEAM
MINOTT, P. O. DATE- NOV. 1965

GSFC-377

Electro-optical system is placed on a satellite to effect communications between two remote stations. The system employs an essentially passive, retrodirective, laser beam modulator-reflector.

B65-10340

MINIATURE SERVO ACCELEROMETER IS FORCE-BALANCED
JOHNSTON, A. R. /CALIF. INST. RES. FOUND./ DATE- NOV. 1965

JPL-155

Miniature servo accelerometer measures unusually small forces of torques. The pendulous mass of the accelerometer is suspended by fused quartz torsion fibers in an electromagnetically force-balanced environment. It is used in gravity surveys for exploring mineral deposits.

B65-10343

DELAYED RIPPLE COUNTER SIMPLIFIES SQUARE-ROOT COMPUTATION
CLIFF, R. DATE- NOV. 1965

GSFC-398

Ripple subtract technique simplifies the logic circuitry required in a binary computing device to derive the square root of a number. Successively higher numbers are subtracted from a register containing the number out of which the square root is to be extracted. The last number subtracted will be the closest integer to the square root of the number.

B65-10345

VARIABLE WORD LENGTH ENCODER REDUCES TV BANDWIDTH REQUIREMENTS
SIVERTSON, W. E., JR. DATE- NOV. 1965

LANGLEY-87

Adaptive variable resolution encoding technique provides an adaptive compression pseudo-random noise signal processor for reducing television bandwidth requirements. Complementary processors are required in both the transmitting and receiving systems. The pretransmission processor is analog-to-digital, while the postreception processor is digital-to-analog.

B65-10347

COMPACT SCR TRIGGER CIRCUIT FOR IGNITRON SWITCH OPERATES EFFICIENTLY
FOSTER, L. E. DATE- NOV. 1965

M-FS-371

Trigger circuit with two series-connected SCR triggers an ignitron switch used to discharge high-energy capacitor banks. It does not require a warmup period and operates at relatively high efficiency.

B65-10349

FREQUENCY DISCRIMINATOR WITH BINARY OUTPUT ELIMINATES TUNED CIRCUITS
DE VELDE, E. /IBM/ DATE- NOV. 1965

M-FS-376

Frequency discriminator has a binary output and permits microminiaturized packaging techniques.

It uses a bandpass amplifier and standard logic elements that convert two input frequencies into two discrete logic pulses.

B65-10350

ZENER DIODE CONTROLS SWITCHING OF LARGE DIRECT CURRENTS
SPON- INNOVATOR NOT GIVEN /IBM/ DATE- NOV. 1965

MSC-188

High-current zener diode is connected in series with the positive input terminal of a dc supply to block the flow of direct current until a high-frequency control signal is applied across the zener diode. This circuit controls the switching of large dc signals.

B65-10352

VIBRATING DIAPHRAGM MEASURES HIGH ELECTROSTATIC FIELD STRENGTHS
SPON- INNOVATOR NOT GIVEN /ELECTRO-OPTICAL SYSTEMS/ DATE- NOV. 1965

MSC-189

Meter with flexible conductive diaphragm measures electrostatic charge density on a conducting surface in a vacuum. The diaphragm is supported from an insulated conductive support ring rigidly attached to the conductive surface whose electrostatic charge density is to be measured.

B65-10353

MULTIPHASE CLOCK-PULSE GENERATOR USES SIMPLIFIED CIRCUITRY
SPON- INNOVATOR NOT GIVEN /IBM/ DATE- NOV. 1965

M-FS-297

Multiphase clock-pulse generator converts a simple pulse train into nonoverlapping clock pulses. The generator employs multistable circuits to minimize the number of electronic components.

B65-10355

SIMPLE CIRCUIT PERFORMS BINARY ADDITION AND SUBTRACTION
CLIFF, R. A. SCHAEFER, D. H. DATE- NOV. 1965

GSFC-399

Ripple adder reduces the number of logic circuits required to perform binary addition and subtraction. The adder uses dual input and delayed output flip-flops in one register. The contents of this register are summed with those of a standard register through conventional AND/gates.

B65-10359

IMPROVED WIRE MEMORY MATRIX USES VERY LITTLE POWER
FEDDE, G. A. /SPERRY RAND CORP./ DATE- NOV. 1965

JPL-SC-167

Thin-film, plated-wire memory matrix for computer applications requires little power yet has higher speed and four times greater storage capacity than ferrite-core memories of the same size.

B65-10361

HIGH-INTENSITY FLASHING BEACON POWERED BY MERCURY CELLS
SPON- INNOVATOR NOT GIVEN /LANGLEY/ DATE- NOV. 1965

LANGLEY-80

Pair of xenon flashlamps powered by mercury batteries in a transistorized circuit provides a flashing beacon with an effective intensity of a second-magnitude star at a distance of ten statute miles. This beacon is lightweight, long lasting and it withstands shock and vibration.

B65-10362

TEMPERATURE TRANSDUCER HAS HIGH OUTPUT, IS TIME STABLE
FOLLETT, W. H. /BALL BROTHERS RES. CORP./ DATE- NOV. 1965

GSFC-446

Compact, lightweight temperature transducer requires no amplification of its output signal and is time stable. It uses the temperature-dependent characteristics of a silicon transistor to provide a zero-to-five-volt signal proportional to temperature.

01 ELECTRICAL (ELECTRONIC)

B65-10363

REGENERATIVE FUEL CELL COMBINES HIGH EFFICIENCY WITH LOW COST
DOYLE, H. FRANK, H. STEPHENS, C. W.
/ELECTRO-OPT. SYSTEMS/ DATE- DEC. 1965
WOO-090

Hydrogen/oxygen regenerative fuel cell stores electrical energy efficiently and inexpensively. The fuel cell has a high energy-to-weight ratio, and is adapted for a large number of cycles with deep discharge.

B65-10369

RESPIRATORY TRANSFER VALVE HAS FAIL-SAFE FEATURE
PUCCINELLI, A. A. SMITH, J. R., JR. DATE- DEC. 1965
ARC-1

Quick-acting, remote controlled valve connects either one of two oxygen or air supplies to a breathing tube. The valve, which is fail-safe, incorporates a cammed piston arrangement that is driven by a remote controlled reversible rotary solenoid or reversible electric motor.

B65-10376

THREE-POSITION ROCKER SWITCH ACTUATOR HAS POSITIVE CENTERING
BOGLEY, R. L. /N. AM. AVIATION/ DATE- DEC. 1965
MSC-261

Three-position rocker switch actuator provides positive center positioning to inhibit possible override. Switch position is visually identified by rocker position, and functions can be shown on tabs and bars.

B65-10377

BINARY COUNTER USES FLUID LOGIC ELEMENTS
SPON- INNOVATOR NOT GIVEN /RAND CORP./ DATE- DEC. 1965
M-FS-323

Binary counter with two fluid flip-flops in each stage has an output taken from the output of the second flip-flop. The flip-flops each contain three fluid logic elements.

B65-10379

THREE-DIMENSIONAL WIRE-MESH CAPACITOR SYSTEM MEASURES FLUID DENSITY
SPON- INNOVATOR NOT GIVEN /GARRETT CORP./ DATE- DEC. 1965
WOO-194

Gaging system automatically measures the bulk density of a stored, electrically nonconductive fluid containing varying portions of liquid and vapor. The system employs a three-dimensional wire-mesh capacitor whose capacitance varies with the bulk density of the fluid dielectric medium between the capacitor plates.

B65-10380

DEVICE DETECTS UNBONDED AREAS IN PLASTIC LAMINATES
SPON- INNOVATOR NOT GIVEN /DOUGLAS AIRCRAFT CO./ DATE- DEC. 1965
WOO-206

Device generates an acoustic signal whose frequency changes disclose the presence of delaminated or unbonded areas in plastic laminates. A microphone makes the frequency change audible.

B65-10381

KEYED PLUGS AND SOCKETS PREVENT IMPROPER CONNECTIONS
BUCKEY, D. L. LANKFORD, H. /MCDONNELL AIRCRAFT CORP./ DATE- DEC. 1965
MSC-231

Plugs and sockets individually keyed so that no plug can be mated with other than its proper socket facilitates multiple connection in electrical systems.

B65-10382

PHOTOELECTRIC SYSTEM CONTINUOUSLY MONITORS LIQUID LEVEL
SPON- INNOVATOR NOT GIVEN /BOEING CO./ DATE- DEC. 1965
M-FS-417

Immersion probe presents a depth-sensitive optical transmission path between a light source and a photoelectric cell to continuously monitor the level of a transparent liquid in a tank. This system operates automatically, without moving parts, and provides output signals to a remote recorder.

B65-10387

SHRINKABLE SLEEVE ELIMINATES SHIELDING GAP IN RF CABLE
SPON- INNOVATOR NOT GIVEN /GEN. DYN./CONVAIR/ DATE- DEC. 1965
WOO-207

RF shielding gap between an RF cable and a multipin connector is eliminated by a sleeve assembly installed between the connector and the terminated portion of the shielding. The assembly is enclosed in a heat-shrinkable plastic sleeve which completes the continuous RF shield.

B65-10389

INSULATOR-HOLDER PROTECTS TRANSISTORS IN DENSE ELECTRONIC ASSEMBLIES
SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ DATE- DEC. 1965
MSC-214

Molded insulating spacer with one or more cavities is used as an insulated holder for mounting metal-case transistors in a chassis containing densely packed electronic components. The transistors are mechanically supported on their bases and electrically isolated from each other by the holder.

B65-10392

NONCONTACTING VIBRATION TRANSDUCER HAS CONSTANT SENSITIVITY
FLAGGE, B. DATE- DEC. 1965
LANGLEY-99

Noncontacting transducer with constant sensitivity automatically measures the vibration amplitudes along the span of a vibrating structure of irregular contour. A system employing a feedback control positions the transducer at a constant height above the test surfaces. A differential transformer facilitates calibration and extends the amplitude range of the system.

B65-10396

ADHESIVE-BACKED TERMINAL BOARD ELIMINATES MOUNTING SCREWS
SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- DEC. 1965
MSC-173

Low-profile terminal board is used in dense electronic circuits where mounting and working space is limited. The board has a thin layer of pressure-sensitive adhesive backing which eliminates the need for mounting screws.

B65-10399

BINARY COUNTER ACCUMULATES TIME BY COMPLEMENTARY PRESET
MARRINER, G. E. /N. AM. AVIATION/ DATE- DEC. 1965
MSC-242

Binary counter reduces the number of logic elements required to furnish electrical control functions. The counter is automatically preset to the complement of the desired time increments in milliseconds. An output pulse is produced each time it reaches its capacity.

B65-10400

ELECTRICALLY HEATED DIAPHRAGM ELIMINATES USE OF PYROTECHNICS
MATHEWSON, R. C. /N. AM. AVIATION/ DATE- DEC. 1965
MSC-241

Membrane-type diaphragm is used in systems where fluids are contained under pressure until a certain pressure threshold or point of time has been reached when the fluids are automatically released. The diaphragm is resistance heated until its strength is degraded to the point of rupture, thus releasing the contained fluids.

B66-10002
DUAL-VOLTAGE POWER SUPPLY HAS INCREASED
EFFICIENCY
STURMAN, J. C. DATE- JAN. 1966
LEWIS-107A

Simple circuit provides two different dc output voltages from an ac source. It employs a full-wave rectifier connected to two passive branches from which the separate dc voltages are taken. The outputs have low ripple and good voltage regulation.

B66-10006
COMPUTER CIRCUIT CALCULATES CARDIAC OUTPUT
MC CULLOUGH, C. E. /KAMAN AIRCRAFT CORP./ DATE-
JAN. 1966
MSC-274

Electronic circuitry automatically calculates cardiac output. This computer is used for basic research in physiology and as a diagnostic instrument by doctors.

B66-10012
THIN-FILM SEMICONDUCTOR RECTIFIER HAS IMPROVED
PROPERTIES
SPON- INNOVATOR NOT GIVEN /MELPAR/ DATE- JAN.
1966
MSC-207

Cadmium selenide-zinc selenide film is used as a thin film semiconductor rectifier. The film is vapor-deposited in a controlled concentration gradient into a glass substrate to form the required junctions between vapor-deposited gold electrodes.

B66-10013
REACTION HEAT USED IN STATIC WATER REMOVAL
FROM FUEL CELLS
PLATNER, J. L. /ALLIS-CHALMERS MFG. CO./ DATE-
JAN. 1966
M-FS-532

Reaction heat is used for removal of water formed at the hydrogen fuel electrode in a hydrogen-oxygen fuel cell. A portion of the heat inherent in the fuel cell current generation reaction is used to transfer excess water into water vapor and cause it to be exhausted from the cell by a porous vapor transport membrane adjoining a vapor cavity.

B66-10015
ELECTRODELESS DISCHARGE LAMP IS EASILY
STARTED, HAS HIGH STABILITY
BELL, W. E. BLOOM, A. L. /VARIAN ASSOCIATES/
DATE- JAN. 1966
WOO-030

Electrodeless discharge borosilicate glass lamp is used in various high-resolution optical systems. It is partially charged with krypton, contains small amounts of rubidium, and is enclosed in a hermetically sealed envelope that maintains the lamp at an optimum temperature during discharge. The lamp is quickly started by its excitation coil.

B66-10021
SPECIAL MOUNT IMPROVES REMOTE TRANSDUCER
ACCURACY
LAYTON, J. P. /PRINCETON UNIV./ DATE- JAN. 1966
LEWIS-269

Transducer-mounting device allows measurement of transient pressure in a hostile environment. The device provides free passage areas and a controlled environment for the measuring instrument.

B66-10025
CUPROUS SELENIDE AND SULFIDE FORM IMPROVED
PHOTOVOLTAIC BARRIERS
SPON- INNOVATOR NOT GIVEN /RCA/ DATE- JAN. 1966
WOO-212

Photovoltaic barriers formed by depositing a layer of polycrystalline cuprous sulfide or cuprous selenide on gallium arsenide are chemically and electrically stable. The stability of these barrier materials is significantly greater than that of cuprous iodide.

B66-10026
IMPROVED CARBON ELECTRODE REDUCES ARC
SPUTTERING
SPON- INNOVATOR NOT GIVEN /UNION CARBIDE CORP./
DATE- JAN. 1966
MSC-219

Carbon rod cores with a smaller proportion of rare earth compounds than in standard cores reduce arc sputtering in optical equipment. This core is produced without additional cost or equipment.

B66-10028
PORTABLE SELF-POWERED DEVICE DETECTS INTERNAL
FLAWS IN TUBULAR STRUCTURES
GILMOUR, G. /WESTINGHOUSE ELEC. CORP./ DATE-
JAN. 1966
NU-0019

Portable probe and eddy-current-sensitive circuitry detects internal flaws or hard spot impurities in an electrically conductive tubular channel by recording the conductivity change at the defect point.

B66-10031
PRESSURE TRANSDUCERS DYNAMICALLY TESTED WITH
SINUSOIDAL PRESSURE GENERATOR
JONES, H. B., JR. /PRINCETON UNIV./ DATE- JAN.
1966
LEWIS-268

Sinusoidal pressure generator assembly dynamically tests and calibrates pressure transducers by using a chamber whose lowest resonant mode is above the audiofrequency range.

B66-10034
CIRCUIT EXHIBITS POWER EFFICIENCY GREATER
THAN 75 PERCENT
MANKOVITZ, R. J. /N. AM. AVIATION/ DATE- FEB.
1966
MSC-254

Variable duty cycle pulser increases circuit power efficiency by more than 75 percent when operating solenoid valves. The pulser provides a low-level holding current after a high-level current has actuated the solenoid valves.

B66-10036
FLOWMETER MEASURES LOW GAS-FLOW RATES
WELLS, F. E. DATE- FEB. 1966
M-FS-215

Positive-displacement flowmeter measures low gas-flow rates by gaging the time required for a slug of mercury to pass between two reference levels in a tube of known volume.

B66-10038
CIRCUIT OPERATES AS SINE FUNCTION GENERATOR
BOGART, T., JR. /N. AM. AVIATION/ DATE- FEB.
1966
MSC-255

Electronic circuit drives sine function generator using square wave and sawtooth sweep generators. The circuit replaces electromechanical driver and increases accuracy.

B66-10039
CONTROL SYSTEM MAINTAINS SELECTED LIQUID LEVEL
BERGESON, R. L. SCHUCK, J. W. /HONEYWELL/ DATE-
FEB. 1966
M-FS-470

Single-sensor control system maintains liquid hydrogen at a preselected desired level within a tank, regardless of boiloff. It calibrates output in percentage. Thus, when the fuel is at the desired level, the system output will indicate 100 percent regardless of what percent of tank capacity the fuel has reached.

B66-10041
COLD CATHODE IONIZATION GAUGE HAS RIGID METAL
HOUSING
HERZOG, R. KREISMAN, W. S. /GEOPHYS. CORP. OF
AM./ DATE- FEB. 1966
GSFC-445

Cold cathode ionization gage in a stainless steel housing accurately measures high pressures. The penning effect is used with a high voltage discharge in the presence of a magnetic field for an ion current proportional to the gas pressure in

01 ELECTRICAL (ELECTRONIC)

HONEYCOMB-CORE PANELS

DATE- MAR. 1966

LANGLEY-202

Overall thermal conductivity of honeycomb-core panels at elevated temperatures is measured by an apparatus with a heater assembly and a calibrated heat-rate transducer. The apparatus has space between the heater and transducer for insertion of a test panel and insulation.

B66-10128

OPTICAL GYRO PICKOFF OPERATES AT CRYOGENIC TEMPERATURES

SPON- INNOVATOR NOT GIVEN /GE/ DATE- MAR. 1966

M-FS-407

Two-axis pickoff for cryogenic gyros uses solid-state light sources and sensors. This compact system operates efficiently at cryogenic temperatures.

B66-10129

DIGITALLY CONTROLLED PULSE-LEVEL DISCRIMINATOR OPERATES OVER WIDE VOLTAGE RANGE

CANCRO, C. A. DATE- MAR. 1966

GSFC-324

Low power drain discriminator circuit generates an output pulse when an input pulse exceeds a discrete digitally controlled threshold voltage. The discriminator operates over a wide linear or nonlinear range of threshold levels. It uses several amplifier stages ahead of a fixed-reference threshold detector.

B66-10130

MATERIALS PHYSICALLY TESTED IN VARIABLE-ENVIRONMENT CHAMBER

KNOELL, A. C. DATE- MAR. 1966

JPL-789

Controlled environment chamber for physical tests of crushable materials encloses both the test specimen and the devices for performing the tests. The chamber may be stepped through a range of changing environment.

B66-10133

OMNIDIRECTIONAL ANTENNAS TRANSMIT AND RECEIVE OVER LARGE BANDWIDTH

WOODWARD, O. M., JR. /RCA/ DATE- MAR. 1966

GSFC-436

For exchanging wideband signals between two distant ground stations, low-gain antennas with wide angular coverage and circular polarization are mounted on a single mast extending from a satellite. The transmitting antenna has two decoupled ports or inputs for eliminating switching problems when using two transmitters on different frequencies.

B66-10134

HIGH TEMPERATURE THERMOCOUPLE OPERATES IN REDUCTION ATMOSPHERE

HOFF, R. G. /AEROJET-GEN. CORP./ DATE- MAR. 1966

NU-0046

Thermocouple continuously measures a flowing gas up to 4500 degrees F in a hazardous environment. The thermocouple combines rhodium and tungsten in the probe, housing, and swaged extension lead. The wires extend continuously from the cold junction to the probe tip to eliminate errors from secondary thermocouple effects.

B66-10141

OPTICALLY DRIVEN SWITCH TURN-OFF TIME REDUCED BY OPAQUE COATINGS

SPON- INNOVATOR NOT GIVEN /IBM/ DATE- APR. 1966

JPL-SC-107

Turn-off response time of an optically driven switch is reduced by placing an opaque covering over the passivating silicon dioxide members. The coating prevents photon absorption so that carriers are not trapped or stored on the base region, thus shortening turn-off time.

B66-10142

DIFFUSION TECHNIQUE STABILIZES RESISTOR VALUES

GALLAGHER, R. C. GIULIANO, M. N. /WESTINGHOUSE ELEC. CORP./ DATE- APR. 1966

MSC-205

Reduction of the contact resistance stabilizes the values, over a broad temperature range, of resistors used in linear integrated circuits. This reduction is accomplished by p-plus diffusion under the alloyed aluminum contacts.

B66-10144

MOUNTING IMPROVES HEAT-SINK CONTACT WITH BERYLLIA WASHER

SPON- INNOVATOR NOT GIVEN /COLLINS RADIO CO./

DATE- APR. 1966 REAN- SEE ALSO B63-10033

MSC-194

To conduct heat away from electrical components that must be electrically insulated from a metal heat sink, a metal washer and a coil spring are placed between one end of the electrical component and the beryllia washer mounted on the heat sink. The thermal paths are formed by the component lead and base, the metal and beryllia washers, and the compressed spring.

B66-10147

POLYMER DEFORMATION GAUGE MEASURES THICKNESS CHANGE IN TENSILE TESTS

BROYLES, H. F. BROYLES, H. H. DATE- APR. 1966

JPL-745

Lightweight deformation gage attached to a polymer specimen determines the thickness changes undergone by the specimen during the testing of its tensile and elongation properties. Mechanical noise from outside sources is dampened when the assembly is hung on a light rubber band.

B66-10148

TESTER PERIODICALLY REGISTERS DC AMPLIFIER CHARACTERISTICS

CREE, D. WENZEL, G. E. DATE- APR. 1966

MSC-190

Motor-driven switcher-recorder periodically registers the zero drift and gain drift signals of a dc amplifier subjected to changes in environment. A time coding method is used since several measurements are shared on a single recorder trace.

B66-10158

SWITCHING MECHANISM SENSES ANGULAR ACCELERATION

SPON- INNOVATOR NOT GIVEN /BALL BROS. RES. CORP./

DATE APR. 1966

GSFC-462

Switching mechanism actuates an electrical circuit when a predetermined angular acceleration and displacement are reached. A rotor in the mechanism overcomes the restraint of a magnetic detent when the case in which the detent is mounted reaches the predetermined angular acceleration.

B66-10159

IMPROVED SYSTEM MEASURES OUTPUT ENERGY OF PYROTECHNIC DEVICES

SHORTLY, E. M. /N. AM. AVIATION/ DATE- APR. 1966

WOO-256

System for measuring the output energy of pyrotechnic devices discharges the reaction products into a test chamber. It measures the radiant heat output from a pinhole aperture as well as internal pressure changes on a common time base.

B66-10160

ELECTROPNEUMATIC TRANSDUCER AUTOMATICALLY LIMITS MOTOR CURRENT

LOVITT, T. F. DATE- APR. 1966

LEWIS-253

Pneumatic controller regulates the load on a centrifugal freon compressor in a water cooling system, thus limiting the current input to an electric motor driving it. An electromechanical transducer monitoring the motor input current sends out air signals which indicate changes in the current to the pneumatic controller.

B66-10161

TRANSDUCER MEASURES FORCE IN VACUUM ENVIRONMENT

GLENN, D. C. DATE- APR. 1966

LEWIS-218

Transducer assembly measures force in a vacuum environment. The assembly consists of a standard capacitance probe and a torque beam. This transducer can be used in high-pressure as well as in low-pressure environments for static and dynamic force measurements.

B66-10162

FIXTURE AIDS SOLDERING OF ELECTRONIC COMPONENTS ON CIRCUIT BOARD

ROSS, M. H. DATE- APR. 1966

ARC-56

Spring clamp fixture holds small electronic components in a desired position while they are being soldered on a circuit board. The spring clamp is clipped on the edge of the circuit board and an adjustable spring-steel boom holds components against the board. The felt pad at the end of the boom is replaced with different attachments for other holding tasks.

B66-10163

TWO-LIGHT CIRCUIT CONTINUOUSLY MONITORS AC GROUND, PHASE, AND NEUTRAL WIRES

MEE, R. W. /N. AM. AVIATION/ DATE- APR. 1966

MSC-36

Two-transformer, two-lamp circuit monitors the continuity of ac ground, neutral, and phase wires. The circuit gives different visual indications if any one of the three lines should become open circuited.

B66-10164

FATIGUE TESTER ACHIEVES TRUE AXIAL MOTION THROUGH FLEX PLATES AND BARS

HENGSTENBERG, T. F. /WESTINGHOUSE ASTRONUCLEAR LAB./ KURINKO, C. D. DATE- APR. 1966

NU-0021

Lever load-amplifying fatigue testing machine with a load cycle frequency of 100 to 900 cycles per minute applies the load through true axial motion. Pivot friction and bearing wear are eliminated by replacing these parts with flex plates and bars.

B66-10170

SCANNING PHOTOMETER SYSTEM AUTOMATICALLY DETERMINES ATMOSPHERIC LAYER HEIGHT

WOLFF, M. /MIT/ DATE- APR. 1966

MSC-245

Two photometers, placed a given distance apart, determine the height of nonuniform luminous layers in a synchronous manner. Photometer outputs are correlated by a simple analog correlation computer to automatically give the luminous layer height. This system is used to determine visibility ceilings at airports.

B66-10177

BINARY FLUID AMPLIFIER SOLVES STABILITY AND LOAD PROBLEMS

LARKIN, B. D. READER, T. D. /GIANNINI CONTROLS CORP./ DATE- MAY 1966

ERC-15

Digital fluid amplifier has load intensity, high stability, and operates at low Reynolds numbers. It contains specially designed nozzles to provide uniform exit-velocity profiles and to ensure jets of low turbulence.

B66-10179

COMPLEMENTARY MONOSTABLE CIRCUITS ACHIEVE LOW POWER DRAIN AND HIGH RELIABILITY

KLEINBERG, L. L. LAVIGNE, R. C. DATE- MAY 1966

GSFC-433

Two-transistor multivibrator has minimum power dissipation and maximum reliability. It minimizes the use of components that are subject to environmental changes or other unpredictable behavior.

B66-10180

THIN-FILM GAGE MEASURES LOW HEAT-TRANSFER RATES

SPITZER, C. R. DATE- MAY 1966

LANGLEY 205

Low heat-transfer gage facilitates determination of the transition between laminar and turbulent conditions, in the boundary layer surrounding slender and moderately slender cones under test in

a hypersonic blowdown helium tunnel. The gage consists of a thin layer of vacuum-evaporated platinum on a heat resistant glass substrate contoured to fit model surfaces.

B66-10182

SUBMINIATURIZED GAS CHROMATOGRAPH GIVES FAST, EFFICIENT ANALYSIS

WILHITE, W. F. DATE- MAY 1966

JPL-735 JPL-737 JPL-736 JPL-740

Space oriented, lightweight, subminiaturized gas chromatograph analyzes gas samples in a few seconds with a carrier gas flow of one milliliter per second. In extraterrestrial exploration, the system could be used with a mass spectrometer for detection of life-supporting compounds.

B66-10192

COATING PERMITS USE OF STRAIN GAGE IN WATER AND LIQUID HYDROGEN

BEEVEN, B. B. /N. AM. AVIATION/ DATE- MAY 1966

M-PS-594

Strain gage installation covered with a three-layer coating of commercial materials makes measurements in water and liquid hydrogen. It consists of a selected foil strain gage bonded with a modified commercial heat-curing epoxy cement. The outer protective layer of the gage installation may develop cracks when immersed in liquid hydrogen.

B66-10193

SOLID STATE THERMOSTAT HAS INTEGRAL PROBE AND CIRCUITRY

SPON- INNOVATOR NOT GIVEN /METRO PHYS., INC./ DATE- MAY 1966

M-PS-434

Compact, reliable thermostat provides a temperature readout signal and a continuous temperature-control output for temperature monitoring by automatic checkout equipment or telemetry systems. It employs a solid state circuit in a housing rigidly attached to a thermistor probe.

B66-10198

DEVICE WITHOUT ELECTRICAL CONNECTIONS IN TANK MEASURES LIQUID LEVEL

SHEKMAN, J. S. /V. K. C. AEROJET-GEN. CORP./ DATE- MAY 1966

WOO-235

Vertical static float in a tank measures the liquid level without the use of electrical connections in the tank. The float transmits the buoyant force of the liquid to an external force transducer. It is insensitive to tank pressure and temperature changes.

B66-10200

APPARATUS PRESENTS VISUAL DISPLAY OF SEMICONDUCTOR SURFACE CHARACTERISTICS

SUMMERS, R. A. DATE- MAY 1966

JPL-665

Apparatus provides a representation of the physicochemical condition of the surface layers of a semiconductor. It is based on the principle that the surface layers of a semiconductor will conduct an electric current when exposed to a beam of light.

B66-10203

SOLDERING IRON TEMPERATURE IS AUTOMATICALLY REDUCED

LUX, J. Y. DATE- MAY 1966

ARC-57

Hinged cradle-microswitch arrangement maintains a soldering iron at less than peak temperature when not in use. The microswitch introduces a voltage reducing element into the soldering iron power circuit when the iron is placed on the cradle. The iron, when removed from the cradle, returns to operating temperature in 15 to 30 seconds.

B66-10205

WIDE-RANGE INSTRUMENT MONITORS FLOW RATES OF CHEMICALLY ACTIVE FLUIDS

SPON- INNOVATOR NOT GIVEN /SPACELABS/ DATE- MAY 1966

MSC-186

01 ELECTRICAL (ELECTRONIC)

In-like transducers system measures flow rate of chemically active propellant fluids. The system uses one low-flow transducer and one high-flow transducer. Each consists of separate heater and temperature-sensing elements.

B66-10220
ULTRASONIC RECORDING SCANNER USED FOR
NONDESTRUCTIVE WELD INSPECTION
 SPON- INNOVATOR NOT GIVEN /BOEING CO./ DATE- MAY 1966
 REAN- SEE ALSO B66-10178
 M-FS-284

Portable ultrasonic recording scanner is used for nondestructive inspection of welds. It is adaptable to continuous operation in one direction while maintaining oscillatory motion at a right angle to this direction. The scanning speed and oscillation frequency are independently adjustable.

B66-10223
MULTICOLOR STROBOSCOPE PINPOINTS RESONANCES IN
VIBRATING COMPONENTS
 SPON- INNOVATOR NOT GIVEN /CALIF. INST. RES.
 FOUND./ DATE- MAY 1966
 JPL-0033

Stroboscopic system, which uses three different colored lights, rapidly scans a multicomponent assembly and provides a visual indication of resonant components. The lights are pulsed at the same flash frequency but at different phases.

B66-10224
FET COMPARATOR DETECTS ANALOG SIGNAL LEVELS
WITHOUT LOADING ANALOG DEVICE
 WALLACE, H. L. /GE/ DATE- MAY 1966
 M-FS-503

FET comparator circuit detects discrete analog computer output levels without excessively loading the output amplifier of the computer. An FET common source amplifier is coupled by a differential amplifier to a bistable transistor flip-flop. This circuit provides a digital output for analog voltages above or below a predetermined level.

B66-10225
SINGLE-CRYSTAL SEMICONDUCTOR FILMS GROWN ON
FOREIGN SUBSTRATES
 VOHL, P. /RCA/ DATE- MAY 1966
 WOO-076

Intermediate alloy formed between foreign substrates and semiconductor material enable the growth of single crystal semiconductor films on the alloy layer. The melted film must not ball up on the surface of the substrate and neither chemically react nor alloy with the intermediate alloy formed on the substrate.

B66-10232
ELECTRONIC PHASE-LOCKED-LOOP SPEED CONTROL
SYSTEM IS STABLE
 STONE, P. A. /RAYMOND ENG. LAB./ DATE- JUN. 1966
 JPL-SC-084

Phase locked-loop circuit is used for playback motors in digital tape recorders where the reproducer output remains in exact synchronism with an external reference clock over extended periods. It removes the motor dynamics from the control loop so that the loop is stable without damping.

B66-10245
RUGGED MICROELECTRONIC MODULE PACKAGE SUPPORTS
CIRCUITRY ON HEAT SINK
 JOHNSON, A. L. /MINNEAPOLIS-HONEYWELL REGULATOR CO./ DATE- JUN. 1966
 MSC-81A

Rugged module package for thin film hybrid microcircuits incorporated a rigid, thermally conductive support structure, which serves as a heat sink, and a lead wire block in which T-shaped electrical connectors are potted. It protects the circuitry from shock and vibration loads, dissipates internal heat, and simplifies electrical connections between adjacent modules.

B66-10251
POLARIZING KEYS PREVENT MISMATCH OF CONNECTOR

PLUGS AND RECEPTACLES
 CHIAPUZZO, A. /N. AM. AVIATION/ DATE- JUN. 1966
 MSC-443

Keying prevents mismatching of plugs and receptacles in connector patching of instrumentation involving several thousand leads. Each receptacle and plug contains three polarizing keys that must mate in a complementary mode before the connector pins and sockets will engage.

B66-10260
MULTIPLE TEMPERATURES SAMPLED USING ONLY ONE
REFERENCE JUNCTION
 COPE, G. W. DATE- JUN. 1966
 GSFC-485

In a multitemperature sampling system where the reference thermocouples are a distance from the test thermocouples, an intermediate thermal junction block is placed between the sets of thermocouples permitting switching between a single reference and the test thermocouples. This reduces the amount of cabling, reference thermocouples, and cost of the sampling system.

B66-10261
SIMPLIFIED CIRCUIT CORRECTS FAULTS IN PARALLEL
BINARY INFORMATION CHANNELS
 GOLDBERG, J. /STANFORD RES. INST./ DATE- JUN. 1966
 REAN- SEE ALSO B65-10025
 JPL-SC-090

Corrective circuit prevents the appearance of erroneous output signals from the possible failure of any single-channel element interconnected in parallel binary information channels. The circuit is simplified and economical because it does not use redundant channels.

B66-10264
BINARY SEQUENCE DETECTOR USES MINIMUM NUMBER
OF DECISION ELEMENTS
 PERLMAN, M. DATE- JUN. 1966
 JPL-673

Detector of an n bit binary sequence code within a serial binary data system assigns states to memory elements of a code sequence detector by employing the same order of states for the sequence detector as that of the sequence generator when the linear recursion relationship employed by the sequence generator is given.

B66-10270
MAGNETICALLY OPERATED LIMIT SWITCH HAS
IMPROVED RELIABILITY, MINIMIZES ARCING
 STEINER, R. /N. AM. AVIATION/ DATE- JUN. 1966
 MSC-422

Limit switch for reliable, low-travel, snap action with negligible arcing uses an electrically nonconductive permanent magnet consisting of a ferrimagnetic ceramic and ferromagnetic pole shoes which form a magnetic and electrically conductive circuit with a ferrous-metal armature.

B66-10271
PN ACQUISITION DEMODULATOR ACHIEVES AUTOMATIC
SYNCHRONIZATION OF A TELEMETRY CHANNEL
 COUVILLON, L. DATE- JUN. 1966
 JPL-612

Data demodulator for automatic sync acquisition provides an automatic means for obtaining initial word and bit synchronization in a pulse-code-modulated/phase-shift-keyed digital communications system.

B66-10272
EXCLUSIVE-OR LOGIC CIRCUIT HAS USEFUL
PROPERTIES
 BATTE, W. G. DATE- JUN. 1966
 LANGLEY-214

Single, simple exclusive-or logic connective eliminates excessive hardware and the number of interconnections between logic modules. This circuit performs the necessary switching for the exclusive-or operation and amplifies, restores, and inverts the signal.

B66-10274
BRAZE ALLOYS USED AS TEMPERATURE INDICATORS
 RICE, R. E. /AEROJET-GEN. CORP./ SHURLEY, L. A.

DATE- JUN. 1966

NU-0063

Patches of braze alloys having known fusion are applied to portions of a metal surface where temperature indicators are required. This method is used to measure temperatures over the range of 175 degrees to 2100 degrees Fahrenheit where it is not feasible to employ conventional temperature detectors.

B66-10280

STRAIN GAGE NETWORK DISTINGUISHES BETWEEN THERMAL AND MECHANICAL DEFORMATIONS

CEPOLINA, F. J. DATE- JUN. 1966

GSFC-478

Strain gage network measures the thermal coefficient of linear expansion of composite metal structures. The network consists of a test gage and two dummy gages arranged to distinguish thermally induced deformation from mechanical strain.

B66-10282

SIMPLE CIRCUIT PROVIDES RELIABLE MULTIPLE SIGNAL AVERAGE AND REJECT CAPABILITY

OPENSHAW, R. L. /AEROJET-GEN. CORP./ DATE- JUN. 1966

NU-0069

Summation average and reject circuit based on diode clamping allows detection of individual functional deviations in a multiple signal system without shutting down the entire system.

B66-10286

VACUUM TEST FIXTURE IMPROVES LEAKAGE RATES MEASUREMENTS

MAYER, H. MARX, H. /GRUMMAN AIRCRAFT CORP./ DATE- JUN. 1966

MSC-271

Cylindrical chamber, consisting of two matching halves, forms a vacuum test fixture for measuring leakage rates of individual connections, brazed joints, and entrance ports used in closed fluid flow line systems. Once the chamber has been sufficiently evacuated, atmospheric pressure holds the two halves together.

B66-10287

DETECTION SYSTEM ENSURES POSITIVE ALARM ACTIVATION IN DIGITAL MESSAGE LOSS

BOKROS, P. BURSTEIN, A. HEWITT, E. D. /RCA/ DATE- JUN. 1966

WOO-208

Lost Word Detection System /LOWDS/ provides special identification for each error detection message transmitted from receiver to transmitter. The message is identified as an original message or an n-times retransmitted message so the receiver can detect where a retransmission request was not fulfilled and activate an alarm.

B66-10291

LARGE CAPACITOR PERFORMS AS A DISTRIBUTED PARAMETER PULSE LINE

GOODING, T. J. /GEN. DYN./ASTRONAUTICS/ DATE- JUL. 1966

LEWIS-176

Capacitor of extended foil construction performs as a distributed parameter pulse line in which current, amplitude, and period are readily controlled. The capacitor is used as the energy storage element in a pulsed plasma accelerator.

B66-10292

CIRCUIT PROTECTS REGULATED POWER SUPPLY AGAINST OVERLOAD CURRENT

AIRTH, H. B. /WESTINGHOUSE ELEC. CORP./ DATE- JUL. 1966

GSFC-453

Sensing circuit in which a tunnel diode controls a series regulator transistor protects a low voltage transistorized dc regulator from damage by excessive load currents. When a fault occurs, the faulty circuit is limited to a preset percentage of the current when limiting first occurs.

B66-10293

DAMPING TECHNIQUE GIVES ACCELEROMETER FLAT

FREQUENCY RESPONSE

WING, T. /GULTON IND./ DATE- JUL. 1966

M-PS-471

Piezoelectric accelerometer uses a viscous damping technique to achieve a flat frequency response over a wide frequency range in high acoustic environments. This eliminates the electrical overload on associated electronics and loss of useful data caused by oscillations of the accelerometer.

B66-10295

SUBSTITUTING TRANSISTOR FOR DIODE IMPROVES RECTIFYING MEANS

MULLER, R. M. DATE- JUL. 1966

GSFC-474

Unusual transistor connection that substitutes for a silicon diode and allows significantly higher repetition rates without increasing power loss rectifies an alternating current. Operation speed is improved by a factor of 10 or more when a given diode is replaced by this transistor circuit.

B66-10300

COMPUTER PROGRAM DETERMINES GAS FLOW RATES IN PIPING SYSTEMS

FRANKE, R. /BOEING CO./ DATE- JUL. 1966

M-PS-443

Computer program calculates the steady state flow characteristics of an ideal compressible gas in a complex piping system. The program calculates the stagnation and total temperature, static and total pressure, loss factor, and forces on each element in the piping system.

B66-10306

INSTRUMENT CALCULATES MOMENTS OF INERTIA OF COMPLEX PLANE FIGURES

MYERS, W. J. /N. AM. AVIATION/ DATE- JUL. 1966

MSC-628

Instrument consisting of a narrow field scanner coupled with a simple preprogrammed computer calculates distributive-area properties of complex or irregular plane figures representing cross sections of structural members. The calculator obtains the properties quickly and with a high degree of accuracy.

B66-10308

MICROPHONE MULTIPLEX SYSTEM PROVIDES MULTIPLE OUTLETS FROM SINGLE SOURCE

LAUVER, R. E. DATE- AUG. 1966

GSFC-426

Microphone multiplex system accepts an audio signal from a single source and provides any number of low impedance outputs at microphone level with complete isolation between output channels. Any input or output may be converted to high impedance by eliminating the associated transformer.

B66-10309

HIGH-PERFORMANCE RC BANDPASS FILTER IS ADAPTED TO MINIATURIZED CONSTRUCTION

SPON- INNOVATOR NOT GIVEN /AMES/ DATE- JUL. 1966

ARC-60

Miniaturized bandpass filter with RC networks is suitable for use in integrated circuits. The circuit consists of three stages of amplification with additional resistive and capacitive components to obtain the desired characteristics. The advantages of the active RC filter network are the reduction in size and weight and elimination of magnetic materials.

B66-10315

SYSTEM LOCATES RANDOMLY PLACED REMOTE OBJECTS

LOVELADY, R. W. MC FALL, J. C., JR. DATE- JUL. 1966

LANGLEY-209

System to locate objects submerged underwater uses active/passive sonar techniques in which a transmitter is attached to the object to be recovered and a receiver is used for search. The system is rugged, has a long term operating life, and furnishes a precise bearing on the object.

01 ELECTRICAL (ELECTRONIC)

B66-10320

SOLVENT RESIDUE CONTENT MEASURED BY LIGHT
SCATTERING TECHNIQUE

SALKOWSKI, M. J. WERLE, D. K. /IIT RES. INST./
DATE- JUL. 1966
M-FS-850

Photometric analyzer measures NVR /nonvolatile residue/ in trichloroethylene and other organic solvents. The analyzer converts the liquid solvent to aerosol and passes it between an optically focused light beam and a photodetector that is connected to standard amplifying and readout equipment.

B66-10324

INSTRUMENT TRANSMITS VANISHING POINT TO
ILLUSTRATION POINT

ALVAREZ, M. M. /N. AM. AVIATION/ DATE- JUL. 1966
MSC-267A

Instrument transmits the vanishing point of an illustration to a point on the illustration on a diminishing scale that also serves as a straightedge.

B66-10328

CORK IS USED TO MAKE TOOLING PATTERNS AND
MOLDS

HOFFMAN, F. J. /N. AM. AVIATION/ DATE- JUL. 1966
MSC-425

Sheet and waste cork are cemented together to provide a tooling pattern or mold. The cork form withstands moderately high temperatures under vacuum or pressure with minimum expansion, shrinkage, or distortion.

B66-10329

INSPECTION OF FINE WIRES SIMPLIFIED BY
CAPILLARY TUBE WIRE HOLDER

RAPHAEL, H. A. /N. AM. AVIATION/ DATE- JUL. 1966
MSC-358

Capillary tube wire holder provides a mount for fine wires for photomicrographs. The holder is mounted in a stainless steel tube and cast in a transparent casting material. It protects and permits easy location of the wire.

B66-10333

VIBRATOR IMPROVES SPARK EROSION CUTTING
PROCESS

THRALL, L. R. /AEROJET-GEN. CORP./ DATE- JUL. 1966
NU-0071

Variable frequency mechanical vibrator improves spark erosion cutting process. The vibration of the cutting tip permits continual flushing away of residue around the cut area with nondestructive electric transformer oil during the cutting process.

B66-10334

STRIPPABLE GRID FACILITATES REMOVAL OF
GRID-SURFACED CONICAL WORKPIECE FROM DIE

RUPPE, E. P. /N. AM. AVIATION/ DATE- JUL. 1966
M-FS-716

Female die facilitates the removal of a sheet metal structure from a die used for explosive forming of the metal. The female die consists of a smooth conical frustum made of fiber glass with a cured epoxy-resin surface on which a molded grid pattern made of a polyurethane resin is overlaid.

B66-10341

ULTRASONIC EMISSION METHOD ENABLES TESTING OF
ADHESIVE BONDS

FRANK, L. SCHMITZ, G. /GEN. AM. TRANSPORTATION
CORP./ DATE- AUG. 1966
M-FS-799

Detection of acoustic energy emitted by adhesive bonds subjected to tensile stresses at frequencies above sixteen kilocycles per second is used as a method for determining bond strength. This method is used in measuring adhesive bond strengths on metal honeycomb core panels.

B66-10344

PHASE INVERTER PROVIDES VARIABLE REFERENCE
PUSH-PULL OUTPUT

SPON- INNOVATOR NOT GIVEN /RCA/ DATE- AUG. 1966
HQ-23

Dual-transistor difference amplifier provides a push-pull output referenced to a dc potential which can be varied without affecting the signal levels. The amplifier is coupled with a feedback circuit which can vary the operating points of the transistors by equal amounts to provide the variable reference potentials.

B66-10347

DUST PARTICLE INJECTOR FOR HYPERVELOCITY
ACCELERATORS PROVIDES HIGH CHARGE-TO-MASS
RATIO

BERG, O. E. DATE- AUG. 1966
GSFC-509

Injector imparts a high charge-to-mass ratio to microparticles and injects them into an electrostatic accelerator so that the particles are accelerated to meteoric speeds. It employs relatively large masses in the anode and cathode structures with a relatively wide separation, thus permitting a large increase in the allowable injection voltages.

B66-10349

ELECTRICALLY CONDUCTIVE FIBERS THERMALLY
ISOLATE TEMPERATURE SENSOR

DE WAARD, E. NORTON, E. /BARNES ENG. CO./ DATE-
AUG. 1966
GSFC-456

Mounting assembly provides thermal isolation and an electrical path for an unbacked thermal sensor. The sensor is suspended in the center of a plastic mounting ring from four plastic fibers, two of which are coated with an electrically conductive material and connected to electrically conductive coatings on the ring.

B66-10350

TRANSISTOR CIRCUIT INCREASES RANGE OF
LOGARITHMIC CURRENT AMPLIFIER

GILHOUS, G. /WESTINGHOUSE ASTRONUCI. LAB./ DATE-
AUG. 1966
NU-0018

Circuit increases the range of a logarithmic current amplifier by combining a commercially available amplifier with a silicon epitaxial transistor. A temperature compensating network is provided for the transistor.

B66-10351

FUNCTION GENERATOR ELIMINATES NECESSITY
OF SERIES SUMMATION

CALLAN, J. D. MC CALL, A. J. MEAD, D. /HUGHES
AIRCRAFT CO./ DATE- AUG. 1966
GSFC-214

Diode generator using four building-block circuits produces complex waveforms without the necessity of series summation. This highly specialized method of producing complex waveforms requires less power than present methods and uses simpler circuitry.

B66-10353

ACCELERATION-COMPENSATED PRESSURE TRANSDUCER
HAS FAST RESPONSE

SPON- INNOVATOR NOT GIVEN /CORNELL AERON. LAB./
DATE- AUG. 1966
LANGLEY-113

Flush-diaphragm transducer accurately measures small dynamic pressures when it is subjected to high accelerations and severe temperature environments. The transducer uses piezoelectric crystals for measuring the pressure and balancing out acceleration forces.

B66-10355

BRUSHLESS DC MOTOR HAS HIGH EFFICIENCY, LONG
LIFE

STUDER, P. A. DATE- AUG. 1966
GSFC-181

Brushless dc motor operates as a commutator in a vacuum environment with high efficiency and long life. Because of its excellent response time, it can be used in the servomechanism field.

B66-10356

SNIPPER USED AS PORTABLE HYDROGEN LEAK
DETECTOR

DAYAN, V. H. ROMMEL, M. A. /N. AM. AVIATION/

DATE- AUG. 1966

M-FS-846 M-FS-806

Sniffer type portable monitor detects hydrogen in air, oxygen, nitrogen, or helium. It indicates the presence of hydrogen in contact with activated palladium black by a change in color of a thermochromic paint, and indicates the quantity of hydrogen by a sensor probe and continuous readout.

B66-10359

DEVICE SERVES AS HINGE AND ELECTRICAL CONNECTOR FOR CIRCUIT BOARDS

BETHEL, P. G. HARRIS, G. G. /CHRYSLER CORP./

DATE- AUG. 1966

M-FS-743

Hinge makes both sides of electrical circuit boards readily accessible for component checkout and servicing. The hinge permits mounting of two circuit boards and incorporates connectors to maintain continuous electrical contact between the components on both boards.

B66-10361

NEW COMPUTER SYSTEM SIMPLIFIES PROGRAMMING OF MATHEMATICAL EQUATIONS

REINFELDS, J. SEITZ, R. N. WOOD, L. H. DATE- AUG. 1966

M-FS-441

Automatic Mathematical Translator /AMSTRAN/ permits scientists or engineers to enter mathematical equations in their natural mathematical format and to obtain an immediate graphical display of the solution. This automatic-programming, on-line, multiterminal computer system allows experienced programmers to solve nonroutine problems.

B66-10362

AUTOMATED DRAFTING SYSTEM USES COMPUTER TECHNIQUES

MILLENSON, D. H. /N. AM. AVIATION/ DATE- AUG. 1966

M-FS-788

Automated drafting system produces schematic and block diagrams from the design engineers freehand sketches. This system codes conventional drafting symbols and their coordinate locations on standard size drawings for entry on tapes that are used to drive a high speed photocomposition machine.

B66-10363

INFRARED TELEVISION USED TO DETECT HYDROGEN FIRES

PROFFITT, R. T. /N. AM. AVIATION/ DATE- AUG. 1966

M-FS-654

Standard, commercially available closed circuit television system detects hydrogen fires in test facilities. It sees in the infrared and displays on a standard cathode ray monitor screen.

B66-10368

HYDROGEN FIRE DETECTION SYSTEM FEATURES SHARP DISCRIMINATION

BRIGHT, C. S. /N. AM. AVIATION/ DATE- AUG. 1966

M-FS-643

Hydrogen fire detection system discovers fires by detecting the flickering ultraviolet radiation emitted by the OH molecule, a short-lived intermediate combustion product found in hydrogen-air flames. In a space application, the system discriminates against false signals from sunlight and rocket engine exhaust plume radiation.

B66-10374

PNEUMATIC BINARY ENCODER REPLACES MULTIPLE SOLENOID SYSTEM

SPON- INNOVATOR NOT GIVEN /WESTON HYDRAULICS/ DATE- AUG. 1966

M-FS-665

Pneumatic binary encoder replaces solenoid system in the pilot stage of a digital actuator. The encoder operates in flip-flop manner to valve gas at either high or low pressures. By rotating the disk in a pinion-to-encoding gear ratio, six to eight adder circuits may be operated from single encoder.

B66-10376

EFFICIENT DC TO DC CONVERTER ELIMINATES LARGE STRAY MAGNETIC FIELDS

TUMS, E. O. /CHICAGO UNIV./ DATE- AUG. 1966

GSPC-463

Two-core nonsaturating dc to dc converter provides high switching efficiency without producing large stray magnetic fields. It uses one core to provide positive feedback and the combination of the two cores for the transformer.

B66-10377

SINGLE CHANNEL PULSE-HEIGHT ANALYZER OPERATES IN SUBNANOSECOND RANGE

SPON- INNOVATOR NOT GIVEN /LEWIS/ DATE- AUG. 1966

REAN- SEE ALSO NASA-TN-D-2673

LEWIS-267

Single-channel pulse-height analyzer measures nuclear state lifetimes shorter than one nanosecond. The customary logic arrangement is reversed to reduce timing errors.

B66-10379

HUMAN TRANSFER FUNCTIONS USED TO PREDICT SYSTEM PERFORMANCE PARAMETERS

SPON- INNOVATOR NOT GIVEN /LANGLEY/ DATE- AUG. 1966

REAN- SEE ALSO NASA-TN-D-1952, NASA-TN-D-2177, NASA-TN-D-2394, AND

NASA-TN-D-2569

LANGLEY-203

Automatic, parameter-tracking, model-matching technique compares the responses of a human operator with those of an analog computer model of a human operator to predict and analyze the performance of mechanical or electromechanical systems prior to construction. Transfer functions represent the input-output relation of an operator controlling a closed-loop system.

B66-10382

FEEDBACK LOOP COMPENSATES FOR RECTIFIER NONLINEARITY

SPON- INNOVATOR NOT GIVEN /SPERRY GYROSCOPE CO./ DATE- AUG. 1966

M-FS-384

Signal processing circuit with two negative feedback loops rectifies two sinusoidal signals which are 180 degrees out of phase and produces a single full-wave rectified output signal. Each feedback loop incorporates a feedback rectifier to compensate for the nonlinearity of the circuit.

B66-10386

PARALLEL LINE RASTER ELIMINATES AMBIGUITIES IN READING TIMING OF PULSES LESS THAN 500

MICROSECONDS APART

HORNE, A. P. DATE- SEP. 1966

JPL-805

Parallel horizontal line raster is used for precision timing of events occurring less than 500 microseconds apart for observation of hypervelocity phenomena. The raster uses a staircase vertical deflection and eliminates ambiguities in reading timing of pulses close to the end of each line.

B66-10389

SYSTEM MONITORS DISCRETE COMPUTER INPUTS

BURNS, J. J. /RCA/ DATE- AUG. 1966

M-FS-1021

Computer system monitors inputs from checkout devices. The comparing, addressing, and controlling functions are performed in the I/O unit. This leaves the computer main frame free to handle memory, access priority, and interrupt instructions.

B66-10391

JUNCTION CONNECTORS PERMIT STRATEGIC PLACEMENT OF TELEVISION CAMERAS

KEMPSON, A., JR. DATE- SEP. 1966

KSC-66-22

Cable run circuit with switching junction connectors at strategic locations enables television cameras to be plugged in with minimum effort wherever needed. Crimp-type contacts for mating connections reduce installation time and require a lesser level of technician skill than do soldered and potted connections.

01 ELECTRICAL (ELECTRONIC)

B66-10392

INDUCTIVE SYSTEM DETECTS LEVEL OF CONDUCTING FLUIDS

ROESKE, P. W. DATE- AUG. 1966
LEWIS-322

Inductive system monitors the liquid level of a conductive fluid that is at a high temperature in a fully closed opaque container. The system is useful in any high temperature liquid-metal system. It shows fast response and is relatively insensitive to temperature fluctuations.

B66-10393

COMPOSITE FILTER STEEPENS REJECTION SLOPES IN MICROWAVE APPLICATION

SPON- INNOVATOR NOT GIVEN /DORNE AND MARGOLIN/
DATE- AUG. 1966
GSPC-480

Composite filter is used to obtain sharp rejection slopes in microwave transmission by filtering techniques. It consists of a bandpass filter to shape the passband and a bandreject filter on each edge of the bandpass filter to steepen the rejection slopes.

B66-10394

HIGH PRESSURE CRYOGENIC LIQUID FLOW SIGHT ASSEMBLY PROVIDES STREAMLINED FLOW FOR EASY OBSERVATION

HOBART, H. E. MINKIN, H. L. DATE- AUG. 1966
LEWIS-310

Window assembly facilitates observation of cryogenic liquids flowing through a smooth pipe at pressures up to several hundred pounds per square inch. This high-pressure cryogenic observation assembly which houses a thin wall glass pipe held within a steel retainer can accommodate fluids under a wide range of pressures and temperatures.

B66-10396

SOLID STATE DETECTORS MONITOR RELAY CONTACTS

QUINN, J. D. DATE- SEP. 1966
JPL-785

Hand carried, solid state, 18-channel detector system constantly monitors contact conditions in relays. The system is relatively insensitive to external noise and is powered by standard 110 volt ac.

B66-10397

MINIMUM PERMISSIBLE LEAKAGE RESISTANCE ESTABLISHED FOR INSTRUMENTATION SYSTEMS

PERRIN, J. L. /N. AM. AVIATION/ DATE- SEP. 1966
M-FS-848

Mathematical formulas are used to determine if, and to what extent, an instrumentation system that has been exposed to the elements should be dried out to restore minimum permissible leakage resistance to ground. Formulas are also derived and used for an intermediate number of systems that are exposed to moisture penetration.

B66-10401

DIELECTROMETER DESIGN PERMITS MEASUREMENT IN VACUUM UNDER IRRADIATION

SPON- INNOVATOR NOT GIVEN /HUGHES AIRCRAFT CO./
DATE- SEP. 1966
M-FS-359

Dielectrometer permits measurement of dielectric constant and dielectric losses in a vacuum environment exposed to radiation. It is not necessary to remove the sample from the chamber during testing.

B66-10404

NEW COMPUTER PROGRAM SOLVES WIDE VARIETY OF HEAT FLOW PROBLEMS

ALMOND, J. C. /BOEING CO./ DATE- SEP. 1966
M-FS-421

Boeing Engineering Thermal Analyzer /BETA/ computer program uses numerical methods to provide accurate heat transfer solutions to a wide variety of heat flow problems. The program solves steady-state and transient problems in almost any situation that can be represented by a resistance-capacitance network.

B66-10407

DIRECTION INDICATOR SYSTEM DOES NOT REQUIRE

COMPLICATED OPTICS

MILDICE, J. W. /GEN. DYN./CONVAIR/ DATE- SEP. 1966

WOO-305

Direction indicator which aligns a system relative to a light source uses two photocells as light sensors to form a set. Each set indicates one direction. This indicator has no moving parts and provides very fine vernier acquisition.

B66-10409

MODULAR POROUS PLATE SUBLIMATOR /MPPS/ REQUIRES ONLY WATER SUPPLY FOR COOLANT

RATHBUN, R. J. /IBM/ DATE- SEP. 1966
M-FS-1374

Modular porous plate sublimators, provided for each location where heat must be dissipated, conserve the battery power of a space vehicle by eliminating the coolant pump. The sublimator requires only a water supply for coolant.

B66-10412

LEAK LOCATOR FOR VACUUM JACKETED PIPELINES ELIMINATES NEED FOR REMOVAL OF OUTER JACKET

WELLS, G. H. /N. AM. AVIATION/ DATE- SEP. 1966
M-FS-888

Device for locating leaks in a vacuum-jacketed liquid-hydrogen transfer line consists of two Mylar discs, a source of nitrogen and helium gas, and a mass spectrometer. The outer jacket of the pipeline does not need to be removed for the locator to be used.

B66-10413

ANALOG SOLAR SYSTEM MODEL RELATES CELESTIAL BODIES SPATIALLY

BAERG, H. R. DATE- SEP. 1966
JPL-195

Portable analog planetarium indicates the relative time and space angular locations of the sun and planets. Distance measuring scales, angular direction indicators, and typical probe trajectories are included.

B66-10414

ELECTRICALLY CONTROLLED OPTICAL LATCH AND SWITCH REQUIRES LESS CURRENT

PIECZONKA, W. A. ROY, M. H. YEH, T. H. /IBM/
DATE- SEP. 1966

JPL-SC-111 JPL-SC-112

Electrically controlled optical latch consists of a sensitive phototransistor and a solid-state light source. This design requires less current to activate an optically activated switch than in prior art.

B66-10419

METAL OXIDE SILICON /MOS/ TRANSISTORS PROTECTED FROM DESTRUCTIVE DAMAGE BY WIRE DEVICE

DEBOO, G. J. DEVINE, E. J. DATE- SEP. 1966
ARC-65

Loop of flexible, small diameter, nickel wire protects metal oxide silicon /MOS/ transistors from a damaging electrostatic potential. The wire is attached to a music-wire spring, slipped over the MOS transistor case, and released so the spring tensions the wire loop around all the transistor leads, shorting them together. This allows handling without danger of damage.

B66-10420

ELECTRONIC BIDIRECTIONAL VALVE CIRCUIT PREVENTS CROSSOVER DISTORTION AND THRESHOLD EFFECT

KERNICK, A. /WESTINGHOUSE ELEC. CORP./ DATE- SEP. 1966

MSC-193

Four-terminal network forms a bidirectional valve which will switch or alternate an ac signal without crossover distortion or threshold effect. In this network, an isolated control signal is sufficient for circuit turn-on.

B66-10423

AN INVESTIGATION OF PHASE-LOCK LOOP SWEPT-FREQUENCY SYNCHRONIZATION

DYE, R. A. /LOCKHEED MISSILES AND SPACE CO./
DATE- SEP. 1966

M-FS-656

Rapid synchronization of phase-locked oscillators is best achieved by the swept-frequency acquisition technique, wherein the Voltage-Controlled Oscillator /VCO/ is linearly swept through the uncertainty band. The theoretically predicted sweep rates of this technique and the observed experimental results differ by less than seven percent.

B66-10426

COMPUTER SIMULATION PROGRAM IS ADAPTABLE TO INDUSTRIAL PROCESSES

SCHULTZ, F. E. /GE/ DATE- OCT. 1966
LEWIS-240

The reaction kinetics ablation program /REKAP/, developed to simulate ablation of various materials, provides mathematical formulations for computer programs which can simulate certain industrial processes. The programs are based on the use of nonsymmetrical difference equations that are employed to solve complex partial differential equation systems.

B66-10427

ELECTRICAL CABLING WITHSTANDS SEVERE ENVIRONMENTAL CONDITIONS

HATHAWAY, J. D. /N. AM. AVIATION/ DATE- SEP. 1966

M-FS-1585

Multiconductor electrical cables retain their circuit integrity and remain flexible and abrasion resistant in severe environmental conditions of heat, vibration, and water.

B66-10429

VIDEO SIGNAL PROCESSING SYSTEM USES GATED CURRENT MODE SWITCHES TO PERFORM HIGH SPEED MULTIPLICATION AND DIGITAL-TO-ANALOG CONVERSION

GILLILAND, M. G. ROUGELOT, R. S. SCHUMAKER, R. A. /GE/ DATE- OCT. 1966
MSC-781

Video signal processor uses special-purpose integrated circuits with nonsaturating current mode switching to accept texture and color information from a digital computer in a visual spaceflight simulator and to combine these, for display on color CRT with analog information concerning fading.

B66-10430

SOLID-STATE SWITCH INCREASES SWITCHING SPEED
MC GOWAN, G. F. /MARTIN CO./ DATE- OCT. 1966
WOO-298

Solid state switch for commutating capacitors in an RC commutated network increases switching speed and extends the filtering or commutating frequency spectrum well into the kilocycle region. The switch is equivalent to the standard double-pole double-throw /DPDT/ relay and is driven from digital micrologic circuits.

B66-10431

CONTROL CIRCUIT MAINTAINS UNITY POWER FACTOR OF REACTIVE LOAD

KRAMER, M. MARTINAGE, L. H. /IBM/ DATE- OCT. 1966
MSC-192

Circuit including feedback control elements automatically corrects the power factor of a reactive load. It maintains power supply efficiency where negative load reactance changes and varies by providing corrective error signals to the control windings of a power supply transformer.

B66-10432

REMOTE PREAMPLIFIER CIRCUIT MAINTAINS STABILITY OVER WIDE TEMPERATURE RANGE
MAC NAUGHTON, R. G. /VARIAN ASSOCIATES/ DATE- OCT. 1966
WOO-278

Circuit remains stable over a wide temperature range while preamplifying light signals falling on a photocell and transmitting them through a transmission line to a remote amplifier. The circuits preamplifier consists of a grounded emitter NPN stage followed by a PNF emitter.

B66-10433

LINEAR SIGNAL NOISE SUMMER ACCURATELY DETERMINES AND CONTROLS S/N RATIO
SUNDRY, J. L. /WESTINGHOUSE ELEC. CORP./ DATE- OCT. 1966
JPL-SC-152

Linear signal noise summer precisely controls the relative power levels of signal and noise, and mixes them linearly in accurately known ratios. The S/N ratio accuracy and stability are greatly improved by this technique and are attained simultaneously.

B66-10436

SHAFT ENCODER PRESENTS DIGITAL OUTPUT
HILLIS, D. A. /HUGHES AIRCRAFT CO./ DATE- OCT. 1966

JPL-SC-191

Circuits that include compensation circuitry time a capacitance relative to a reference voltage so that a digital presentation occurs that is representative of the positional condition of the mechanical shaft being monitored. This circuitry may be employed in multiples to furnish binary encoding of a number of rotating devices simultaneously.

B66-10437

SINGLE-SIDEBAND MODULATOR ACCURATELY REPRODUCES PHASE INFORMATION IN 2-MC SIGNALS
STRENGLEIN, H. F. /SPERRY MICROWAVE ELECTRON. CO./ DATE- OCT. 1966
M-FS-664

Phase-locked oscillator system employing solid state components acts as a single-sideband modulator to accurately reproduce phase information in 2-Mc signals. This system is useful in telemetry, aircraft communications and position-finding stations, and VHF test circuitry.

B66-10438

DENSITOMETER SYSTEM FOR LIQUID HYDROGEN HAS HIGH ACCURACY, FAST RESPONSE
SPON- INNOVATOR NOT GIVEN /FRANKLIN GNO CORP./ DATE- OCT. 1966
M-FS-909

Developmental densitometer system for cryogenic liquids uses two balanced ionization chambers containing xenon gas, with X rays as the radiation source. The X rays are heavily filtered with a lead shield to make the energy spectrum much less dependent on the voltage applied to the X ray tube.

B66-10439

ION CHAMBERS SIMPLIFY ABSOLUTE INTENSITY MEASUREMENTS IN THE VACUUM ULTRAVIOLET
SAMPSON, J. A. R. /GEOPHYS. CORP. OF AM./ DATE- OCT. 1966
ERC-10

Single or double ion chamber technique measures absolute radiation intensities in the extreme vacuum ultraviolet region of the spectrum. The ion chambers use rare gases as the ion carrier. Photon absorbed by the gas creates one ion pair so a measure of these is a measure of the number of incident photons.

B66-10440

PHOTOELECTRIC SCANNER MAKES DETAILED WORK FUNCTION MAPS OF METAL SURFACE
RASOR, N. S. /THERMO ELECTRON ENG. CORP./ DATE- OCT. 1966
JPL-SC-176

Photoelectric scanning device maps the work function of a metal surface by scanning it with a light spot and measuring the resulting photocurrent. The device is capable of use over a range of surface temperatures.

B66-10441

STANDARD ARC WELDERS PROVIDE HIGH AMPERAGE DIRECT CURRENT SOURCE
BEASLEY, W. D. BROOKS, J. D. DATE- OCT. 1966
LANGLEY-267 LANGLEY-268

Standard arc welders or power supplies are hooked up in parallel or series connections to obtain an adequate supply of current or voltage for various

01 ELECTRICAL (ELECTRONIC)

purposes. This method provides maximum flexibility in a wide range of voltages and currents.

B66-10442
AN IMPROVED METHOD FOR TESTING PERFORMANCE OF
VIDICONS DURING VIBRATION
CORSON, B. R. /HUGHES AIRCRAFT CO./ DATE- OCT.
1966
JPL-SC-113

Vidicon electron beam modulation is used for checking the performance of vidicons in mechanical vibration tests. The vidicon electron beam is modulated with an external signal during the write period thereby storing the image on the vidicon face.

B66-10444
THERMIONIC SCANNER PINPOINTS WORK FUNCTION
OF EMITTER SURFACES
RASOR, N. S. /THERMO ELECTRON ENG. CORP./ DATE-
OCT. 1966
JPL-SC-177

In the electron tube testing, a thermionic scanner makes accurate spatial resolution measurements of the metallic surface work functions of emitters. The scanner determines the emitter function and its local departures from the mean value on a point-by-point basis for display on an oscilloscope.

B66-10447
SEMICONDUCTORS CAN BE TESTED WITHOUT
REMOVING THEM FROM CIRCUITRY
ALLEN, B. C. /N. AM. AVIATION/ DATE- NOV. 1966
M-FS-1163

Oscilloscope, with specially developed test circuitry, quickly checks semiconductors without removing them from the circuitry. For transistors, approximate gain and linearity, as well as PNP or NPN determinations are made. When testing diodes, open or short circuits, and reverse polarity show up plainly.

B66-10449
BASIC SUPPRESSION TECHNIQUES ARE EVALUATED
DAWIRS, H. N. /RECON, INC./ DATE- OCT. 1966
M-FS-867

Investigation of standard suppression methods facilitates switching of inductively loaded circuits which causes interference in adjacent electronic equipment. The data are reduced to tabular form and rapid selection of components by the designer can be made without lengthy calculations or trial and error manipulations.

B66-10452
RECTILINEAR ACCELEROMETER POSSESSES SELF-
CALIBRATION FEATURE
HENDERSON, R. B. /SAUNDERS ASSOC., INC./ DATE-
OCT. 1966
M-FS-1480

Rectilinear accelerometer operates from an ac source with a phase-sensitive ac voltage output proportional to the applied accelerations. The unit includes an independent circuit for self-test which provides a sensor output simulating an acceleration applied to the sensitive axis of the accelerometer.

B66-10456
PULSE GENERATOR USING TRANSISTORS AND SILICON
CONTROLLED RECTIFIERS PRODUCES HIGH CURRENT
PULSES WITH FAST RISE AND FALL TIMES
WOOLFSON, M. G. DATE- OCT. 1966
MSC-405

Electrical pulse generator uses power transistors and silicon controlled rectifiers for producing a high current pulse having fast rise and fall times. At quiescent conditions, the standby power consumption of the circuit is equal to zero.

B66-10461
MODIFIED THERMOCOUPLE IS EFFECTIVE FROM
MINUS 250 DEG TO 5000 DEG F
MOEN, W. K. /N. AM. AVIATION/ DATE- NOV. 1966
MSC-420

Modified, commercially available thermocouple which measures the temperature of a spacecraft

heat shield, is capable of continuous measurement in the range of minus 250 deg to 5000 deg F. The modified thermocouples may be used inside metal treating furnaces in high temperature technology, and in certain corrosive environments.

B66-10462
INSTRUMENT AUTOMATICALLY SELECTS PEAK
ACCELERATION SIGNAL FROM SEVERAL
ACCELEROMETERS
CHAPMAN, C. P. DATE- OCT. 1966
JPL-816

Solid state circuit selects the highest of several ac accelerometer signals and gates this signal to an output amplifier, preserving all the frequency information in the peak signal. If the amplitudes of the accelerometer signals change with time, the circuit will continually switch to the highest signal, rejecting the smaller signals.

B66-10465
SOLID STATE CIRCUIT SWITCHES AC LOAD
CHAPMAN, C. P. RUPNIK, D. R. DATE- OCT. 1966
JPL-798

Differential amplifier circuit switches ac signals with peak amplitudes greater than 5 volts. This solid state circuit biases a switching transistor on and off by a 0.1 to 5.0 dc control voltage.

B66-10466
STUDY COMPARES METHODS FOR THE NUMERICAL
SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS
SPON- INNOVATOR NOT GIVEN /GEORGIA INST. OF
TECHNOL./ DATE- OCT. 1966 REAN- SEE ALSO
NASA-CR-61060
M-FS-830

Study compares the use of five different methods for the computer solution of the restricted three-body problem. It describes the implementation of each method on a burroughs B-5000 computer and in terms of speed and accuracy.

B66-10469
BIPOLAR CURRENT DRIVER FOR MEMORY CIRCUITS
CHONG, C. F. NELSON, C. A. /SPERRY RAND CORP./
DATE- NOV. 1966
GSFC-213

Circuit which logically determines the state of a flip-flop and amplifies the current from a clock pulse provides a bipolar driving current to a memory circuit, the polarity of which is determined by the state of a flip-flop. This principle may be applied to various memory driving circuits where power dissipation must be minimized.

B66-10476
DEVICE TO COLOR MODULATE A STATIONARY LIGHT
BEAM GIVES HIGH INTENSITY
GANTZ, W. A. /CALIF. UNIV./ DATE- DEC. 1966
HQ-44

Signal controlled system color modulates a beam of light while also providing high intensity and a stationary beam, either collimated or focused. The color modulation acquired by the presented system can be compatible with any color film by employing color filters formed to provide a color wedge having a color distribution compatible with the films color sensitivity.

B66-10478
PLUG-IN CONNECTOR SOCKET ACCEPTS COAXIAL
CABLE END
MITCHELL, D. VAN LOON, J. A. DATE- NOV. 1966
ARG-9

Connector which includes a spring-loaded contact to receive a protruding center conductor and an internal collet to clamp against a collar attached to a woven outer conductor, is used as a receptacle for the end of a coaxial cable. This plug-in connector socket is used successfully with remote manipulators.

B66-10480
SIMPLE, ONE TRANSISTOR CIRCUIT BOOSTS PULSE
AMPLITUDE
KEON, T. MATCHETT, M. W. /CUTLER HAMMER/ DATE-
OCT. 1966

GSFC-501

Simple circuit that uses a single transistor to accomplish capacitor storage followed by common-base switching supplies a pulse voltage, higher than that normally available from emitter-follower circuits, to drive a 100-watt transmitter.

B66-10481

MODIFIED MCLEOD PRESSURE GAGE ELIMINATES MEASUREMENT ERRORS

KELLS, M. C. DATE- NOV. 1966

ARC-62

Modification of a McLeod gage eliminates errors in measuring absolute pressure of gases in the vacuum range. A valve which is internal to the gage and is magnetically actuated is positioned between the mercury reservoir and the sample gas chamber.

B66-10482

AUTOMATIC CRYOGENIC LIQUID LEVEL CONTROLLER IS SAFE FOR USE NEAR COMBUSTIBLE SUBSTANCES

KREJSA, M. DATE- OCT. 1966

LEWIS-195

Automatic mechanical liquid level controller that is independent of any external power sources is used with safety in the presence of combustibles. A gas filled capillary tube which leads from a pressurized chamber, is inserted into the cryogenic liquid reservoir and becomes a liquid level sensing element or probe.

B66-10486

SOLID STATE CIRCUIT CONTROLS DIRECTION, SPEED, AND BRAKING OF DC MOTOR

HANNA, M. F. DATE- OCT. 1966

JPL-757

Full-wave bridge rectifier circuit controls the direction, speed, and braking of a dc motor. Gating in the circuit of Silicon Controlled Rectifiers (SCRs) controls output polarity and braking is provided by an SCR that is gated to short circuit the reverse voltage generated by reversal of motor rotation.

B66-10488

SPIRAL SPRING/STRAIN GAGE COMBINATION

ACCURATELY MEASURES SHOCK INDUCED DEFLECTION

BERVEN, B. R. WALKER, R. R. /N. AM. AVIATION/ DATE- OCT. 1966

MSC-789

Spiral springs equipped with strain gages which are hard-wired to readout instrumentation, measure deflection between two relatively inaccessible surfaces in a drop test that causes them to close to near flatness. This technique has been successfully used on Apollo drop tests to measure deflection between aft bulkhead and heatshield.

B66-10490

SOLENOID MAGNETIC FIELDS CALCULATED FROM

SUPERPOSED SEMI-INFINITE SOLENOIDS

BROWN, G. V. FLAX, L. DATE- NOV. 1966 REAN- SEE ALSO NASA-TN-D-2494

LEWIS-184

Calculation of a thick solenoid coils magnetic field components is made by a superposition of the fields produced by four solenoids of infinite length and zero inner radius. The field produced by this semi-infinite solenoid is dependent on only two variables, the radial and axial field point coordinates.

B66-10491

MINIATURE CAPACITIVE ACCELEROMETER IS

ESPECIALLY APPLICABLE TO TELEMETRY

COON, G. W. HARRISON, D. R. DATE- NOV. 1966 REAN- SEE ALSO B63-10429

ARC-72

Capacitive accelerometer design enables the construction of highly miniaturized instruments having full-scale ranges from 1 g to several hundred g. This accelerometer is applicable to telemetry and can be tailored to cover any of a large number of acceleration ranges and frequency responses.

B66-10492

CIRCUIT PREVENTS OVERCHARGING OF SECONDARY CELL BATTERIES

HENNIGAN, T. J. POTTER, N. H. SIZEMORE, K. O. DATE- NOV. 1966

GSFC-454

Circuit prevents battery cell overcharging by detecting and reducing the charging voltage to the open-circuit voltage of the battery when this current falls to a predetermined value. The voltage control depends on the fact that the charging current falls significantly when the battery nears its fully charged state.

B66-10493

STUDY SHOWS EFFECT OF SURFACE PREPARATIONS ON IMPROVING THERMIONIC EMISSION

VAN SOMEREN, L. VAN SOMEREN, L./THERMO ELECTRON ENG. CORP./ DATE- NOV. 1966

JPL-SC-140

Specimen thermionic emitters were electropolished and electroetched to study the effect of surface preparations on improving thermionic emission. The best technique found was to electropolish the annealed rhenium surface and then electroetch it. The effect of electroetching was to remove other crystal planes faster than basal planes.

B66-10494

OPTICAL MONITOR PANEL PROVIDES FLEXIBLE TEST PANEL CONFIGURATIONS

GRIFFIN, F. D. DATE- NOV. 1966

KSC-66-18

Optical monitor panel projects a chosen panel configuration upon a translucent screen by using a master projector and appropriate slide to project panel board nomenclature and a series of smaller individual projectors to superimpose monitor indicators upon the projected panel board.

B66-10496

COMPUTER PROGRAM PERFORMS FLOW ANALYSIS THROUGH TURBINES

KATSANIS, T. DATE- NOV. 1966 REAN- SEE ALSO NASA-TN-D-2546 AND NASA-TN-D-2809

LEWIS-236

Computer program based on an equation for the velocity gradient along an arbitrary quasi-orthogonal analyzes flow through a turbomachine. The program obtains meridional solutions for a hub-to-shroud analysis and blade-to-blade analysis at the hub, mean, and shroud surfaces in a single computer run.

B66-10497

HIGH VOLTAGE POTENTIAL DIVIDER CALIBRATED BY SIMPLE DEVICE

LEWIS, R. N. DATE- NOV. 1966

ARG-83

Resistance bridge device incorporates a potentiometer, switches, and a null detector to calibrate high potential dividers under high voltage operation conditions. Calibration can be performed with this device in less than 1 minute at an accuracy of 0.001 percent.

B66-10500

DIGITAL SYSTEM PROVIDES SUPERREGULATION OF NANOSECOND AMPLIFIER-DISCRIMINATOR CIRCUIT

FORGES, K. G. DATE- NOV. 1966

ARG-61

Feedback system employing a digital logic comparator to detect and correct amplifier drift provides stable gain characteristics for nanosecond amplifiers used in counting applications. Additional anticoincidence logic enables application of the regulation circuit to the amplifier and discriminator while they are mounted in an operable circuit.

B66-10501

ELECTRONIC CIRCUIT DELIVERS PULSE OF HIGH INTERVAL STABILITY

FISHER, B. /N. AM. AVIATION/ DATE- NOV. 1966 MSC-673

Circuit generates a pulse of high interval stability with a complexity level considerably below systems of comparable stability. This circuit is being used as a linear frequency

01 ELECTRICAL (ELECTRONIC)

discriminator in the signal conditioner of the Apollo command module.

B66-10502
POINT-SOURCE LIGHT SENSOR CIRCUIT IS
INSENSITIVE TO BACKGROUND LIGHT
DAVIS, E. S. DATE- NOV. 1966
JPL-778

Circuit incorporating a bisynchronous demodulator for an electro-optical star-tracking sensor provides a signal proportional to star intensity without interference from background light in the field of view. The system works best on a sharply focused star image and requires a 50 percent duty cycle.

B66-10503
COMPUTER PROGRAM DETERMINES PERFORMANCE
EFFICIENCY OF REMOTE MEASURING SYSTEMS
MEREWETHER, E. K. /N. AM. AVIATION/ DATE- NOV.
1966
M-PS-1137

Computer programs control and evaluate instrumentation system performance for numerous rocket engine test facilities and prescribe calibration and maintenance techniques to maintain the systems within process specifications. Similar programs can be written for other test equipment in an industry such as the petrochemical industry.

B66-10504
SUBROUTINE ALLOWS EASY COMPUTATION IN
EXTENDED PRECISION ARITHMETIC
BERGGREN, R. L. GYSBERS, J. C. /N. AM. AVIATION/
DATE- NOV. 1966
M-PS-1136

Subroutine called NPREC allows relatively simple computation of very large numbers or very small fractions with extreme accuracy. This subroutine handles numbers that consist of 35 binary bits /1 word/ for the exponent and 70 bits /2 words/ for the fraction.

B66-10505
SOLID STATE ANNUNCIATOR FACILITATES COMPLEX
SYSTEM TROUBLESHOOTING
HOFFER, H. P. /N. AM. AVIATION/ DATE- NOV. 1966
M-PS-1258

Solid state annunciator monitors up to 60 parameters for a dc voltage change from zero to 28 volts in the testing of complex systems. This annunciator is presently being used for testing of the complex J-2 rocket engine.

B66-10506
COMPUTER PROGRAM DETERMINES INVENTORY SIZE
KASPAR, H. /N. AM. AVIATION/ DATE- NOV. 1966
M-PS-1135

FORTAN 4 computer program calculates optimum size of a small inventory of relatively complex or expensive items. This program can be used in situations where the initial cost of purchase is large or when there is a need for a balanced inventory on a short production run.

B66-10509
PULSE STRETCHER HAS IMPROVED DYNAMIC RANGE
AND LINEARITY
LARSEN, R. N. DATE- NOV. 1966
ARG-82

Current-switching pulse stretcher overcomes the diode nonlinearity and capacitive feedthrough of voltage switching diode-capacitor stretchers and lengthens nanosecond pulses so that their amplitude may be determined and extends the dynamic range of the pulse stretcher. The rise time of the output pulse in response to a step function is approximately 5 nanoseconds.

B66-10510
LOW LEVEL ACCELEROMETER TEST METHODS ARE
INVESTIGATED
NELSON, R. H., JR. FLOURDE, H. S. /DYN. RES.
CORP./ DATE- NOV. 1966
M-PS-908

Problems associated with testing accelerometers to an accuracy where the standard error is less than .0000001 g are centered around the elimination of

uncertainties in the acceleration input to the accelerometer. By placing a test rig in free fall, the uncertainty in the earth's gravity field can be eliminated.

B66-10511
COMPUTER ROUTINE ADDS PLOTTING CAPABILITIES
TO EXISTING PROGRAMS
HARRIS, J. C. LINNEKIN, J. S. /LITTON IND. /
DATE- NOV. 1966
GSFC-490

PLOTAN, a generalized plot analysis routine written for the IBM 7094 computer, minimizes the difficulties in adding plot capabilities to large existing programs. PLOTAN is used in conjunction with a binary tape writing routine and has the ability to plot any variable on the intermediate binary tape as a function of any other.

B66-10512
NIXIE TUBE DISPLAY UNIT EMPLOYS TIME-SHARED
LOGIC
GRAY, J. DATE- NOV. 1966
ARG-117

Cathodes of display tubes wired in parallel achieve input switching simplification of a Nixie tube display system. Use of time-shared logic energizes the appropriate anode and inhibits all unnecessary cathodes.

B66-10516
DIGITAL SYSTEM DETECTS BINARY CODE PATTERNS
CONTAINING ERRORS
MULLER, R. M. THARPE, H. M., JR. DATE- NOV. 1966
GSFC-541

System of square loop magnetic cores associated with code input registers to react to input code patterns by reference to a group of control cores in such a manner that errors are canceled and patterns containing errors are accepted for amplification and processing. This technique improves reception capabilities in PCM telemetry systems.

B66-10518
ANTENNA SIMULATOR PERMITS PREINSTALLATION
SYSTEM CHECKOUT
ELIA, A. D. SCHMIDT, R. F. DATE- NOV. 1966
GSFC-522

Antenna simulator provides for evaluation checkout of corporate feeds, monopulse sum-and-difference networks, etc., in a shielded environment prior to system checkout on an antenna pattern range. This technique is useful wherever simulation of monopulse antenna element characteristics is desired for checkout of ancillary equipment in a controlled environment.

B66-10520
PYROMETRY HANDBOOK DESCRIBES PRACTICAL
ASPECTS OF SURFACE TEMPERATURE MEASUREMENTS
OF OPAQUE MATERIALS
BRANSTETTER, J. R. BUCHELE, D. R. DATE- NOV.
1966 REAN- SEP ALSO NASA-TN-D-3604
LEWIS-349

Handbook contains extensive reference literature and results from pertinent experiments to provide a collection of applied technology and reference sources for engineers and technicians. Fundamental equations of radiation, off-design corrections, characteristics of pyrometers, and calibration apparatus and techniques are discussed.

B66-10521
FLOWMETER MEASURES FLOW RATES OF HIGH
TEMPERATURE FLUIDS
VARY, A. DATE- NOV. 1966
LEWIS-328

Flowmeter in which flow rate is determined by measuring the position and thus the displacement of an internal float acted upon by the flowing fluid determines the flow rates of various liquid metals at elevated temperatures. Viscous forces cause the float to move from its mounted position, affording several means for measuring this motion and the flow rate.

B66-10524

STUDY OF VORTEX VALVE FOR MEDIUM

TEMPERATURE SOLID PROPELLANTS

HOLT, W. D. RIVARD, J. G. /BENDIX CORP./ DATE-

DEC. 1966

LANGLEY-204

Fluid state vortex valve secondary injection control system shows considerable promise for future application to solid propellant rocket engine thrust vector control. The single axis injection system tested would be capable of providing secondary injection thrust vector control using 2000 deg F gas.

B66-10525

COMPUTER PROGRAM PERFORMS STATISTICAL

ANALYSIS FOR RANDOM PROCESSES

NEWBERRY, M. H. DATE- NOV. 1966 REAN- SEE ALSO

NASA-TM-X-53359

M-FS-723

Random Vibration Analysis Program /RAVAN/ performs statistical analysis on a number of phenomena associated with flight and captive tests, but can also be used in analyzing data from many other random processes.

B66-10526

IMPROVED DESIGN PROVIDES FASTER RESPONSE

TIME IN PHOTOMULTIPLIER

SPON- INNOVATOR NOT GIVEN /HALLCRAFTERS CO./

DATE- NOV. 1966

GSPC-451

Dynamic Crossed-Field Electron Multiplying /DCFEM/ light demodulator avoids the normal response time limitations inherent in static field devices by using time varying crossed electric and static magnetic fields. This eliminates the transit time spread that affects electrons as they proceed along the secondary emission stages of the tube.

B66-10529

COMPUTER PROGRAM SEARCHES CHARACTERISTIC

DATA OF DIODES AND TRANSISTORS

SPON- INNOVATOR NOT GIVEN /BOOZ-ALLEN APPL. RES.

CORP./ DATE- NOV. 1966

GSPC-493

Semiconductor information storage and retrieval system provides a comprehensive, accurate, and ready reference to characteristic data of diodes and transistors. The system can be used to supply a complete listing of technical component information necessary for circuit designers, reliability engineers, and quality assurance personnel.

B66-10531

HEAT FLUX SENSOR DESIGN REDUCES EXTRANEIOUS

SOURCE EFFECTS

CROFTS, E. D. ROBINSON, G. P. /MCDONNELL

AIRCRAFT CORP./ DATE- NOV. 1966

MSC-400

Heat flux sensor isolates the sensor and its transmitting thermocouple from undesirable heat sources by incorporating a radiator section that forms a radiation shield between counting cup and sensor. Bonding of the thermocouple cable to the underside of the radiator provides a conductive path to dissipate extraneous heat that might otherwise reach the sensor.

B66-10533

METHOD PERMITS MECHANICAL AND ELECTRICAL

CHECKOUT OF PIEZOELECTRIC TRANSDUCERS WHILE

INSTALLED IN A SYSTEM

JENKINS, R. S. ROGALLO, V. L. DATE- NOV. 1966

REAN- SEE ALSO B66-10534

ARC-73

Known dc voltage is applied and then removed suddenly in a method to permit checkout of the mechanical and electrical condition of piezoelectric transducers of the cantilever beam type, while installed in a system.

B66-10534

MINIATURE PIEZOELECTRIC TRIAXIAL

ACCELEROMETER MEASURES CRANIAL ACCELERATIONS

DEBOO, G. J. ROGALLO, V. L. DATE- NOV. 1966

REAN- SEE ALSO B64-10004 AND B66-10533

ARC-71

Tiny triaxial accelerometer whose sensing elements are piezoelectric ceramic beams measures human cranial accelerations when a subject is exposed to a centrifuge or other simulators of g environments. This device could be considered for application in dental, medical, and automotive safety research.

B66-10536

HELMET SYSTEM BROADCASTS

ELECTROENCEPHALOGRAMS OF WEARER

WESTBROOK, R. M. ZUCCARO, J. J. DATE- NOV. 1966

REAN- SEE ALSO B65-10203

ARC-70

EEG monitoring system consisting of nonirritating sponge-type electrodes, amplifiers, and a battery-powered wireless transmitter, all mounted in the subjects helmet, obtains electroencephalograms /EEGs/ of pilots and astronauts performing tasks under stress. After a quick initial fitting, the helmet can be removed and replaced without adjustments.

B66-10539

COMPUTER PROGRAMS PERFORM SPECTRAL

ANALYSES OF UP TO SEVEN TIME SERIES

BYARS, B. J. DUBMAN, M. R. /N. AM. AVIATION/

DATE- NOV. 1966

M-FS-1133 M-FS-1134

Computer programs perform statistical spectral analyses of up to seven time series. These programs should have applicability to a variety of engineering systems in the fields of geophysics, physiology, acoustics, and structural analysis.

B66-10541

COMPUTER USED TO PROGRAM NUMERICALLY

CONTROLLED MILLING MACHINE

HARRIS, T. C. /GE/ DATE- NOV. 1966

M-FS-1608

Computer program automatically directs a numerically controlled milling machine through a series of cutting and trimming actions. It accepts engineering data points, passes smooth curve segments through the points, breaks the resulting curves into a series of closely spaced points, and transforms these points into the form required by the mechanism.

B66-10542

PREREGULATOR FEEDBACK CIRCUIT UTILIZES

LIGHT ACTUATED SWITCH

HAYSER, T. P. /IBM/ DATE- NOV. 1966

M-FS-1180

Preregulator feedback circuit employing a Light Actuated Switch /LAS/ provides a simple and efficient feedback device in a power supply preregulator which maintains dc isolation between input and output grounds. The LAS consists of a diode PN junction infrared source close to, but electrically isolated from, a photodetector.

B66-10543

HIGH-RELUCTANCE ROTOR RINGS IMPROVE

HOMOPOLAR GENERATOR PERFORMANCE

MUSSET, E. E. DATE- NOV. 1966

ARG-104

Nonmagnetic metal rings imbedded in a homopolar generator rotor normal to its axis keep the induction flux entering the rotor in a radial path. Use of the rings permits optimum rotor design for any given set of operating requirements and simplifies the task of predicting the operation characteristics of the generator.

B66-10544

ULTRASONIC QUALITY INSPECTION OF BONDED

HONEYCOMB ASSEMBLIES IS AUTOMATED

KAMMERER, C. C. /N. AM. AVIATION/ DATE- NOV.

1966

MSC-859

Inspection system for bonded honeycomb assemblies is accurate, fast, and automated. The ultrasonic system consists of inner and outer transducer positioning assemblies with suitable motor controls, a centerless turntable assembly, water squirter assemblies, and an inspection program completely encoded on tape suitable for use on a

01 ELECTRICAL (ELECTRONIC)

high speed computer.

B66-10548
SECURITY WARNING SYSTEM MONITORS UP TO
FIFTEEN REMOTE AREAS SIMULTANEOUSLY
FUSCO, R. C. /RCA/ DATE- NOV. 1966
KSC-66-39

Security warning system consisting of 15 television cameras is capable of monitoring several remote or unoccupied areas simultaneously. The system uses a commutator and decommutator, allowing time-multiplexed video transmission. This security system could be used in industrial and retail establishments.

B66-10549
MINIATURE ELECTROMETER PREAMPLIFIER
EFFECTIVELY COMPENSATES FOR INPUT
CAPACITANCE
BURROUS, C. N. DE BOO, G. J. DATE- NOV. 1966
ARC-69

Negative capacitance preamplifier using a dual MOS /Metal Oxide Silicon/ transistor in conjunction with bipolar transistors is used with intracellular microelectrodes in recording bioelectric potentials. Applications would include use as a pickup plate video amplifier in storage tube tests and for pH and ionization chamber measurements.

B66-10552
NONELECTROLYTIC TANTALUM CAPACITORS DEVELOPED
SPON- INNOVATOR NOT GIVEN /CORNELL-DUBILIER ELEC.
CORP./ DATE- NOV. 1966
M-FS-1546

Large area, nonelectrolytic tantalum foil capacitor has capacitance of approximately 1 microfarad and is capable of operating at 125 deg C at 150 volts with an insulation resistance of at least 1 megohm. In tests at a potential of 100 volts, capacitors remained stable through a temperature range from 25 deg to 125 deg C.

B66-10553
COMPUTER PROGRAMS CALCULATE POTENTIAL AND
CHARGE DISTRIBUTIONS IN A PLASMA
JEFFRIES, N. P. PRINCE, D. C. /GE/ DATE- NOV.
1966
M-FS-871

Computer program determines the potential and charge distributions between two electrodes in a plasma. Solutions of the Vlasov equations for plane, cylindrical, and spherical geometries are determined and density distributions are found for each of these configurations over a range of conditions.

B66-10555
A FAST-NEUTRON SPECTROMETER OF ADVANCED
DESIGN
MOLER, R. B. PRESTON, C. C. /IIT RES. INST./
DATE- NOV. 1966
M-FS-1664

Fast neutron spectrometer combines helium filled proportional counters with solid-state detectors to achieve the properties of high efficiency, good resolution, rapid response, and effective gamma ray rejection.

B66-10556
SIMPLIFIED FIXTURE PERMITS PRECISION
ALIGNMENT OF AN OPTICAL TARGET
MAGURA, P. /IBM/ DATE- NOV. 1966
M-FS-1181

Optical target holder is permanently placed for instrument sighting, yet is adjustable and easily aligned.

B66-10557
TRISPHERE SPARK GAP ACTUATES OVERVOLTAGE
RELAY
CANACHO, S. L. DATE- DEC. 1966
ARC-68

Trisphere spark gap and high voltage relay provides a positive, fast response, high current capacity device that will sense an overvoltage condition and remove power from the circuit before insulation breakdown. When an overvoltage occurs, the spark gap breaks down and conducts an

actuating current to the relay which removes power from the circuit.

B66-10559
ONE-COUNT MEMORY CIRCUIT PREVENTS MACHINE
MODE INTERACTION
DE FOREST, B. DATE- DEC. 1966
ARG-90

One-count memory logic circuit used with electromechanical counter-printer machines operates in either count or print mode. The circuit advances the counter when the machine is in the count mode and provides storage for the count pulse when the machine is in the print mode.

B66-10561
PULSE TECHNIQUE PROVIDES MORE ACCURATE
CHECKOUT OF EXPLODING BRIDGE WIRE DEVICE
PETRICK, J. R. /GE/ DATE- DEC. 1966
HQ-62

Explosion Bridge Wire /EBW/ is treated as a transmission line system and pulse reflection techniques are used for checking the electrical integrity of an EBW cartridge. A step voltage is propagated into the system and the reflected voltage waves are monitored.

B66-10563
COLLECTOR/COLLECTOR GUARD RING BALANCING
CIRCUIT ELIMINATES EDGE EFFECTS
LIEB, D. P. /THERMO ELECTRON ENG. CORP./ DATE-
DEC. 1966
JPL-SC-143

Circuit in which an emitter is maintained opposite a concentric collector and guard structure is achieved by matching the temperature and potential of the guard with that of the collector over the operating range. This control system is capable of handling up to 100 amperes in the guard circuit and 200 amperes in the collectors circuit.

B66-10564
PHOTOCELL SHADOWING TECHNIQUE IMPROVES LIGHT
SOURCE DETECTOR
CARPENTER, D. G. HOOPER, G. E. DATE- DEC. 1966
JPL-809

Lightweight, compact modular system that includes an acquisition photodiode is used as a light source tracking detector that exhibits minimum scale factor change with increased light source angle. Photodiodes of various types, responsive to other portions of the spectrum, could be used to acquire and track infrared, ultraviolet, and other source fluxes.

B66-10566
COMPUTATIONAL PROCEDURE FOR FINITE DIFFERENCE
SOLUTION OF ONE-DIMENSIONAL HEAT CONDUCTION
PROBLEMS REDUCES COMPUTER TIME
IDA, H. T. /N. AM. AVIATION/ DATE- NOV. 1966
MSC-1120

Computational procedure reduces the numerical effort whenever the method of finite differences is used to solve ablation problems for which the surface recession is large relative to the initial slab thickness. The number of numerical operations required for a given maximum space mesh size is reduced.

B66-10568
MONITORING CIRCUIT ACCURATELY MEASURES
MOVEMENT OF SOLENOID VALVE
GILBERT, J. D. /N. AM. AVIATION/ DATE- DEC. 1966
M-FS-1829

Solenoid operated valve in a control system powered by direct current issued to accurately measure the valve travel. This system is currently in operation with a 28-vdc power system used for control of fluids in liquid rocket motor test facilities.

B66-10569
DEVICE ACCURATELY MEASURES AND RECORDS LOW
GAS-FLOW RATES
BRANUM, L. W. /N. AM. AVIATION/ DATE- DEC. 1966
M-FS-1077

Free-floating piston in a vertical column accurately measures and records low gas-flow rates. The system may be calibrated, using an

adjustable flow-rate gas supply, a low pressure gage, and a sequence recorder. From the calibration rates, a nomograph may be made for easy reduction. Temperature correction may be added for further accuracy.

B66-10574
NONDESTRUCTIVE TEST METHOD ACCURATELY SORTS MIXED BOLTS

DEZEIN, C. J. DATE- DEC. 1966
 M-FS-1426

Neutron activation analysis method sorts copper plated steel bolts from nickel plated steel bolts. Copper and nickel plated steel bolt specimens of the same configuration are irradiated with thermal neutrons in a test reactor for a short time. After thermal neutron irradiation, the bolts are analyzed using scintillation energy readout equipment.

B66-10576
A CONTINUOUSLY OPERATING SOURCE OF VACUUM ULTRAVIOLET BELOW 500 ANGSTROM
 SPON- INNOVATOR NOT GIVEN /SPACE SCI. INC./ DATE- DEC. 1966
 GSFC-545

Duo plasmatron type source of ultraviolet radiation operates in the wavelength region below 500 angstrom. Since the spectra produced are determined almost completely by the gas injected, and because the source operates continuously, this arrangement is beneficial in the development and calibration of filters and detectors within discrete wavelength ranges.

B66-10577
ULTRASONIC WATER COLUMN PROBE SPEEDS UP TESTING OF WELDS
 HOOP, J. M. MC DONALD, J. A. /GE/ DATE- DEC. 1966
 HQ-58

Ultrasonic device consisting of a coaxial rod and transducer enclosed in a cylindrical probe which is filled with deionized or distilled water speeds up the testing of welds. Rubber diaphragm is molded to produce the desired test beam angle.

B66-10579
AN ORTHONORMALIZATION PROCEDURE FOR MULTIVARIABLE FUNCTION APPROXIMATION
 INGRAM, H. L. DATE- DEC. 1966
 M-FS-1313

Where a function of several variables is given numerically in tabular form, an orthonormalization technique allows an approximation of the numerical data to be determined in a convenient functional form. In this technique, the speed and accuracy of coefficient computation are much improved.

B66-10580
RESISTOR MONITORS TRANSFER OF LIQUID HELIUM
 HESKETH, W. D. DATE- DEC. 1966
 LANGLEY-229

Large resistance change of a carbon resistor at the liquid helium temperature distinguishes between the transfer of liquid helium and gaseous helium into a closed Dewar. The resistor should be physically as small as possible to reduce the heat load to the helium.

B66-10581
DETECTOR MEASURES POWER IN 50 TO 30,000 GHZ RADIATION BAND
 ARAMS, F. R. WANG, M. T. /AIRBORNE INSTR. LAB./ DATE- DEC. 1966
 ERC-26

Broadband power detector assembly measures electromagnetic radiation in the 50 to 30,000 GHz band. The assembly includes a matched pair of detectors which incorporate thin-film radiation absorbers. The detector is effective with either coherent or incoherent radiation.

B66-10584
OPTICAL SUPERHETERODYNE RECEIVER USES LASER FOR LOCAL OSCILLATOR
 LUCY, R. F. /SYLVANIA ELECTRON. SYSTEMS/ DATE- DEC. 1966
 M-FS-1605

Optical superheterodyne receiver uses a laser coupled to a frequency translator to supply both the incident signal and local oscillator signal and thus permit reception of amplitude modulated video bandwidth signals through the atmosphere. This receiver is useful in scientific propagation experiments, tracking experiments, and communication experiments.

B66-10590
STUDY MADE OF APPLICATION OF STEREOSCOPIC DISPLAY SYSTEM TO ANALOG COMPUTER SIMULATION
 KENNEL, H. P. DATE- DEC. 1966 REAN- SEE ALSO NASA-CR-61116
 M-FS-1263

Stereoscopic visual display system provides both a qualitative and measurable presentation for functions of several variables. A primary application of such a display system is in analog computer simulation of sets of differential equations.

B66-10591
ELECTRONIC CIRCUIT PROVIDES ACCURATE SENSING AND CONTROL OF DC VOLTAGE
 LOFTUS, W. D. /WESTINGHOUSE ASTRONUCI. LAB./ DATE- DEC. 1966
 NU-0089

Electronic circuit used relay coil to sense and control dc voltage. The control relay is driven by a switching transistor that is biased to cutoff for all input up to slightly less than the threshold level.

B66-10592
SENSORS MEASURE SURFACE ABLATION RATE OF REENTRY VEHICLE HEAT SHIELD
 RUSSEL, J. M., III DATE- DEC. 1966 REAN- SEE ALSO NASA-TN-D-3686
 LANGLEY-287

Sensors measure surface erosion rate of ablating material in reentry vehicle heat shield. Each sensor, which is placed at precise depths in the heat shield is activated when the ablator surface erodes to the location of a sensing point. Sensor depth and activation time determine ablator surface erosion rate.

B66-10598
DESIGN CONCEPT FOR PRESSURE SWITCH CALIBRATOR
 SLINGERLAND, M. G. /GE/ DATE- DEC. 1966
 HQ-36

Calibrator and switch design enables pressure switches to operate under 150 g shock loads. The design employs a saturated liquid-to-vapor phase transition at constant pressure to produce a known force independent of displacement over a usable range.

B66-10599
PRESSURE PROBE COMPENSATES FOR DIMENSIONAL TOLERANCE VARIATIONS
 BIRNER, R. A. /AEROJET-GEN. CORP./ DATE- DEC. 1966
 LEWIS-302

Flexible, compressible spring-loaded pressure probe measures the static pressure between the rotor stages on an axial-flow fuel pump. This probe is used in installation where a drilled static pressure tap or a rigid impulse tube cannot be used. Its parameters must be specially determined for each installation.

B66-10600
HIGH FREQUENCY WIDE-BAND TRANSFORMER USES COAX TO ACHIEVE HIGH TURN RATIO AND FLAT RESPONSE
 DE PARRY, T. DATE- DEC. 1966
 ARG-107

Center-tap push-pull transformer with toroidal core helically wound with a single coaxial cable creates a high frequency wideband transformer. This transformer has a high-turn ratio, a high coupling coefficient, and a flat broadband response.

B66-10603
MOSFET ANALOG MEMORY CIRCUIT ACHIEVES LONG

01 ELECTRICAL (ELECTRONIC)

DURATION SIGNAL STORAGE

SPON- INNOVATOR NOT GIVEN /IBM/ DATE- DEC. 1966
M-FS-860

Memory circuit maintains the signal voltage at the output of an analog signal amplifier when the input signal is interrupted or removed. The circuit uses MOSFET /Metal Oxide Semiconductor Field Effect Transistor/ devices as voltage-controlled switches, triggered by an external voltage-sensing device.

B66-10605

ELECTRICAL CONTINUITY SCANNER FACILITATES IDENTIFICATION OF WIRES FOR SOLDERING TO CONNECTORS

BOULTON, H. C. DICLEMENTE, R. A. /N. AM. AVIATION/ DATE- DEC. 1966
MSC-626

Electrical continuity scanner automatically scans 50 wires in 2 seconds to correlate all wires in a circuit with their respective known ends. Modifications made to the basic plan provide circuitry for scanning up to 250 wires.

B66-10606

A RADIOMETER-PYROMETER

DATE- DEC. 1966 REAN- SEE ALSO NASA-TN-D-2405
LEWIS-284

Radiometer-pyrometer measures the spectral absorption, emission, and temperature of gases. The major problems involved in spectroradiometric measurements are nonuniform spectral sensitivity, nonlinearity, poor absolute accuracy, wide range of intensities, and wide range of wavelengths.

B66-10607

DEVELOPMENTAL INSTRUMENT SUPPLIES ACCURATE ATTITUDE AND ATTITUDE-RATE DATA

SPON- INNOVATOR NOT GIVEN /BOLT, BERANEK, AND NEWMAN, INC./ DATE- DEC. 1966
HQ-57

Three orthogonal-plane projection provides accuracy of readout of both attitude and attitude-rate information in an easily interpreted, uncluttered arrangement where blind navigation of a moving body is involved. The longitudinal length of the projection is constant, and independent of the pitch and roll attitudes of the moving body.

B66-10612

RESISTANCE THERMOMETER HAS LINEAR RESISTANCE-TEMPERATURE COEFFICIENT AT LOW TEMPERATURES

KUZYK, W. /GEN. DYN./ DATE- DEC. 1966
WOO-190

Resistance thermometer incorporating a germanium resistance element with a platinum resistance element in a wheatstone bridge circuit has a linear temperature-resistance coefficient over a range from approximately minus 140 deg C to approximately minus 253 deg C.

B66-10614

STUDY OF THEORY AND APPLICATION OF LONG DURATION HEAT FLUX TRANSDUCERS

HEAMAN, J. P. ROBERTSON, S. J. /HEAT TECHNOL. LAB./ DATE- DEC. 1966
M-FS-1265

Theory and application of transducers used to measure heat flux in tests of more than one second duration.

B66-10617

IMPROVED MEMORY WORD LINE CONFIGURATION ALLOWS HIGH STORAGE DENSITY

SPON- INNOVATOR NOT GIVEN /UNIVAC/ DATE- DEC. 1966
GSFC-559

Plated wire memory word drive line allows high storage density, good plated wire transmission and a simplified memory plane configuration. A half-turn word drive line with a magnetic keeper is used. The ground plane provides the return path for both the word current and the plated wire transmission line.

B66-10619

COMPUTER PROGRAM SIMPLIFIES TRANSIENT AND

STEADY-STATE TEMPERATURE PREDICTION FOR COMPLEX BODY SHAPES

GIEBLER, K. N. /N. AM. AVIATION/ DATE- DEC. 1966
MSC-989

Computer program evaluates heat transfer modes and calculates either the transient or steady-state temperature distributions throughout an object of complex shape when heat sources are applied to specified points on the object. It uses an electrothermal model to simulate the conductance, heat capacity, and temperature potential of the object.

B66-10621

CONNECTOR ACTS AS QUICK COUPLING IN COAXIAL CABLE APPLICATION

BREJCHA, A. G., JR. DATE- DEC. 1966
JPL-803

Quick-coupling connector whose inner shells are threaded to the cable ends and whose outer shells have tracks that register in channels machined in the inner shells are rotated 45 deg to effect a locking of the coupling. This connector faithfully reproduces excellent electrical characteristics no matter how frequently assembled and disassembled.

B66-10622

POINT-SOURCE DETECTION SYSTEM REJECTS SPATIALLY EXTENDED RADIATION SOURCES

MAXWELL, R. F., JR. /WESTINGHOUSE ELEC. CORP./ DATE- DEC. 1966
GSFC-486

System employing digital space correlation to suppress false target signals in a point-target tracking device is a reliable method for discriminating a distant target from false targets in the field of view of an infrared detection system or tracking device.

B66-10623

THERMOCOUPLES ELECTRICALLY CHECKED WHILE CONNECTED TO DATA SYSTEM

SPON- INNOVATOR NOT GIVEN /REP. AVIATION CORP./ DATE- DEC. 1966
LANGLEY-182

Constant current source is connected across the input of the millivolt measuring system to monitor the electrical continuity and resistance of multiple thermocouple installations without disconnecting them from a data system. This technique monitored gage thermocouple leads during the assembly and preflight testing of the Project Fire reentry packages.

B66-10624

MINIATURE TELEMETRY SYSTEM ACCURATELY MEASURES PRESSURE

FRYER, T. B. DATE- DEC. 1966 REAN- SEE ALSO
B64-10171 AND B66-10057
ARC-74

Miniature, low power, telemetry system that can be used with commercially available strain gage pressure transducers accurately measures pressure with a small implantable pressure cell and transmitter. The system has been used to date only with pressure transducers, but the circuit is equally applicable to any measurement using a strain gage sensor.

B66-10625

COMPACT MICROWAVE MIXER HAS HIGH CONVERSION EFFICIENCY

PENQUE, N. J. ROSEN, H. A. /HUGHES AIRCRAFT CO./ DATE- DEC. 1966
GSFC-197

Compact, lightweight microwave mixer has a relatively high conversion efficiency and power output. The mixer employs a pair of back-to-back voltage-variable capacitors in a stripline network.

B66-10629

PRECISION CW LASER AUTOMATIC TRACKING SYSTEM INVESTIGATED

LANG, K. T. LUCY, R. F. MC GANN, E. J. PETERS, C. J. /SYLVANIA ELECTRON. SYSTEMS/ DATE- DEC. 1966
M-FS-1606

Precision laser tracker capable of tracking a low acceleration target to an accuracy of about 20 microradians rms is being constructed and tested. This laser tracking has the advantage of discriminating against other optical sources and the capability of simultaneously measuring range.

B66-10632

ACCURATE DEPTH CONTROL PROVIDED FOR THERMOCOUPLE JUNCTION LOCATIONS
RICHARDSON, N. R. DATE- DEC. 1966 REAN- SEE ALSO NASA-TN-364
LANGLEY-289

Flight reentry experiments define the total heating on a large blunt-nosed body by means of imbedded thermocouples. The thermocouples, installed in a beryllium layered forebody, were designed to provide minimum feasible disturbance of local heat flow with accurate depth control of the thermocouple junction locations.

B66-10636

AUTOMATIC SYSTEM DETERMINES MOMENTS OF INERTIA OF ASYMMETRICAL OBJECTS
SPON- INNOVATOR NOT GIVEN /SPACO, INC./ DATE- DEC. 1966
M-FS-1769

Automatic system rapidly and accurately determines moments and products of inertia of asymmetrical objects. The system combines a torsional pendulum arrangement and a precision rate table with simplified analog computers to determine the desired quantities directly, without the need for additional calculations.

B66-10637

INSTRUMENT ACCURATELY MEASURES SMALL TEMPERATURE CHANGES ON TEST SURFACE
HARVEY, W. D. MILLER, H. B. DATE- DEC. 1966
REAN- SEE ALSO NASA-TN-D-2846
LANGLEY-174

Calorimeter apparatus accurately measures very small temperature rises on a test surface subjected to aerodynamic heating. A continuous thin sheet of a sensing material is attached to a base support plate through which a series of holes of known diameter have been drilled for attaching thermocouples to the material.

B66-10640

VOLUME-RATIO CALIBRATION SYSTEM FOR VACUUM GAGES
SPON- INNOVATOR NOT GIVEN /LEWIS/ DATE- DEC. 1966
REAN- SEE ALSO NASA-TN-D-3100
LEWIS-303

Volume-ratio calibration system consists of a gas source, high pressure gauge, small volume tank, large volume chamber, plus appropriate piping, valves, and vacuum source. This system used in conjunction with commercial vacuum gauges evaluates its ability to accurately produce desired pressures in the .000001 to .01 torr range.

B66-10644

THREE-AXIS ATTITUDE AND DIRECTION REFERENCE INSTRUMENT HAS ONLY ONE MOVING PART
BOSSLER, F. B. /BELL AEROSPACE CORP./ DATE- DEC. 1966
M-FS-1819

Lunar vehicle instrument combines the functions of attitude reference, direction reference, and display in a unit having only one moving part. The device, using bubble levels and a calibrated dial, is used as a sextant prior to takeoff, and as a backup navigation system during flight.

B66-10645

CONCEPT FOR USING LASER BEAMS TO MEASURE ELECTRON DENSITY IN PLASMAS
LONGO, S. E. /BOEING CO./ DATE- DEC. 1966
M-FS-965

Concept is proposed for using laser beams as a means of measuring electron density at various points in flame or plasma exhausts. Measurement of the electron density is obtained by detecting reflected waves in the plasma that were activated by the laser.

B66-10650

MAGNETORESISTOR MONITORS RELAY PERFORMANCE
KREBS, D. Q. /BOEING CO./ DATE- DEC. 1966
M-FS-1754

Magnetoresistor monitors the action of relays without disturbing circuit parameters or degrading relay performance. The magnetoresistor measures the relay magnetic flux produced under transient conditions to establish the characteristic signature of the relay.

B66-10653

THERMOCOUPLES EASILY INSTALLED IN HARD-TO-GET-TO PLACES
GUENTHER, F. G. /N. AM. AVIATION/ DATE- DEC. 1966
M-FS-1946

Thermocouple wires attached to charged capacitors are inserted in a drilled hole. An electric charge fuses the thermocouple wires to the host material. This method has shown excellent results in fusing nichrome, chromel, Inconel, and stainless steel wires to nickel, beryllium, iron, steel, Inconel, and stainless steel.

B66-10658

DIGITAL FREQUENCY COUNTER PERMITS READOUT WITHOUT DISTURBING COUNTING PROCESS
WINKELSTEIN, R. DATE- DEC. 1966
JPL-906

Digital frequency counter system enables readout accurately at one-second intervals without interrupting or disturbing the counting process. The system incorporates a master counter and a slave counter with novel logic interconnections. The counter can be readily adapted to provide frequency readouts at 0.1 second intervals.

B66-10659

LOGIC CIRCUITRY USED TO AUTOMATICALLY TEST SHIELDED CABLES
DIBB, G. /GE/ DATE- DEC. 1966
HQ-60

Automatic cable tester checks multiple shielded conductors assembly cable connections. The tester uses logic circuitry to sequentially test all conductors and their shields to reveal any connection error in a GO-NO GO test.

B66-10661

STUDY OF FAST RESPONSE THERMOCOUPLE MEASUREMENT OF TEMPERATURES IN CRYOGENIC GASES
BIELAWSKI, T. LOWRIE, A. R. ROBINSON, C. C. /BEECH AIRCRAFT CORP./ DATE- DEC. 1966
M-FS-1659

Thermocouples fabricated from uninsulated small diameter wire have fast reproducible response times. The thermocouple is thermally isolated from its supports by making the leads of sufficient length so that the heat conduction down the leads is small and assuming that the leads adjacent to the junction are subjected to the same thermal conditions.

B66-10664

PACKAGING OF ELECTRONIC MODULES
KATZIN, L. DATE- DEC. 1966
JPL-801

Study of design approaches that are taken toward optimizing the packaging of electronic modules with respect to size, shape, component orientation, interconnections, and structural support. The study does not present a solution to specific packaging problems, but rather the factors to be considered to achieve optimum packaging designs.

B66-10668

PHOTOGRAPHIC METHOD MEASURES PARTICLE SIZE AND VELOCITY IN FLUID STREAM
DICKERSON, R. A. /N. AM. AVIATION/ DATE- DEC. 1966
M-FS-1536

Method employing a nonframing motion picture camera, a continuous front light source, and a strobe light determines the size and velocity of small particles in nonturbulent fluid streams. This method is used in the study of the motion of

01 ELECTRICAL (ELECTRONIC)

solid and liquid particles in research and industrial fluid flow systems.

B66-10669
GAS LEAK DETECTOR IS SIMPLE AND INEXPENSIVE
 MITCHELL, D. K. /BOEING CO./ DATE- DEC. 1966
 M-FS-1206

Pressure sensor monitors small gas leaks in piping and pressure vessels. A combination of a paper ribbon and adhesive plastic tape is used to cover the area to be monitored and the pressure sensor is placed over a hole in the tape and paper.

B66-10670
COMPUTER PROGRAM DETERMINES CHEMICAL COMPOSITION OF PHYSICAL SYSTEM AT EQUILIBRIUM
 KWONG, S. S. /N. AM. AVIATION/ DATE- DEC. 1966
 MSC-1119

FORTRAN 4 digital computer program calculates equilibrium composition of complex, multiphase chemical systems. This is a free energy minimization method with solution of the problem reduced to mathematical operations, without concern for the chemistry involved. Also certain thermodynamic properties are determined as byproducts of the main calculations.

B66-10671
COMPUTER PROGRAM DETERMINES CHEMICAL EQUILIBRIA IN COMPLEX SYSTEMS
 GORDON, S. ZELEZNIK, F. J. DATE- DEC. 1966
 REAN- SEE ALSO NASA-TN-D-1454
 LEWIS-281

Computer program numerically solves nonlinear algebraic equations for chemical equilibrium based on iteration equations independent of choice of components. This program calculates theoretical performance for frozen and equilibrium composition during expansion and Chapman-Jouguet flame properties, studies combustion, and designs hardware.

B66-10675
GAGE ACCURATELY CONTROLS FORCE FOR PLACING CHIPS ON SUBSTRATES
 BENZIE, W. P. /IBM/ DATE- DEC. 1966
 M-FS-1941

Device is developed to control the force used in manually placing chips on substrates. It controls the compression load between 2 small members at loads as low as 25 grams by means of a force control gage that is preset by varying the spring deflection.

B66-10679
BLACKBODY CAVITY RADIOMETER HAS RAPID RESPONSE
 HALEY, F. C. DATE- DEC. 1966
 JPL-521

Fast response, spectrally linear standard detector in the form of a blackbody cavity radiometer calibrates rapidly responding photodetectors against a calibrated standard detector. A power amplifier with maximum available gain reduces error signal without stability loss. It may be used as a blackbody radiator by manipulation of the bridge variable arm.

B66-10680
SLIDE RULE-TYPE COLOR CHART PREDICTS REPRODUCED PHOTO TONES
 GRIFFIN, J. D. /N. AM. AVIATION/ DATE- DEC. 1966
 MSC-1227

Slide rule-type color chart determines the final reproduced gray tones in the production of briefing charts that are photographed in black and white. The chart shows both the color by drafting paint manufacturers name and mixture number, and the gray tone resulting from black and white photographic reproduction.

B66-10685
PROCESS REDUCES SECONDARY RESONANT EMISSION IN ELECTRONIC COMPONENTS
 ERPENBACH, H. DATE- DEC. 1966
 JPL-934

Process reduces secondary electron emission in

coaxial connector and in waveguides in the atmosphere. The assembly is placed in a vacuum chamber and is gradually vented to the atmosphere. It is exposed to high voltage, argon gas, and a hydrocarbon gas during the process.

B66-10687
STUDY OF HOT WIRE TECHNIQUES IN LOW DENSITY FLOWS WITH HIGH TURBULENCE LEVELS
 HANSON, A. R. KRAUSE, F. R. LARSON, R. E. DATE- DEC. 1966
 M-FS-1269

Prediction of heat, mass, species, and momentum fluxes in a space vehicle and aerodynamic noise production by supersonic jet and rocket exhausts requires a predictability of the associated turbulence fields. The hot wire is a technique that will allow an experimental determination of turbulent properties.

B66-10689
LOW INPUT VOLTAGE CONVERTER/REGULATOR MINIMIZES EXTERNAL DISTURBANCES
 SPON- INNOVATOR NOT GIVEN /HONEYWELL, INC./ DATE- DEC. 1966
 GSFC-527

Low-input voltage converter/regulator constructed in a coaxial configuration minimizes external magnetic field disturbance, suppresses radio noise interference, and provides excellent heat transfer from power transistors. It converts the output of fuel and solar cells, thermionic diodes, thermoelectric generators, and electrochemical batteries to a 28 V dc output.

B66-10690
EQUIVALENT CIRCUIT FOR A FIELD EFFECT TRANSISTOR ESTABLISHED FOR COMPUTER SIMULATION
 MING, L. J. /IBM/ DATE- DEC. 1966
 M-FS-1752

Equivalent circuit for the field effect transistor made up of circuit elements can be simulated by existing computer programs.

B66-10691
SOLID-STATE RECOVERABLE FUSE FUNCTIONS AS CIRCUIT BREAKER
 THOMAS, E. F., JR. DATE- DEC. 1966
 GSFC-560

Molded, conductive-epoxy recoverable fuse protects electronic circuits during overload conditions, and then permits them to continue to function immediately after the overload condition is removed. It has low resistance at ambient temperature, and high resistance at an elevated temperature.

B66-10692
HERMETICALLY SEALED CELLS PROTECTED FROM INTERNAL GAS PRESSURE
 CARSON, W. N. /GE/ DATE- DEC. 1966
 GSFC-555

Manufacturing process prevents damage to hermetically sealed nickel-cadmium secondary cells by buildup of gas pressure during overcharging and reversed charging conditions. The cells are manufactured with less charge capacity in the positive electrode than in the negative electrode, and two additional electrodes are added.

B66-10696
LOW RATE FLOW SWITCH CAN BE USED FOR GAS OR LIQUID
 BATES, E. T., JR. DATE- DEC. 1966
 JPL-867

Flow switch operable at low flow rates is used for detecting the flow of a water coolant in a vacuum deposition apparatus. This switch utilizes one or more reed switches which are actuated by a sliding magnet.

B66-10699
MONITORING SYSTEM DETERMINES AMPLITUDE AND TIME OF VIBRATION CHANNEL PEAKS
 ANDERSON, T. O. DATE- DEC. 1966
 JPL-879

Adaptive scheme advocated in this innovation will reduce processing time and is applicable to

environmental testing and to space-borne or aircraft-borne vibration monitoring devices requiring a large number of channels.

B66-10706

LOGARITHMIC CURRENT SIMULATOR GENERATES ELECTRICAL CURRENTS ACCURATELY BETWEEN 10 TO THE MINUS 11 AMPERE TO 10 TO THE MINUS 3 AMPERE

WILSON, J. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- DEC. 1966
NU-0087

Current generator accurately simulates electric currents in the range of 10 to the minus 11th power to 0.001 ampere. Compensation networks have been devised to improve the accuracy at the lower current levels.

B66-10709

THERMOCOUPLE-FLEXIBLE CABLE CONNECTOR INSULATOR IS HIGHLY RELIABLE

GRACEY, C. M. /AEROJET-GEN. CORP./ DATE- DEC. 1966

NU-0082

Plastic /polycarbonate/ insulator improves thermocouple reliability in test operations. The insulator is molded in half sections, assembled mechanically and eliminates electrical shorting.

B67-10001

PROGRAM COMPUTES SINGLE-POINT FAILURES IN CRITICAL SYSTEM DESIGNS

BROWN, W. R. /N. AM. AVIATION/ DATE- JAN. 1967
MSC-603

Computer program analyzes the designs of critical systems that will either prove the design is free of single-point failures or detect each member of the population of single-point failures inherent in a system design. This program should find application in the checkout of redundant circuits and digital systems.

B67-10002

COMPUTER PROGRAM DETECTS TRANSIENT MALFUNCTIONS IN SWITCHING CIRCUITS

CALVIN, E. L. /N. AM. AVIATION/ DATE- JAN. 1967
MSC-604

A program which accepts a system model in the form of Boolean equations and solves these equations using a ternary algebra will determine the response of large combinational and sequential switching circuits to given input changes, taking into account malfunctions due to races, hazards, and oscillations.

B67-10009

TESTER FOR STUDY OF ROLLING ELEMENT BEARINGS

ZARETSKY, E. V. DATE- FEB. 1967

LEWIS-305

Five-ball fatigue tester makes possible the study of rolling element phenomena. The device consists of a driven test ball pyramided upon four lower balls positioned by a separator and free to rotate in an angular contact raceway.

B67-10013

SELF-STARTING PROCEDURE SIMPLIFIES NUMERICAL INTEGRATION

DATE- JAN. 1967 REAN- SEE ALSO NASA-TN-D-2936
ARC-50

A self-starting, multistep procedure for the numerical integration of ordinary differential equations is devised to produce all the required backward differences directly from the initial equations. The self-starting element eliminates nonessential tallying to determine starting values.

B67-10015

ALUMINIZED THIN-WINDOW PROPORTIONAL-COUNTER TUBE IS STRONGER, MORE RESPONSIVE IN LONG WAVELENGTH REGION

SCHNOPPER, H. W. SHIELDS, R. A. /CORNELL UNIV./ DATE- JAN. 1967

JPL-689

A thin-window proportional counter tube of 0.25-mil Mylar with a thin aluminum coating on one side permits efficient detection of long wavelength X rays. It is sufficiently rugged

for long-term use in space or other demanding environments.

B67-10017

SHORTENED HORN-REFLECTOR ANTENNA

LANTZ, P. A. DATE- JAN. 1967

GSFC-502

A shortened horn-reflector antenna overcomes the mechanical disadvantages and complexity of the conventional horn-reflector antenna. The shortened antenna offers broadband performance, economic construction, very low antenna temperature, and excellent pattern performance.

B67-10020

MINIATURE CAPACITOR FUNCTIONS AS PRESSURE SENSOR

HARRISON, R. G. DATE- FEB. 1967

JPL-903

Miniature capacitor operates as a differential pressure telemetry sensor during free flight of test model in a hypersonic wind tunnel. The capacitor incorporates a beryllium copper diaphragm. It is also used as an absolute pressure sensor.

B67-10022

VARIABLE-PULSE SWITCHING CIRCUIT ACCURATELY CONTROLS SOLENOID-VALVE ACTUATIONS

GILLET, J. D. /N. AM. AVIATION/ DATE- FEB. 1967
M-PS-1895

Solid state circuit generating adjustable square wave pulses of sufficient power operates a 28 volt dc solenoid valve at precise time intervals. This circuit is used for precise time control of fluid flow in combustion experiments.

B67-10025

COMPUTER/PERT TECHNIQUE MONITORS ACTUAL VERSUS ALLOCATED COSTS

HOURY, E. WALKER, J. D. DATE- FEB. 1967
LEWIS-260

A computer method measures the users performance in cost-type contracts utilizing the existing nasa program evaluation review technique without imposing any additional reporting requirements. progress is measured by comparing actual costs with a value of work performed in a specific period.

B67-10027

FEED-THROUGH CONNECTOR COUPLES RF POWER INTO VACUUM CHAMBER

GRANDY, G. L. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- FEB. 1967

NU-0096

Feed-through device connects RF power to an RF coil in a vacuum chamber. The coil and leads are water cooled and vacuum tight seals are provided at the junctions. The device incorporates silver soldered copper tubes, polytetrafluoroethylene electrical insulators, and O-ring vacuum seals.

B67-10028

MONITOR ASSURES AVAILABILITY AND QUALITY OF COMMUNICATION CHANNELS

SMITH, G. P. /RCA/ DATE- FEB. 1967

KSC-66-38

System monitors a communication channel for proper circuit parameters and energizes an alarm if these parameters do not fall within allowable limits. It comprises a monitor-signal transmitter at the transmitting end of the channel and a monitor-signal receiver at the receiving end.

B67-10029

INSTRUMENT SEQUENTIALLY SAMPLES AC SIGNALS FROM SEVERAL ACCELEROMETERS

CHAPMAN, C. P. DATE- FEB. 1967 REAN- SEE ALSO B66-10462

JPL-884

Scanner circuit sequentially samples the ac signals from accelerometers used in conducting noise vibration tests, and provides a time-averaged output signal. The scanner is used in conjunction with other devices for random noise vibration tests.

01 ELECTRICAL (ELECTRONIC)

B67-10030

LOCAL MEASUREMENTS IN TURBULENT FLOWS
THROUGH CROSS CORRELATION OF OPTICAL SIGNALS
FISHER, M. J. DATE- FEB. 1967
M-FS-1268

Crossed beam correlation method measures turbulent fluctuations in transonic and supersonic flows. Two collimated beams of radiation are crossed at the point of interest in the flow, and the power loss of each beam is measured with two independent photodetectors, which yield information about the turbulent properties.

B67-10031

HIGH TRANSIENTS SUPPRESSED IN ELECTROMAGNETIC DEVICES
MARION, C. W. DATE- FEB. 1967
KSC-66-13

A bifilar winding around the magnetic core of electromagnetic devices suppresses high transient voltages. The winding is alternately spaced vertically and radially from the core to achieve a high coefficient of coupling.

B67-10035

THERMOELECTRIC METAL COMPARATOR DETERMINES COMPOSITION OF ALLOYS AND METALS
STONE, C. C. WALKER, D. E. DATE- FEB. 1967
ARG-235

Emf comparing device nondestructively inspects metals and alloys for conformance to a chemical specification. It uses the Seebeck effect to measure the difference in emf produced by the junction of a hot probe and the junction of a cold contact on the surface of an unknown metal.

B67-10038

RESIDUAL MAGNETISM HOLDS SOLENOID ARMATURE IN DESIRED POSITION
CRAWFORD, R. P. /GEN. DYN./ DATE- MAR. 1967
LEWIS-343

Holding solenoid uses residual magnetism to hold its armature in a desired position after excitation current is removed from the coil. Although no electrical power or mechanical devices are used, the solenoid has a low tolerance to armature displacement from the equilibrium position.

B67-10040

STUDY MADE OF EXPLOSIVE CUTTING IN SIMULATED SPACE ENVIRONMENTS
COLEMAN, E. R. HAMILTON, L. O. /HAYES INTERN. CORP./ DATE- MAR. 1967 REAN- SEE ALSO
NASA-TM-X-53440
M-FS-1597

Study indicates the feasibility of explosive cutting and establishes techniques applicable to in-space cutting operations. Results show no degradation of the explosive and that work hardening of the target material is limited to the cut edge.

B67-10041

ABSOLUTE VISCOSITY MEASURED USING INSTRUMENTED PARALLEL PLATE SYSTEM
BOYLES, R. H. DATE- MAR. 1967
JPL-874

An automatic system measures the true average shear viscosity of liquids and viscoelastic materials, using the parallel plate method and automatically displays the results on a graphic record. This eliminates apparatus setup and extensive calculations.

B67-10042

IMPROVED FLUID CONTROL CIRCUIT OPERATES ON LOW POWER INPUT
GEBBEN, V. DATE- MAR. 1967
LEWIS-325

Standard electromagnetic relay actuates fluid control circuits with low level electrical signals by switching a fluid amplifier that drives a spool valve.

B67-10046

MULTIPURPOSE INSTRUMENTATION CABLE PROVIDES INTEGRAL THERMOCOUPLE CIRCUIT
ZELLNER, G. /WESTINGHOUSE ASTRONUCL. LAB./ DATE-

MAR. 1967

NU-0108

Multipurpose cable with an integral thermocouple circuit measures strain, vibration, pressure, throughout a wide temperature range. This cable reduces bulky and complex circuitry by eliminating separate thermocouples for each transducer.

B67-10053

SOLID-STATE TIME-TO-PULSE-HEIGHT CONVERTER DEVELOPED
LYNCH, R. J. RODDICK, R. G. DATE- MAR. 1967
ARG-170

Solid-state circuit produces an output pulse with an amplitude directly proportional to the time interval between two input pulses. It uses selected circuit options to achieve variable mode operation and a tunnel diode controls the charging time of a capacitor in proportion to the time interval being measured.

B67-10055

CIRCUIT MULTIPLIES PULSE WIDTH MODULATION, EXHIBITS LINEAR TRANSFER FUNCTION
CARLSON, A. W. FURCINITI, A. DATE- MAR. 1967
HQ-56

Modulation multiplier provides a simple means of multiplying the width modulation of a pulse train by a constant factor. It operates directly on a pulse width modulated input signal to generate an output pulse train having a greater degree of width modulation than the input signal.

B67-10060

ELECTRON MULTIPLIER HAS IMPROVED PERFORMANCE AND STABILITY
SPON- INNOVATOR NOT GIVEN /G.C.A. CORP./ DATE- MAR. 1967
GSFC-546

Electron multiplier contains a series of massive metal dynodes, compactly secured with ceramic rods for operation in a metal housing. The housing is rigidly mounted within a soft steel vacuum enclosure which shields the multiplier from the effects of external electromagnetic fields.

B67-10061

CONTROL CIRCUIT ENSURES SOLAR CELL OPERATION AT MAXIMUM POWER
PAULKOVICH, J. DATE- MAR. 1967
GSFC-432

Control circuit enables a solar cell power supply to deliver maximum electrical power to a load. It senses the magnitude of the slope of the voltage-current characteristic curve and compares it to a reference voltage which represents the slope corresponding to the desired operating limits.

B67-10065

PORTABLE DETECTOR SET DISCLOSES HELIUM LEAK RATES
ANDERSON, G. E. /N. AM. AVIATION/ DATE- APR. 1967
M-FS-1733

Portable helium detector measuring helium leak rates makes possible the use of the inert gas helium as a tracer. This helps solve safety and contamination problems in detecting leaks in closed fluid systems.

B67-10074

FLOW-TEST DEVICE FITS INTO RESTRICTED ACCESS PASSAGES
FITZGERALD, J. J. OBERSCHEIDT, M. ROSENBAUM, B. J. DATE- APR. 1967
MSC-1078

Test device using a mandrel with a collapsible linkage assembly enables a fluid flow sensor to be properly positioned in a restricted passage by external manipulation. This device is applicable to the combustion chamber of a rocket motor.

B67-10076

CLEANROOM AIR SAMPLER COUNTS, CATEGORIZES, AND RECORDS PARTICLE DATA
NELSON, M. B. /IIT RES. INST./ DATE- JUN. 1967
M-FS-2221

Light scattering particle counter monitors

particles in a clean room. It categorizes and records the particles according to size and functions simultaneously in three separate areas. The counter uses a transducer head to transform light signals into electric signals.

B67-10077
COMPUTER PROGRAM SIMULATES DESIGN, TEST, AND ANALYSIS PHASES OF SENSITIVITY EXPERIMENTS
ALEXANDER, M. J. BOTHMAN, D. ZIMMERMAN, J. M.
/N. AM. AVIATION/ DATE- APR. 1967
M-FS-1496
Modular program with a small main program and several specialized subroutines provides a general purpose computer program to simulate the design, test and analysis phases of sensitivity experiments. This program allows a wide range of design-response function combinations and the addition, deletion, or modification of subroutines.

B67-10080
INSTRUMENT CONTINUOUSLY MEASURES DENSITY OF FLOWING FLUIDS
JACOBS, R. B. MACINKO, J. MILLER, C. E. /NBS/
DATE- APR. 1967
LEWIS-309
Electromechanical densitometer continuously measures the densities of either single-phase or two-phase flowing cryogenic fluids. Measurement is made on actual flow. The instrument operates on the principle that the mass of any vibrating system is a primary factor in determining the dynamic characteristics of the system.

B67-10084
CIRCUIT INCREASES CAPABILITY OF HYSTERESIS SYNCHRONOUS MOTOR
MARKOWITZ, I. N. /RCA/ DATE- APR. 1967
MSC-1080
Frequency and phase detector circuit enables a hysteresis synchronous motor to drive a load of given torque value at a precise speed determined by a stable reference. This technique permits driving larger torque loads with smaller motors and lower power drain.

B67-10085
TRIPLE MODULAR REDUNDANCY /TMR/ COMPUTER OPERATION IMPROVED
BALL, M. HARDIE, F. H. /IBM/ DATE- APR. 1967
MSC-831
Switching off a failed element plus one of the good elements in the TMR computer operation keeps the reliability curve from crossing the simplex curve. This method increases reliability and prevents system failure.

B67-10086
AUTOMATIC CHANNEL SWITCHING DEVICE
BALL, M. OLNCWICH, H. T. /IBM/ DATE- APR. 1967
MSC-832 MSC-834
Automatic channel switching device operates with all three triple modular redundant channels when there are no errors. When a failure occurs, channel and module switching isolate the failure to a specific channel. Since only one must operate correctly, reliability is increased.

B67-10087
TRANSLATOR PROGRAM CONVERTS COMPUTER PRINTOUT INTO BRAILLE LANGUAGE
POWELL, R. A. /BOEING CO./ DATE- APR. 1967
M-FS-2061
Computer program converts print image tape files into six dot Braille cells, enabling a blind computer programmer to monitor and evaluate data generated by his own programs. The Braille output is printed 8 lines per inch.

B67-10090
SYSTEM AUTOMATICALLY SUPPLIES PRECISE ANALYTICAL SAMPLES OF HIGH-PRESSURE GASES
LANGDON, W. M. /IIT RES. INST./ DATE- APR. 1967
M-FS-1814
High-pressure-reducing and flow-stabilization system delivers analytical gas samples from a gas supply. The system employs parallel capillary

restrictors for pressure reduction and downstream throttling valves for flow control. It is used in conjunction with a sampling valve and minimizes alterations of the sampled gas.

B67-10091
SYSTEM MAINTAINS CONSTANT PENETRATION DURING FUSION WELDING
COOK, G. /MERIK ENG./ MC CAMPBELL, W. M. DATE- APR. 1967
M-FS-937
Servo system senses variations in fusion welding process, and adjusts the control parameters to compensate for them. The system assumes a correlation between uniform weld penetration and temperature gradients near the molten puddle. It senses weld properties and makes adjustments to travel speed and weld current.

B67-10092
GREMEX-A NEW MANAGEMENT TRAINING CONCEPT
DENAUT, M. F. VACCARO, M. J. DATE- APR. 1967
GSFC-574
Goddard Research Engineering Management Exercise provides experience in R+D project decision making from a management rather than technological view. The participant directs a hypothetical project presented in the management simulation technique. He uses old or new methods without concern for rewards or penalties existing in real life.

B67-10093
STRAIN GAGE CIRCUITRY PROVIDES FATIGUE TESTING MACHINE WITH ACCURATE CYCLE COUNT
PARK, R. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- APR. 1967
NU-0114
Fatigue tester determines the number of cycles to fatigue failure of brittle specimens. A strain gage on the loading arm records the loading applied to the component. As the component starts to break, the load is reduced and the strain gage stops the cycle counter.

B67-10097
HEATER CONTROL CIRCUIT PROVIDES BOTH FAST AND PROPORTIONAL CONTROL
BASLOCK, R. W. /IBM/ DATE- APR. 1967
M-FS-906
Proportional control circuit supplies a heater with full current, from a pulsating dc source, to a present temperature and then switches to proportional control for fine temperature regulation. Two resistors and a diode are added to the existing circuit. The circuit can be adapted to control other functions.

B67-10099
SYSTEM ENABLES MORE COMPLETE CALIBRATIONS OF DYNAMIC-PRESSURE TRANSDUCERS
PERNET, D. F. /IIT RES. INST./ DATE- APR. 1967
M-FS-2063
Absolute pressure calibration system using a Michelson interferometer calibrates phase characteristics and pressure sensitivities of the transducers that monitor acoustic or aerodynamic pressure fields. The interferometer uses a helium-neon laser light source and interchangeable acoustic signal generators to produce acoustic waves.

B67-10101
DOUBLE EMITTER SUPPRESSED CARRIER MODULATOR USES COMMERCIALY AVAILABLE COMPONENTS
HAIST, C. F. FISCOPO, A. /IBM/ DATE- APR. 1967
M-FS-2494
Double emitter suppressed carrier modulator develops a signal-to-carrier minimum output ratio of 40 db and signal input of 2.5 volts. The circuit uses a commercially available double emitter chopper transistor. It eliminates tuning potentiometers and reduces sideband harmonics.

B67-10103
POLYNOMIAL MANIPULATOR AP-168
TUTT, G. E. /N. AM. AVIATION/ DATE- MAY 1967
MSC-1231
Linear Systems Design Evaluation Program,

01 ELECTRICAL (ELECTRONIC)

AP-168 combines the many different analysis techniques used to evaluate and manipulate polynomials. The single program is a pseudo instruction abstraction. It allows the user to enter polynomials of the laplace operators and to manipulate them freely.

B67-10104 PARAMETRIC UP-CONVERTER INCREASES FLEXIBILITY OF MASER

SUNNY, R. H. DATE- APR. 1967
KSC-67-98

Parametric up-converter translates a broad band of signals to the fixed tuned input frequency of a maser. This modified maser can operate in the 1700-2300 Mc range, eliminating the need to duplicate equipment. It may be applied in communications and radio astronomy.

B67-10106 RF INDUCTOR HAS HIGH Q, IS STABLE AT HIGHER TEMPERATURES

WILDER, E. M. DATE- MAY 1967
JPL-1019

Encapsulated RF inductor with an insulated coil has a high Q and remains stable for long periods of time at high temperatures. The coil is wound on a core and both are encapsulated in an epoxy resin. Two terminals are soldered to the coil.

B67-10108 COMPUTER PROGRAM REDUCES CALCULATION TIME OF NORMAL RESPONSE FUNCTIONS

ALEXANDER, M. J. ROTHMAN, D. ZIMMERMAN, J. M.
/N. AM. AVIATION/ DATE- MAY 1967
M-FS-1517

FORTRAN 2 computer program rapidly calculates parameters of maximum likelihood estimates from sensitivity experiment data populations. The program uses the Newton-Raphson iterative procedure to calculate the mean and standard deviation of portions of the cumulative normal response function.

B67-10111 FIXTURE TESTS BELLONS RELIABILITY THROUGH REPEITIVE PRESSURE/TEMPERATURE CYCLING

LEVINSON, C. /SPERRY GYROSCOPE CO./ DATE- MAY 1967
MSC-1176

Fixture explores the reliability of bellows used in precision in inertial systems. The fixture establishes the ability of the bellows to withstand repetitive over-stress pressure cycling at elevated temperatures. It is applicable in quality control and reliability programs.

B67-10115 LIQUID HYDROGEN DENSITOMETER UTILIZES OPEN-ENDED MICROWAVE CAVITY

SNETANA, J. WENGER, N. C. DATE- APR. 1967 REAN-
SEE ALSO NASA-TN-D-3680
LEWIS-390

Open-ended microwave cavity directly measures the density of flowing liquid, gaseous, or two-phase hydrogen. Its operation is based on derived relations between the cavity resonant frequency and the dielectric constant and density of hydrogen.

B67-10116 DETECTION OF ENTRAPPED MOISTURE IN HONEYCOMB SANDWICH STRUCTURES

HALLMARK, W. E. /N. AM. AVIATION/ DATE- MAY 1967
MSC-1103

Thermal neutron moisture detection system detects entrapped moisture in intercellular areas of bonded honeycomb sandwich structures. A radium/beryllium fast neutron source bombards a specimen. The emitted thermal neutrons from the target nucleus are detected and counted by a boron trifluoride thermal neutron detector.

B67-10118 TV SYNCHRONIZATION SYSTEM FEATURES STABILITY AND NOISE IMMUNITY

LANDAUER, F. P. DATE- MAY 1967
JPL-915

Horizontal jitter in the video presentation in

television systems is prevented by using an additional sync level. This circuitry uses simultaneous signals at both sync and porch frequencies, providing a sync identification from which a coincidence circuit can generate pulses having the required stability and noise immunity.

B67-10119 PERSONAL COMMUNICATION SYSTEM COMBINES HIGH PERFORMANCE WITH MINIATURIZATION

ATLAS, N. D. /N. AM. AVIATION/ DATE- MAY 1967
MSC-720 MSC-722

Personal communication system provides miniaturized components that incorporate high level signal characteristics plus noise rejection in both microphone and earphone circuitry. The microphone is designed to overcome such spacecraft flight problems as size, ambient noise level, and RF interference.

B67-10125 EDGE-TYPE CONNECTORS EVALUATED BY ELECTRICAL NOISE MEASUREMENT

BRUMMETT, S. L. /BOEING CO./ DATE- MAY 1967
M-FS-2243

Electrical noise measurement system measures noise generated by edge-type connectors and circuit cards when they are subjected to sinusoidal vibration. It provides a signal across the contact area and monitors the signal change during vibration. Noise measured can be expressed as a varying change in total contact resistance.

B67-10127 CALIBRATING ULTRASONIC TEST EQUIPMENT FOR CHECKING THIN METAL STRIP STOCK

PETERSON, R. M. /AEROJET-GEN. CORP./ DATE- JUN. 1967
NUC-10009

Calibration technique detects minute laminar-type discontinuities in thin metal strip stock. Patterns of plastic tape are preselected to include minutely calculated discontinuities and the tape is applied to the strip stock to intercept the incident sonic beam.

B67-10130 MODIFIED UNIVIBRATOR COMPENSATES FOR OUTPUT TIMING ERRORS

STRAUSS, M. G. DATE- MAY 1967
ARG-85

One-stage, delay compensation amplifier, added to conventional univibrator circuitry time-synchronizes the trailing edge of the output pulse with the origin of the input pulse. The trailing edge is independent of the amplitude of the input pulse.

B67-10135 INTEGRATOR CAN EASILY BE SET AND RESET WITH AN ELECTRONIC SWITCH

DEBOO, G. J. DATE- MAY 1967
ARC-10002

Electronic switch sets and resets integrator circuit to some initial condition using a grounded capacitor. This circuit also uses four equal resistors and an operational amplifier.

B67-10136 COMPUTER PROGRAM CALCULATES MONOTONIC MAXIMUM LIKELIHOOD ESTIMATES USING METHOD OF REVERSALS

ALEXANDER, M. J. ALEXANDER, N. J./N. AM. AVIATION/
DATE- MAY 1967
M-FS-1516

FORTRAN 2 computer program calculates maximum estimates of a monotonic non-decreasing response function. The program uses the method of reversals algorithm which applies to the analysis of univariate or multivariate sensitivity experiments.

B67-10137 VARIABLE RELUCTANCE SWITCH AVOIDS CONTACT CORROSION AND CONTACT BOUNCE

WATSON, P. C. /MIT/ DATE- MAY 1967
MSC-1178

Variable reluctance switch avoids contact corrosion and bounce in a hostile environment. It

consists of a wire-wound magnetic core and moveable bridge piece that alters the core flux pattern to produce an electrical output useful for switching control media.

B67-10139

RECORDING AND TIME EXPANSION TECHNIQUE FOR HIGH-SPEED, SINGLE-SHOT TRANSIENT VIDEO SIGNAL

HRUBY, R. J. SANDER, R. C. DATE- MAY 1967
ARC-10003

High-speed, single-shot, transient voltage is recorded on a video tape recorder, which, when played back, converts the single signal to a repetitive signal. This drives a sample data translator which lengthens the original transient production time, suiting it to an x-y plotter or computer tape recorder use.

B67-10140

CLAMP PROVIDES EFFICIENT CONNECTION FOR HIGH-DENSITY CURRENTS

MC CARTHY, J. R. TREBES, D. M. /N. AM. AVIATION/
DATE- MAY 1967

M-FS-2417

Electrical connector clamp /bus bar/ gives high contact-surface efficiency for providing a high current to thin wall stainless steel tubing containing hydrogen gas. It uses lead solder film to provide the electrical equivalent of a fusion bond without degrading the grain structure, permitting disassembly and reuse of the components.

B67-10142

THIN FILM PROCESS FORMS EFFECTIVE ELECTRICAL CONTACTS ON SEMICONDUCTOR CRYSTALS

FORMIGONI, N. P. ROBERTS, J. S. /WESTINGHOUSE
ELEC. CORP./ DATE- MAY 1967

M-FS-2343

Process makes microscopic, low-resistance electrical contacts on hexagonal n-type silicon carbide crystals used for microelectronic devices. A vacuum deposition of aluminum is etched to expose the bare silicon carbide where the electrical contacts are made. Sputtering alternating layers of tantalum and gold forms the alloy film.

B67-10143

DESIGN CONCEPTS USING RING LASERS FOR FREQUENCY STABILIZATION

MOCKER, H. /HONEYWELL INC./ DATE- MAY 1967
M-FS-2448

Laser frequency stabilization methods are based on a frequency discriminant which generates an unambiguous deviation signal used for automatic stabilization. Closed-loop control stabilizes cavity length at a null point. Some systems have a stabilized ring laser using a piezoelectric dither and others use a Doppler gain tube.

B67-10144

PROCESS FACILITATES PHOTORESIST MASK ALIGNMENT ON SIC CRYSTALS

FORMIGONI, N. P. ROBERTS, J. S. /WESTINGHOUSE
ELEC. CORP./ DATE- MAY 1967

M-FS-2394

Growth of silicon dioxide on a silicon carbide crystal ensures proper orientation of photoresist masks on the crystals used for semiconductor devices. The crystal is heated in a water vapor-saturated gas to delineate p-n junctions that intersect the crystal surface.

B67-10145

TEST INSTRUMENTATION EVALUATES ELECTROSTATIC HAZARDS IN FLUID SYSTEM

COLLINS, L. H. HENRY, R. KREBS, D. /ECCING CO./
DATE- MAY 1967

M-FS-2277

RJ-1 fuel surface potential is measured with a probe to determine the degree of hazard originating from static electricity buildup in the hydraulic fluid. The probe is mounted in contact with the fluid surface and connected to an electrostatic voltmeter.

B67-10146

HYDROGEN MASER AS A HIGHLY STABLE FREQUENCY REFERENCE

VANIER, J. VESSOT, R. /VARIAN ASSOC./ DATE- MAY 1967

M-FS-2437

Hydrogen maser is stable short-term and long-term frequency reference for precision tracking systems. Its resettability is expressed as the rms deviation from the mean.

B67-10150

MULTIPLEXING CONTROL DEVICE ENABLES HANDLING OF WIDE VARIATIONS IN SAMPLING RATES

SPON- INNOVATOR NOT GIVEN. /WESTINGHOUSE ELEC.
CORP./ DATE- JUN. 1967

M-FS-1871

ESS telecommunication system concept provides the ability to change according to needs indicated by the data without any change to the lunar experiment equipment. The system will include a magnetic core memory as the data multiplexing control device.

B67-10151

ELECTRONIC FREQUENCY DISCRIMINATOR

REID, W. J. /MOTOROLA, INC./ DATE- JUN. 1967
M-FS-2434

Digital comparator permits discrimination at accuracy of reference frequency. The compare circuit is a shift register element.

B67-10152

MEANS FOR IMPROVING APPARENT RESOLUTION OF TELEVISION

HILBORN, E. H. DATE- MAY 1967

ERC-65

Technique using short term temporal integration characteristics of the observers visual system improves the apparent resolution of television video presentations. The raster is displaced slightly on each frame so the eye can integrate the information in each raster grain. This phase shift uses a switching time delay.

B67-10153

STUDY OF YTTRIUM IRON GARNET RODS REVEALS NEW MAGNETOSTATIC ECHO MODE

KEDZIE, R. W. /SPERRY RAND RES. CENTER/ DATE-
JUN. 1967

ERC-37

Echo mode in YIG rods has different behavior in magnetic fields. This mode, discovered at 8.5 gigahertz, experiences a linear variation. The time delay exhibited is a linear function of the applied magnetic field and the input pulse frequency.

B67-10155

SUBMINIATURE DEFLECTION CIRCUIT OPERATES INTEGRATED SWEEP CIRCUITS IN TV CAMERA

SCHAFF, F. L. /WESTINGHOUSE ELEC. CORP./ DATE-
MAY 1967

MSC-1263

Small magnetic sweep deflection circuits operate a hand-held lunar television camera. They convert timing signals from the synchronizer into waveforms that provide a raster on the vidicon target. Faster size remains constant and linear during wide voltage and temperature fluctuations.

B67-10156

VOLTAGE REGULATOR/AMPLIFIER IS SELF-REGULATED

DAY, W. E. PHILLIPS, D. E. /COLLINS RADIO CO./
DATE- MAY 1967

MSC-1240

Signal modulated, self-regulating voltage regulator/amplifier controls the output b-plus voltage in modulated regulator systems. It uses self-oscillation with feedback to a control circuit with a discontinuous amplitude action feedback loop.

B67-10157

DESIGN CONCEPT FOR IMPROVED PHOTO-SCAN TUBE

MALLING, L. R. DATE- JUN. 1967

JPL-818

Conceptual photo-scan tube avoids complexity of internal beam scanning and beam-current adjustment

01 ELECTRICAL (ELECTRONIC)

by optical scan readout. It differs from a conventional image orthicon in its use of an external oscilloscope tube.

B67-10160
A POWER-SPECTRAL-DENSITY COMPUTER PROGRAM
CHAPMAN, C. P. DATE- JUN. 1967
NPO-10126

Computer program simplifies and clarifies random noise vibration test results. It also varies PSD test specifications, sets up automatic equalization equipment, and calculates an exact acceleration level for the random noise prior to the test.

B67-10161
SENSING DISKS FOR SLUG-TYPE CALORIMETERS
HAVE HIGHER TEMPERATURE STABILITY
SPON- INNOVATOR NOT GIVEN /SOUTHERN RES. INST./
DATE- JUN. 1967
N-PS-1867

Graphite sensing disk for slug-type radiation calorimeters exhibits better performance at high temperatures than copper and nickel disks. The graphite is heat-soaked to stabilize its emittance and the thermocouple is protected from the graphite so repeated temperature cycling does not change its sensitivity.

B67-10162
CLOSED CIRCUIT TV SYSTEM MONITORS WELDING OPERATIONS
GILMAN, M. /N. AM. AVIATION/ DATE- JUN. 1967
MSC-11002

TV camera system that has a special vidicon tube with a gradient density filter is used in remote monitoring of TIG welding of stainless steel. The welding operations involve complex assembly welding tools and skates in areas of limited accessibility.

B67-10165
HYBRID SOLID STATE SWITCH REPLACES MOTOR-DRIVEN POWER SWITCH
BOOTH, R. A. SCHLOSS, A. I. DATE- JUN. 1967
JPL-931

Hybrid solid state switch replaces existing motor-driven power switches used on spacecraft. It uses a transistor circuit to limit the open circuit voltage and allow small relay contacts to handle high transient currents at reasonable cycle life.

B67-10166
EFFICIENT MILLIMETER WAVE /140 GHZ/ DIODE FOR HARMONIC POWER GENERATION
SPON- INNOVATOR NOT GIVEN /ADVAN. TECHNOL. CORP./
DATE- JUN. 1967
HQ-61

Epitaxial gallium arsenide diode junction formed in a crossed waveguide structure operates as a variable reactance harmonic generator. This varactor diode can generate power efficiently in the low-millimeter wavelength.

B67-10170
DATA RETRIEVAL SYSTEM PROVIDES UNLIMITED HARDWARE DESIGN INFORMATION
RAWSON, R. D. SWANSON, R. L. /N. AM. AVIATION/
DATE- JUN. 1967
MSC-1144

Data is input to magnetic tape on a single format card that specifies the system, location, and component, the test point identification number, the operators initial, the date, a data code, and the data itself. This method is efficient for large volume data storage and retrieval, and permits output variations without continuous program modifications.

B67-10171
STRUCTURAL ANALYSIS AND MATRIX INTERPRETIVE SYSTEM /SAMIS/
SPON- INNOVATOR NOT GIVEN /PHILCO CORP./ DATE- JUN. 1967
NPO-10130

Structural Analysis and Matrix Interpretive System eliminates high-speed digital computer restrictions of lack of generalization and lack of

flexibility. Programming concepts of the system are standardization, modularity, and programming for intermediate-size problems.

B67-10175
NUMERICAL DATA FRAME READOUT SYSTEM USED IN TESTING TELEMETRY SYSTEMS
COTE, C. E. CRESSEY, J. R. DATE- JUN. 1967
GSFC-551

Digital telemetry systems are treated by a display system that offers direct readout as high data rates. The rates appear in numerical format and are adaptable to photographic recording techniques. The system can show bit dropouts at a memory output or locate a malfunction in a system.

B67-10176
THERMAL AND BIAS CYCLING STABILIZES PLANAR SILICON DEVICES
HARRIS, R. E. MEINHARD, J. E. /N. AM. AVIATION/
DATE- JUN. 1967
ERC-48

Terminal burn-in or baking step time in the processing of planar silicon devices is extended to reduce their inversion tendencies. The collector-base junction of the device is also cyclically biased during the burn-in.

B67-10179
A THEORETICAL MODEL FOR DETERMINING TURBINE FLOWMETER SENSITIVITY
SMITH, R. L. /N. AM. AVIATION/ DATE- JUN. 1967
N-PS-1172

Analytical model of turbine-type flowmeter guides in the selection of valid extrapolation of available calibration data. An expression for flowmeter performance is developed to include the effects of fluid friction, bearing drag, and magnetic drag upon helical rotor design.

B67-10181
STUDY INDICATES FLUID DIGITAL COMPUTATION SYSTEMS ARE FEASIBLE
SPON- INNOVATOR NOT GIVEN /GE/ DATE- JUN. 1967
N-PS-520

Digital computation systems using fluid amplifiers are proven practical. The response speed is adequate for space applications and they are reliable in adverse environments. The systems may be feasible for satellite attitude controls and guidance computers for manned orbital stations.

B67-10190
SWITCHING-TYPE REGULATOR CIRCUIT HAS INCREASED EFFICIENCY
CLAPP, W. M. /SANDERS ASSOCIATES, INC./ DATE- JUN. 1967
MSC-1063

Switching series regulator circuit uses an inductive network to feed most of the current applied to the control circuit to the load. This circuit eliminates resistive losses and the need for heat sinks.

B67-10192
FAST-ACTING CALORIMETER MEASURES HEAT OUTPUT OF PLASMA GUN ACCELERATOR
DETHLEFSON, R. LARSON, A. V. LIEBING, L. /GEN. DYNAMICS/CONVAIR DIV./ DATE- JUN. 1967
LEWIS-388

Calorimeter measures the exhaust energy from a shot of a pulsed plasma gun accelerator. It has a fast response time and requires only one measurement to determine the total energy. It uses a long ribbon of copper foil wound around a glass frame to form a reentrant cavity.

B67-10196
TECHNIQUE FOR STRIP CHART RECORDER TIME NOTATION
SPON- INNOVATOR NOT GIVEN /ROBACK CORP./ DATE- JUN. 1967
GSFC-473

Single recorder channel helps determine the time an event is recorded on the readout of a strip chart recorder. It presents hours, tens of minutes, and minutes by a unique method of time

increment identification. This facilitates recording timing marks.

B67-10199

ELECTROMETER AMPLIFIER OPERATES OVER DYNAMIC RANGE OF FIVE ORDERS OF MAGNITUDE
KATZ, N. /MARSHALL LAB./ DATE- JUN. 1967
ARC-75

Special purpose electrometer amplifier is capable of operation over a dynamic range of five orders of magnitude. This is achieved by using a zener controlled attenuator in the feedback path for the amplifier.

B67-10201

ELECTRONIC CIRCUITRY USED TO AUTOMATE PAPER CHROMATOGRAPHY
STEFFENSEN, G. R. DATE- JUN. 1967
JPL-840

Electronic circuit is used in a paper chromatograph instrument that has excellent sensitivity and furnishes a printed record of each test. The circuit measures and records changes in conductivity in a strip of chromatographic paper as different solutions are placed on it.

B67-10203

AUTOMATED MICROSYRINGE IS HIGHLY ACCURATE AND RELIABLE
STUART, J. L. DATE- JUN. 1967
NPO-10142

Syringe meters small volumes of fluid used in chemical analysis. The standard body and plunger are adapted to fit with a motor driven micrometer, making a reliable and convenient device.

B67-10204

A CONCEPTUAL, PARALLEL OPERATING DATA COMPRESSION PROCESSOR
ANDERSON, T. O. DATE- JUN. 1967
NPO-10068

Data compressor processor concept envisions a simplified system for telemetry communications. It is simultaneously a zero-order processor and a floating aperture, a variable aperture, and a binary integer aperture with a decoded buffet fullness counter.

B67-10205

QUARTZ CRYSTALS DETECT GAS CONTAMINANTS DURING VACUUM CHAMBER EVACUATION
STEPHENS, J. B. DATE- JUN. 1967
NPO-10144

Piezoelectric quartz crystals detect condensable gas contaminants backstreaming into a vacuum chamber when a pump is evacuating the chamber. One crystal acts as a thermometer, the other detects mass change. They are energized by electronic equipment which records frequency changes.

B67-10206

PLOTTER DESIGN SIMPLIFIES DETERMINATION OF IMAGE SENSOR TRANSFER CHARACTERISTIC
BAKER, L. R. DATE- JUN. 1967
NPO-10164

Transfer characteristic of vidicons and other image sensors are measured by light from a calibrated electroluminescent panel as a function of the current output of the image sensor. The plot of current output versus the calibrated light output is the transfer characteristic.

B67-10213

FM CARRIER DEVIATION MEASURED BY DIFFERENTIAL PROBABILITY METHOD
DAQUIN, A. F., JR. HADDICAN, J. /BOEING CO./
DATE- JUN. 1967
M-FS-2166

Differential probability FM system measures deviation of a carrier modulated by a complex signal. The peak-to-peak amplitude is measured and related to the frequency shift of the carrier signal. The deviation is described in terms of a probability as well as a peak value.

B67-10215

RUN NUMBERING SYSTEM FOR USE WITH DATA RECORDERS

PEASE, L. L. /BOEING CO./
M-FS-2557

Run numbering identification system provides a permanent identification on the recorder traces of data runs. It automatically enters, by pulse coding, the number of the current data run on the recorder trace. The system uses a keyboard, registers, converters, amplifiers, and a pulse generator.

B67-10220

LOW SPEED, LONG TERM TRACKING ELECTRIC DRIVE SYSTEM HAS ZERO BACKLASH
RICHTER, H. L. STOLLER, F. W. DATE- JUL. 1967
NPO-10173

Electric drive system provides low speed, long term tracking of targets that move at a sidereal rate. It utilizes eddy-current energized actuators that are free from radio frequency interference generation and a solid state feedback amplifier with provisions for antibacklash biasing.

B67-10221

AMPLIFIER PROVIDES DUAL OUTPUTS FROM A SINGLE SOURCE WITH COMPLETE ISOLATION
DIPPLE, C. R. /WESTINGHOUSE ASTRONUC. LAB./
NEFF, G. A. /NEFF INSTR. CORP./ DATE- JUL. 1967
NUC-10056

Amplifier provides two amplified outputs from a single input signal with complete transformer isolation. It uses modulation techniques to obtain the separated output.

B67-10226

LABORATORY PULSE MODULATOR USES MINORITY CARRIER STORAGE DIODES
SPON- INNOVATOR NOT GIVEN /SYLVANIA ELECTRON. SYSTEMS/ DATE- JUL. 1967
M-FS-2442

Pulse modulator is capable of continuously variable pulse width over a 10 to 1 range of 1.0 microsecond to 0.1 microsecond and operates over a wide range of pulse repetition rates. Pulse width diversity is obtained by operating step-recovery diodes in the reverse conduction mode.

B67-10229

GLOW DISCHARGE DENSITY SENSOR PROBE LIFE IS EXTENDED
MAHUGH, R. A. /BOEING CO./ DATE- JUL. 1967
M-FS-1707

Excitation of the glow discharge probes with a high peak-to-peak voltage square wave reduces instability of density sensors. This results in good probe life plus output stability over a wide range.

B67-10230

FUSED DIODE PROVIDES VISUAL INDICATION OF FUSE CONDITION
JENKINS, K. H. DATE- JUL. 1967
KSC-67-16

Fused diode combines a semiconductor diode and a circuit protective fuse within a common transparent cartridge. It provides visual indication of fuse condition which precludes the necessity of making resistance checks with an ohmmeter.

B67-10231

IMPROVED ATMOSPHERIC PARTICLE ANALYZER
SPON- INNOVATOR NOT GIVEN /BLOCK ENG./ DATE- JUL. 1967
ERC-33

Nephelometer measures aerosol particles in wide concentration and size distribution ranges. It measures the light scattered from the aerosol particles at a controlled sampling rate to ensure laminar flow through the sample tube, and thereby eliminate the need for sheath air.

B67-10234

AN IMPROVED NUCLEAR MAGNETIC RESONANCE SPECTROMETER
ELLEMAN, D. D. MANATT, S. L. DATE- JUL. 1967
JPL-762

Cylindrical sample container provides a high

01 ELECTRICAL (ELECTRONIC)

degree of nuclear stabilization to a nuclear magnetic resonance /nmr/ spectrometer. It is placed coaxially about the nmr insert and contains reference sample that gives a signal suitable for locking the field and frequency of an nmr spectrometer with a simple audio modulation system.

B67-10239

A PHONOCARDIOGRAM SIMULATOR

KEEFER, J. M. DATE- JUL. 1967

KSC-67-94

Simulator calibrates and checks out phonocardiograms used in physiological monitoring of astronauts in flight and during flight simulation. It is also used to check out telemetry systems and instrumentation systems for phonocardiogram monitoring in hospitals and medical care centers, and in training personnel to use such systems.

B67-10242

WEB BELT LOAD MEASURING INSTRUMENT HAS

EXCELLENT STABILITY

WALKER, R. R. /N. AM. AVIATION/ DATE- JUL. 1967

MSC-921

Web belt system measures belt or strap load. It is partially disassembled and installed on an existing belt without cutting or re-threading the belt. A strain gage, installed on one of the support beams, eliminates errors due to uneven loading.

B67-10246

IMPROVED TELEVISION SIGNAL PROCESSING SYSTEM

WONG, R. Y. DATE- JUL. 1967 REAN- SEE ALSO

B67-10005

NPO-10140

Digital system processes spacecraft television pictures by converting images sensed on a photostorage vidicon to pulses which can be transmitted by telemetry. This system can be applied in the processing of medical X ray photographs and in electron microscopy.

B67-10248

RECTILINEAR DISPLAY GIVES ACCELERATION LOAD

FACTOR AND VELOCITY INFORMATION

FRANK, A. J. JOHNSON, B. C. /N. AM. AVIATION/

DATE- JUL. 1967

MSC-1045

Spacecraft entry monitoring system /EMS/ gives a rectilinear display of acceleration load factor and velocity information. This allows an astronaut to respond with manual spacecraft attitude corrective maneuver commands.

B67-10249

COMPUTER PROGRAM SAMPLES DIGITAL DATA FOR

CRT DISPLAY

DAY, D. J. WICKES, W. R. /N. AM. AVIATION/

DATE- JUL. 1967

MSC-999

High volume, multichannel data reduction computer program permits selection of the rates at which digital data is sampled. The program, written in FORTRAN 4 source language, also permits accessibility to the original mass of data.

B67-10250

EXPERIMENTAL COHERENT FRACTIONAL FREQUENCY

MULTIPLIER AT S-BAND

MOSTRUM, R. A. /SMITH ELECTRONICS CO./ DATE-

JUL. 1967

M-FS-2427

Experimental circuit produces an efficient fractional frequency multiplier that will operate on a 5.6 mw, 2101.8 MHz input signal to achieve an output-to-input frequency ratio of 240/221. Step-recovery diodes used in all frequency-changing stages result in a coherent offset frequency.

B67-10251

AN EFFICIENT, TEMPERATURE-COMPENSATED

SUBCARRIER OSCILLATOR

LAWRENCE, E. D. MEAD, D. C. /HUGHES AIRCRAFT

CO./ DATE- AUG. 1967

JPL-SC-091

Telemetry subcarrier oscillator has temperature stability, consumes a minimum of power, and has a high input impedance. Its output frequency is a linear function of the magnitude of an input signal. A circuit using an input buffer with a field effect transistor serves as the temperature-compensating element.

B67-10253

SOLID STATE PHASE DETECTOR REPLACES BULKY

TRANSFORMER CIRCUIT

MOBERLY, C. L. /MOTOROLA/ DATE- JUL. 1967

MSC-11007

Miniature solid state phase detector using MOSFETs is used in a phase lock loop with a sun-bit detector in an integrated data-link circuit. This replaces bulky transformer circuits. It uses an inverter amplifier, a modulator switch, and a buffer amplifier.

B67-10254

A CALIBRATION MEANS FOR SPECTRUM ANALYZERS

LARSON, M. S. DATE- JUL. 1967

MSC-10987

Spectrum analyzer calibration system is rapid and provides an accurate family of adjustable markers at any point in the spectrum. Pulse width controls determine the number of markers. The unit operates with a repetition rate from 300 cps to 40 kc at a center frequency from 10 kc to 2 Mc.

B67-10255

ABSOLUTE FREQUENCY STABILIZATION OF LASER

OSCILLATOR AGAINST LASER AMPLIFIER

SIEGMAN, A. E. /SYLVANIA ELECTRON. SYSTEMS/

DATE- JUL. 1967

M-FS-2559

Long-term absolute frequency stabilization of a laser oscillator is obtained when the lasers oscillation frequency is referenced to the exact center of an atomic transition. A laser amplifier acts as a discriminant to indicate when the laser frequency deviates from the center of its atomic transition.

B67-10257

FAST-RESPONSE FREQUENCY-TO-ANALOG CONVERTER

HAGIHARA, F. S. /N. AM. AVIATION/ DATE- JUL.

1967

M-FS-709

Frequency-to-analog converter has a fast response time and a low ripple. The circuit uses a frequency-to-pulse converter which provides two pulse trains, both at the same frequency as that of the input signal, but with a 10 microsecond difference between the trains.

B67-10258

MULTICHANNEL PULSE HEIGHT ANALYZER IS

INEXPENSIVE, FEATURES LOW POWER

REQUIREMENTS

EWALD, C. J. SARKADY, A. A. /NEW HAMPSHIRE

UNIV./ DATE- AUG. 1967

HQN-10020

Consumption multichannel pulse height analyzer performs balloon and rocket investigations of solar neutrons with energies greater than 10 Mev. The lightweight unit can operate in a temperature range of minus 30 degrees to plus 70 degrees C and withstand storage temperatures from minus 50 degrees to plus 90 degrees C.

B67-10259

A PIEZO-BAR PRESSURE PROBE

FRIEND, W. H. MURPHY, C. L. SHANFIELD, I. /MC

GILL UNIV./ DATE- JUL. 1967

LEWIS-393

Piezo-bar pressure type probe measures the impact velocity or pressure of a moving debris cloud. It measures pressures up to 200,000 psi and peak pressures may be recorded with a total pulse duration between 5 and 65 msec.

B67-10260

TESTER AUTOMATICALLY CHECKS INSULATION OF

INDIVIDUAL CONDUCTORS IN MULTIPLE-STRAND

CABLES

SHAW, J. VUCKOVICH, M. /WESTINGHOUSE ASTRONUCL.

LAB./ DATE- JUL. 1967
NUC-10068

Insulation tester checks multiple-strand electrical cables in nuclear rocket reactors. It has both manual and automatic capabilities and can check the insulation of a cable with 200 or more conductors in a few minutes.

B67-10262

SOLID STATE CIRCUIT AVERAGES MULTIPLE SIGNALS AND REJECTS THOSE VARYING SIGNIFICANTLY FROM THE AVERAGE

ELMIGER, R. A. /WESTINGHOUSE ASTRONUCL. LAB./
DATE- AUG. 1967
NUC-10066

Average and reject logic control system provides an average of the output signals of transducers measuring critical parameters. It uses a circuit that compares each signal against an average, rejects any signal that departs significantly from the average, and supplies an average of the acceptable signals.

B67-10263

AUTOMATED TESTER PERMITS PRECISE CALIBRATION OF PRESSURE TRANSDUCERS FROM 0 TO 1050 PSI
BRINDA, J. KRISTOFF, L. SHAW, J. VUCKOVICH, M.
/WESTINGHOUSE ASTRONUCL. LAB./ DATE- AUG. 1967
NUC-10067

Automated portable checker allows last-minute calibration of pressure transducers before testing. It uses a pressure console and equipment that can produce test pressures of 0-1050 psi. The console can be connected to other apparatus for measurement and visual display of the electrical output.

B67-10267

TESTER AUTOMATICALLY CHECKS PAPER TAPE PUNCH AND READER AFTER MAINTENANCE

MAZER, L. MC MURCHY, D. D. DATE- AUG. 1967
ARC-66

Device automatically bench tests paper tape punches and readers in a simulated operating environment following routine maintenance. The reader and punch operate back-to-back and the paper tape output feeds the reader. The tape leader is prepunched with an arbitrary pattern that is continuously reproduced during the check.

B67-10268

SELF-BALANCING LINE-REVERSAL PYROMETER AUTOMATICALLY MEASURES GAS TEMPERATURES
BUCHELE, D. DATE- AUG. 1967
LEWIS-348

Automatic line-reversal pyrometer measures gas temperatures from 2900 degrees to 4500 degrees R. The self-balancing device uses the sodium D-line but replaces the two conventional manual operations of the line-reversal method and can be used by semiskilled personnel.

B67-10269

OSCILLOSCOPE USED AS X-Y PLOTTER OR TWO-DIMENSIONAL ANALYZER
HANSEN, D. ROY, N. /THOMPSON-RAMO-WOOLDRIDGE/
DATE- AUG. 1967
LEWIS-311

Oscilloscope used as an X-Y plotter or two-dimensional analyzer tags each point with a yes or no, depending on a third parameter. The usual square-wave pulse is replaced on the scope by a single information-bearing dot which lengthens to a dash in response to a simultaneous event.

B67-10270

ELECTRONIC SHUTTER GATES IMAGE ORTHICON ON AND OFF
SENSING, W. A. /RCA/ DATE- AUG. 1967
HQ-96

TV camera system contains an electronic shutter that gates the image orthicon photocathode on during expose time and off at all other times. The system records image of diffuse light-scattering regions in the solar system.

B67-10274

HIGH IMPACT PRESSURE REGULATOR WITHSTANDS

IMPACTS OF OVER 15,000 G

BILES, J. E., JR. FLOYD, E. L. TOPITS, A. N., JR. DATE- AUG. 1967
NPO-10175

High impact pressure regulator used with a high impact gas scannograph withstands impacts of over 15,000 g. By the passage of fluid through the first and second chambers of the regulator, the pressure of the scannograph is regulated from a specific input valve to the desired output pressure valve.

B67-10275

PRIMARY CELL USES NEITHER LIQUID NOR FUSED ELECTROLYTES
GUTMANN, F. HERMAN, A. M. REMBAUM, A. DATE- AUG. 1967 REAN- SEE ALSO B66-10682
NPO-10001

Dry, solid state primary battery cell establishes an electrode reaction by a charge transfer mechanism without liquid phase ionization of electrolyte compounds. The charge transfer complex is sufficiently conductive to permit the passage of useful current.

B67-10276

SYSTEM PRECISELY CONTROLS OSCILLATION OF VIBRATING MASS

HANCOCK, D. J. /BUNKER-RAMO CORP./ DATE- AUG. 1967
M-FS-1875

System precisely controls the sinusoidal amplitude of a vibrating mechanical mass. Using two sets of coils, the system regulates the drive signal amplitude at the precise level to maintain the mechanical mass when it reaches the desired vibration amplitude.

B67-10277

IR VIDICON SCANNER MONITORS MANY TEST POINTS
FORTIER, R. J. /BOBING CO./ DATE- AUG. 1967
M-FS-1937

Infrared /IR/ scanners are used in test systems that involve many signal paths from transducers to a central evaluation point. The scanner, an IR-sensitive vidicon, looks at the indicator panels of each subsystem of the equipment being tested and picks up the level of radiation from each IR source mounted thereon.

B67-10284

VIBRATOR ELAPSED TIME IS AUTOMATICALLY CONTROLLED
BUROWICK, E. A. /N. AM. AVIATION/ DATE- AUG. 1967
M-FS-2573

Circuit determines elapsed operating time for vibrators when three vibrators are located in one room and are powered by two amplifiers through either of two control systems. It operates the control system elapsed time clocks only when voltage is applied to the vibrator armatures.

B67-10289

WIDEBAND, HIGH EFFICIENCY OPTICAL MODULATOR REQUIRES LESS THAN 10 WATTS DRIVE POWER
BECKNELL, W. E. BATTMAN, W. J. YAP, B. K. /SYLVANIA ELECTRON. SYSTEMS/ DATE- AUG. 1967
M-FS-12733

Wideband optical modulation system operates with less than 10-watts drive power. It consists of an optical modulator and transistorized driver that combines small cross-section potassium dideuterium phosphate crystals with laser beam-condensing optics. Optical modulation systems may serve importantly in future space wideband communication systems.

B67-10294

SENSITIVE BRIDGE CIRCUIT MEASURES CONDUCTANCE OF LOW-CONDUCTIVITY ELECTROLYTE SOLUTIONS
SCHMIDT, K. DATE- AUG. 1967
ARG-147

Compact bridge circuit measures sensitive and accurate conductance of low-conductivity electrolyte solutions. The bridge utilizes a phase sensitive detector to obtain a linear deflection of the null indicator relative to the

01 ELECTRICAL (ELECTRONIC)

measured conductance.

B67-10298

ELECTRONIC DUMMY FOR ACOUSTICAL TESTING

BAUER, B. B. DI HATTIA, A. L. ROSENHECK, A. J. STERN, M. TORICK, E. L. /CBS LABS./ DATE- AUG. 1967 REAN- SEE ALSO M66-25565

MSC-206 MSC-1164 MSC-1165 MSC-1166

Electronic Dummy /ED/ used for acoustical testing represents the average male torso from the Xiphoid process upward and includes an acoustic replica of the human head. This head simulates natural flesh, and has an artificial voice and artificial ears that measure sound pressures at the eardrum or the entrance to the ear canal.

B67-10300

CIRCUIT PROVIDES OVERCURRENT PROTECTION TO PUSH-PULL AMPLIFIER

SKORRA, D. J. /HONEYWELL/ DATE- AUG. 1967 MSC-12033

Circuit in push-pull amplifier limits the current flowing to a predetermined level and provides that overcurrent in one half of the amplifier turns off the other half.

B67-10303

PROCESS CONTROLS INTRODUCTION OF SELECTED IMPURITIES INTO SEMICONDUCTOR WAFERS

BARTHOLOMEY, W. C. TOPFER, A. R. /RCA/ DATE- AUG. 1967 GSFC-523

Modified three-step process controls the concentration of lithium diffused as a dopant into the base region of a diffused n-on-p silicon solar cell wafer. Part of the surface layer of the base region of the p-type silicon containing the diffused dopant is removed, prior to redistributing the remaining portion of the dopant into the bulk of the wafer.

B67-10311

TRANSISTOR BIASED AMPLIFIER MINIMIZES DIODE DISCRIMINATOR THRESHOLD ATTENUATION

LARSEN, R. N. DATE- AUG. 1967 ARG-163

Transistor biased amplifier has a biased diode discriminator driven by a high impedance /several megohms/ current source, rather than a voltage source with several hundred ohms output impedance. This high impedance input arrangement makes the incremental impedance of the threshold diode negligible relative to the input impedance.

B67-10313

PRECISION CAPACITOR HAS IMPROVED TEMPERATURE AND OPERATIONAL STABILITY

BROOKSHIER, W. K. LEWIS, R. N. DATE- AUG. 1967 ARG-189

Vacuum dielectric capacitor is fabricated from materials with very low temperature coefficients of expansion. This precision capacitor in the 1000-2000 picofarad range has a near-zero temperature coefficient of capacitance, eliminates ion chamber action caused by air ionization in the dielectric, and minimizes electromagnetic field charging effects.

B67-10314

SIC/SI DIODE TRIGGER CIRCUIT PROVIDES AUTOMATIC RANGE SWITCHING FOR LOG AMPLIFIER

SPON- INNOVATOR NOT GIVEN /TYCO LABS./ DATE- AUG. 1967 M-FS-1879

Sic/Si diode pair provides automatic range change to extend the operating range of a logarithmic amplifier-conversion circuit and assures stability at or near the range switch-over point. The diode provides hysteresis for a trigger circuit that actuates a relay at the desired range extension point.

B67-10317

IMPROVED HEAD-CONTROLLED TV SYSTEM PRODUCES HIGH-QUALITY REMOTE IMAGE

GOERTZ, R. LINDBERG, J. MINGESZ, D. POTTS, C. DATE- SEP. 1967 ARG-128

Manipulator operator uses an improved resolution

tv camera/monitor positioning system to view the remote handling and processing of reactive, flammable, explosive, or contaminated materials. The pan and tilt motions of the camera and monitor are slaved to follow the corresponding motions of the operators head.

B67-10318

ELECTRONIC TEST INSTRUMENT GENERATES EXTREMELY SMALL CURRENT SIGNALS

BROOKSHIER, W. K. DATE- SEP. 1967 ARG-276

Generator produces dynamic test signals in the range from 0.0001 and 10 to the minus 12th power amperes. It involves an extension of the technique of applying a triangular voltage waveform to a small capacitor to obtain a square-wave output current. The effects of stray capacitance are minimized by appropriate shielding.

B67-10333

BRAZE JOINT QUALITY TESTED ELECTROMAGNETICALLY

GRAVES, D. B. /N. AM. AVIATION/ MC KOWN, R. D. DATE- SEP. 1967 M-FS-12795

Nondestructive electromagnetic method detects the extent of gold/nickel braze alloy flow in an engine injector sleeve-to-post joint. Voltage is induced in an inductor coil, along with a magnetically permeable material. The effects of altering the quantity of braze alloy present can then be measured.

B67-10334

FIELD EFFECT TRANSISTORS IMPROVE BUFFER AMPLIFIER

SPON- INNOVATOR NOT GIVEN /DYNATRONICS/ DATE- OCT. 1967 M-FS-916

Unity gain buffer amplifier with a Field Effect Transistor /FET/ differential input stage responds much faster than bipolar transistors when operated at low current levels. The circuit uses a dual FET in a unity gain buffer amplifier having extremely high input impedance, low bias current requirements, and wide bandwidth.

B67-10335

METHOD OF IMPROVING CONTACT BONDS IN SILICON INTEGRATED CIRCUITS

LYTLE, W. J. /WESTINGHOUSE ELEC. CORP./ SCHUSTER, M. A. DATE- SEP. 1967 M-FS-1753

Fabrication method produces stable and reliable metallic systems for interconnections, contact pads, and bonded leads in silicon planar integrated circuits. The method is based on substrate isolation of the interconnection metal from the contact pad and bonded wire.

B67-10336

DEVICE ENABLES CALIBRATION OF MICROPHONES AT HIGH SOUND PRESSURE LEVELS

GILLEN, A. /WESTINGHOUSE ELEC. CORP./ DATE- SEP. 1967 M-FS-11980

Coupling device accurately calibrates microphones at high sound pressure intensities. The system which uses a liquid as the coupling medium can operate in an automatic mode by using a standard microphone as a control sensor. Feedback from the standard microphone controls the calibration signal level.

B67-10338

ACCURACY OF LASER MEASUREMENTS IMPROVED BY PULSE AUTOCORRELATOR ELECTRONIC SYSTEM

CAMPANELLA, S. J. /MELPAR/ DATE- SEP. 1967 MSC-10033

Pulse autocorrelator electronic system discriminates between the dispersion effect of a disturbed laser signal and background noise by detecting multipath arrivals of Gaussian-shaped signal pulses. The autocorrelation function is time-dependent and can be determined by integrating the product of a received pulse and its delayed replicas.

B67-10339
VIBRATION ANALYSIS UTILIZING MOSSBAUER EFFECT
 ROUGHTON, N. A. DATE- SEP. 1967 REAN- SEE ALSO
 NASA-SP-132
 M-FS-11974
 Measuring instrument analyzes mechanical vibrations in transducers at amplitudes in the range of a few to 100 angstroms. This instrument utilizes the Mossbauer effect, the phenomenon of the recoil-free emission and resonant absorption of nuclear gamma rays in solids.

B67-10343
LIMIT CIRCUIT PREVENTS OVERDRIVING OF OPERATIONAL AMPLIFIER
 OPENSHAW, F. L. /AEROJET-GEN. CORP./ DATE- SEP. 1967
 NUC-10082
 Cutoff-type high gain amplifier coupled by a diode prevents overdriving of operational amplifier. An amplified feedback signal offsets the excess input signal that tends to cause the amplifier to exceed its preset limit. The output is, therefore, held to the set clamp level.

B67-10347
CURRENT PULSE AMPLIFIER TRANSMITS DETECTOR SIGNALS WITH MINIMUM DISTORTION AND ATTENUATION
 BUSH, N. E. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- SEP. 1967
 NUC-10055
 Amplifier translates the square pulses generated by a boron-trifluoride neutron sensitive detector located adjacent to a nuclear reactor to slower, long exponential decay pulses. These pulses are transmitted over long coaxial cables with minimum distortion and loss of frequency.

B67-10356
REPARABLE, HIGH-DENSITY MICROELECTRONIC MODULE PROVIDES EFFECTIVE HEAT SINK
 CARLSON, K. J. /BOEING CO./ MAYTONE, F. F.
 DATE- OCT. 1967
 M-FS-13075
 Reparable modular system is used for packaging microelectronic flat packs and miniature discrete components. This three-dimensional compartmented structure incorporates etched phosphor bronze sheets and frames with etched wire conductors. It provides an effective heat sink for electric power dissipation in the absence of convective cooling means.

B67-10357
DIGITAL-TO-ANALOG CONVERTER OPERATES FROM LOW LEVEL INPUTS
 WINKELSTEIN, R. A. DATE- OCT. 1967
 JPL-907
 Circuit controls a voltage controlled oscillator from computer output binary data representing a rate at which the oscillator is to change. It operates with low level output devices such as integrated circuit registers and devices with somewhat variable output levels.

B67-10359
TEST DEVICE PREVENTS WELD JOINT DAMAGE BY ELIMINATING AXIAL PIN FORCES ON UNPOTTED MODULES
 CREE, R. E. /GEN. DYN./CONVAIR/ DATE- OCT. 1967
 LEWIS-10201
 Test device makes electrical connection to pins on unpotted electronic modules without introducing any displacing forces of the pins, thus preventing weld joint damage. The pins are spaced in a potting header, but are free to slide in and out except for restraint from welded wire joints.

B67-10361
POCKET-SIZE MANUAL TAPE READER DEVICE AIDS COMPUTER TAPE CHECKING
 ODLE, F. L. /BOEING CO./ DATE- OCT. 1967
 KSC-10058
 Pocket-size plastic manual tape reader device aids in reading, interpreting, and correcting binary and octal coded punched tapes. The coded information is more easily read if the color of

the back plate contrasts sharply with that of the tape.

B67-10362
MOVABLE RF PROBE ELIMINATES NEED FOR CALIBRATION IN PLASMA ACCELERATORS
 MILLER, D. B. /GE/ DATE- OCT. 1967
 LEWIS-10127
 Movable RF antenna probe in plasma accelerators continuously maps the RF field both within and beyond the accelerator. It eliminates the need for installing probes in the accelerator walls. The moving RF probe can be used to map the RF electrical field under various accelerator conditions.

B67-10363
SYSTEM AUTOMATICALLY PROVIDES DYNAMIC LAUNCH DECISION CRITERIA
 DOIG, J. E. /BOEING CO./ DATE- OCT. 1967
 M-FS-13063
 Saturn 5 Dynamic Launch Decision Criteria model provides instantaneous criteria, derived from the parametric behavior of a complex system such as a space launch vehicle plus its payload, for the decision making of launch management personnel.

B67-10367
TRANSDUCER MEASURES EMBEDMENT STRESSES IN ELECTRONIC MODULES
 SMITH, M. H. /DOUGLAS AIRCRAFT CO./ DATE- OCT. 1967
 M-FS-13486
 Strain gage load transducer measures axial embedment stresses in resins used for encapsulation of welded electronic modules. It simulates the geometry of an actual electronic component and can be modified in size, shape, and operating temperature.

B67-10368
SIGNAL GENERATOR CONVERTS DIRECT CURRENT TO MULTIPHASE SUPPLIES
 BAUDE, J. /ALLIS-CHALMERS MFG. CO./ DATE- OCT. 1967
 MSC-11043
 Multiphase wave generator uses multivibrators in a feedback control mode that produces output signal pairs that are impressed on the primary windings of inverter transformers sequentially with a 120 degree phase shift from each other.

B67-10369
MULTIPLE METER MONITORING CIRCUITS SERVED BY SINGLE ALARM
 BANDINI, U. /GRUMMAN AIRCRAFT ENG. CORP./ DATE- OCT. 1967
 MSC-10984
 Circuitry for multiple meter relay circuits provides complete isolation for each circuit served by a single alarm and permits alarm reset after an out-of-tolerance event in one relay circuit so that the remaining relay circuits continue to be alarm protected.

B67-10370
MECHANICAL PROPERTIES OF WIRE INSULATION AUTOMATICALLY DETERMINED
 DAWN, F. S. GILL, W. L. DATE- OCT. 1967
 MSC-10983
 Three separate mechanisms test the insulation on electrical wire specimens for mechanical resistance to flexure, abrasion or wear, and vibration. The test mechanisms perform the evaluation tests on insulated wire specimens in a chamber which can be controlled to simulate space or spacecraft cabin environments.

B67-10376
CIRCUIT AUTOMATICALLY CALIBRATES FLOWMETER AGAINST LIQUID-LEVEL GAGE REFERENCE
 FIELD, R. J. /N. AM. AVIATION/ DATE- OCT. 1967
 M-FS-2194
 Turbine-type flowmeter uses the flow of liquid from a tank with reed-type liquid level switches as a calibration reference. A circuit to generate a reliable gate signal consists of an input and switch identification stage, monostable

01 ELECTRICAL (ELECTRONIC)

and bistable multivibrators, and a signal inverter and pulse output stage.

B67-10378

FLOWMETER DETERMINES MIX RATIO FOR VISCOUS ADHESIVES

LEMONS, C. R. /DOUGLAS AIRCRAFT CO./ DATE- OCT. 1967

M-FS-2308

Flowmeter determines mix ratio for continuous flow mixing machine used to produce an adhesive from a high viscosity resin and aliphatic amine hardener pumped through separate lines to a rotary blender. The flowmeter uses strain gages in the two flow paths and monitors their outputs with appropriate instrumentation.

B67-10382

USE OF COLOR-CODED SLEEVE SHUTTERS ACCELERATES OSCILLOGRAPH CHANNEL SELECTION

BOUCHLAS, T. /BOEING CO./ BOWDEN, F. W. DATE- OCT. 1967

KSC-10092

Sleeve-type shutters mechanically adjust individual galvanometer light beams onto or away from selected channels on oscillograph papers. In complex test setups, the sleeve-type shutters are color coded to separately identify each oscillograph channel. This technique could be used on any equipment using tubular galvanometer light sources.

B67-10384

CRACK GROWTH MEASURED ON FLAT AND CURVED SURFACES AT CRYOGENIC TEMPERATURES

ORANGE, T. W. SULLIVAN, T. L. DATE- OCT. 1967

LEWIS-389

Multiple element continuity gage measures plane stress crack growth plus surface crack growth under plane strain conditions. The gage measures flat and curved surfaces and operates at cryogenic temperatures.

B67-10386

CONTINUOUS WAVE DETECTOR HAS WIDE FREQUENCY RANGE

DEUTSCH, W. F. /N. AM. AVIATION/ JARMINSKI, S. J. WHEATLEY, C. E. DATE- OCT. 1967

M-FS-1849

Portable battery-operated detector indicates the presence of steady state signals exceeding a predetermined value over a wide frequency range by the closure of output relay contacts. It was designed to monitor electronic equipment used in the Saturn 2 program.

B67-10387

LAMP ENABLES MEASUREMENT OF OXYGEN CONCENTRATION IN PRESENCE OF WATER VAPOR

BRISCO, F. J. /PERKIN-ELMER CORP./ MOOREHEAD, J. E. PALGE, W. S. DATE- OCT. 1967

MSC-10043

Open-electrode ultraviolet source lamp radiates sufficient energy at 1800 angstroms and 1470 angstroms for use in a double-beam, dual-wavelength oxygen sensor. The lamp is filled with xenon at a pressure of 100 mm of Hg.

B67-10389

RUGGED SWITCH RESPONDS TO MINUTE PRESSURE DIFFERENTIALS

FRIEND, L. C. /BENDIX CORP./ SHAUB, K. D. DATE- OCT. 1967

M-FS-12704

Pressure responsive switching device exhibits high sensitivity but is extremely rugged and resistant to large amplitude shock and velocity loading. This snap-action, single pole-double throw switch operates over a wide temperature range.

B67-10390

HIGH POWER DC/DC AND DC/AC ELECTRICAL POWER CONVERSION TECHNIQUES DEVELOPED

BERRYMAN, G. WHITE, W. T. DATE- OCT. 1967

M-FS-13227

Small magnetic amplifiers pass square waves through transformers and provide regulation by varying the pulse width on the secondary of the output power transformers. This pulse duration

modulation is provided by a control rectifier technique or a phase-shift technique.

B67-10396

MULTIPLEXER USES INSULATED GATE-FIELD EFFECT TRANSISTORS

GUSSOW, S. S. /BOEING CO./ DATE- OCT. 1967

M-FS-13096

Small lightweight multiplexer incorporates IG-FETs /Insulated Gate-Field Effect Transistors/ for all digital logic functions, including the internally generated 3.6-kHz clock. It consists of 30 primary channels, each of which is sampled 120 times per second.

B67-10399

POTASSIUM PLASMA CELL FACILITATES THERMIONIC ENERGY CONVERSION PROCESS

RICHARDS, H. K. DATE- OCT. 1967 REAN- SEE ALSO ANL-6802

ARG-10010

Thermionic energy converter converts nuclear generated heat directly into high frequency and direct current output. It consists of a potassium plasma cell, a tantalum emitter, and a silver plated copper collector. This conversion process eliminates the steam interface usually required between the atomic heat source and the electrical conversion system.

B67-10402

AUTOMATIC TELEMETRY CHECKOUT SYSTEM

GEORGE, W. V. /BOEING CO./ DATE- NOV. 1967

M-FS-12580

Telemetry checkout station is designed to automatically perform measurements on the vehicle telemetry. Its features include real-time digitizing and computer controlled station setup, data processing, and self-check. The station can handle a wide variety of automatic tests by changing its computer programs.

B67-10404

CONTROL APPARATUS FOR SPECTRAL ENERGY SOURCE

GORDON, W. A. DATE- NOV. 1967

LEWIS-391

Automatic light-controlling system for dc arc emission spectrographs controls the vaporization rate of the sample and stabilizes the dc arc. The output energy is regulated such that advantage can be taken of the highly sensitive dc arc source without sacrificing the desired precision.

B67-10410

CURRENT STEERING COMMUTATOR OFFERS VERSATILITY

ZOTTARELLI, L. J. DATE- OCT. 1967

JPL-812

Novel current steering commutator is capable of stepping to all possible locations from any location by appropriate control logic, and is easily tailored to specific user requirements.

B67-10412

TORQUE METER AIDS STUDY OF HYSTERESIS MOTOR RINGS

COLE, M. /METALS RES./ DATE- NOV. 1967

M-FS-12219

Torque meter, simulating hysteresis motor operation, allows rotor ring performance characteristics to be analyzed. The meter determines hysteresis motor torque and actual stresses of the ring due to its mechanical situation and rotation, aids in the study of asymmetries or defects in motor rings, and measures rotational hysteresis.

B67-10416

DIELECTRIC PRISMS WOULD IMPROVE PERFORMANCE OF QUASI-OPTICAL MICROWAVE COMPONENTS

CARSON, J. W. DATE- OCT. 1967

ERC-10011

Properties of the Brewster angle and internal reflection in a dielectric prism are proposed as the basis of a new type of element for use in oversize waveguide in quasi-optical microwave components. Waveguide loss is reduced and precision broadband attenuators, phase shifters,

and directional couplers can be constructed on the basis of the properties.

B67-10422

INFRARED RADIOMETER

BIRD, A. N. /SOUTHERN RES. INST./ DATE- NOV. 1967

M-FS-13373

Radiometer may be used either with an f/16 telescope to measure thermal radiation from the surface of the dark moon or with a short-range optical system to measure thermal radiation from laboratory samples.

B67-10424

TEMPERATURE-SENSED CRYOGENIC BLEED MAINTAINS

LIQUID STATE IN TRANSFER LINE

LINDGREN, A. R. /N. AM. AVIATION/ DATE- OCT. 1967

M-FS-12681

Inverted tee, installed at a high point in a cryogenic transfer line, is equipped with an insulated bleed line that passes a fixed amount of cryogenic fluid at atmospheric pressure. A sensing device activates a vent valve in the tee stack whenever gaseous nitrogen is present.

B67-10425

STUDY MADE OF ANODIZED ALUMINUM CIRCUIT BOARDS

JACOBI, C. /BOEING CO./ SEWELL, R. DATE- NOV. 1967

M-FS-13580

Hard coated aluminum circuit boards demonstrate the feasibility of obtaining an electrical power circuit of high packaging density with very high thermal conductivity and mechanical strengths.

B67-10426

ALUMINUM HEAT SINK ENABLES POWER TRANSISTORS TO BE MOUNTED INTEGRALLY WITH PRINTED CIRCUIT BOARD

SEAWARD, R. C. /N. AM. AVIATION/ DATE- OCT. 1967

M-FS-13663

Power transistor is provided with an integral flat plate aluminum heat sink which mounts directly on a printed circuit board containing associated circuitry. Standoff spacers are used to attach the heat sink to the printed circuit board containing the remainder of the circuitry.

B67-10433

CONCEPTUAL NONORTHOGONAL GYRO CONFIGURATION FOR GUIDANCE AND NAVIGATION

GILMORE, J. P. /MIT/ DATE- NOV. 1967

MSC-11363

Nonorthogonal sensor configuration using six single-degree-of-freedom inertial reference gyroscopes and a complete data processing and self-contained failure detection-and-isolation mechanism provides redundant capabilities to guidance and navigation systems. This system has been formulated in a strap-down configuration to attain maximum redundancy.

B67-10434

ALGEBRAIC MONTE CARLO PROCEDURE REDUCES STATISTICAL ANALYSIS TIME AND COST FACTORS

AFRICANO, R. C. /N. AM. AVIATION/ LCGSDCN, T. S. DATE- NOV. 1967

M-FS-1887

Algebraic Monte Carlo procedure statistically analyzes performance parameters in large, complex systems. The individual effects of input variables can be isolated and individual input statistics can be changed without having to repeat the entire analysis.

B67-10435

INTERFERENCE EFFECTS ELIMINATED IN RANDOM ORIENTED SPACE STATION ANTENNA SYSTEM

REILLY, R. R. /LOCKHEED-CALIF. CO./ DATE- NOV. 1967

MSC-11004

System eliminates destructive interference effects among multiple omnidirectional or semi-omnidirectional antennas on a large space vehicle that is either spin-stabilized or randomly oriented relative to the ground station with which

communication is necessary.

B67-10438

REVIEW OF RESEARCH AND DEVELOPMENT IN FLUID LOGIC ELEMENTS

READER, T. /SFERRY RAND CORP./ DATE- NOV. 1967

M-FS-420

Research and development in multistate fluid logic elements is reviewed in a historical and critical report. The report concludes that in the development of fluid amplifiers, there are elements with very high gain and poor switching speed, and other elements with very high switching speed and poor gain.

B67-10444

ELLIPSOIDAL-MIRROR REFLECTOMETER ACCURATELY

MEASURES INFRARED REFLECTANCE OF MATERIALS

DUNN, S. T. /NATL. BUR. OF STDS./ RICHMOND, J. C. DATE- NOV. 1967

GSFC-566

Reflectometer accurately measures the reflectance of specimens in the infrared beyond 2.5 microns and under geometric conditions approximating normal irradiation and hemispherical viewing. It includes an ellipsoidal mirror, a specially coated averaging sphere associated with a detector for minimizing spatial and angular sensitivity, and an incident flux chopper.

B67-10446

BATTERY CHARGE REGULATOR IS COULOMETER

CONTROLLED

PAULKOVICH, J. DATE- NOV. 1967

GSFC-561

Coulometer controlled battery charge regulator controls nickel/cadmium type primary cells used in space applications. The use of the coulometer as an ampere hour measuring device permits all available current to go to the battery until full charge state is reached, at which time the charge rate is automatically reduced.

B67-10447

OSCILLATOR CIRCUIT OPERATES AS DIGITALLY CONTROLLED FREQUENCY SYNTHESIZER

CLIFF, R. A. DATE- NOV. 1967

GSFC-570

Oscillator circuit converts digital data from the format of binary information at several input terminals to the format of discrete frequencies at the output terminals. Each state of the input levels corresponds to one frequency at the output. This device provides a large number of accurately controlled frequencies from a single stable oscillator.

B67-10448

FOIL RADIOMETER ACCESSORY IMPROVES

MEASUREMENTS

SCHUMACHER, P. E. /N. AM. AVIATION/ DATE- NOV. 1967

M-FS-12684 M-FS-12717

The responsiveness of a foil radiometer is increased and its time constant is simultaneously decreased by isolating the foil in a controlled environment. Using an optical system, it is coupled to the media to be measured, and the resulting concentration of energy permits the thermocouple junction temperature to respond quickly.

B67-10449

DIGITAL VOLTAGE-CONTROLLED OSCILLATOR

SALIGA, T. V. SCHAEFER, D. H. STRONG, J. P., III DATE- NOV. 1967

GSFC-512

Digital voltage-controlled oscillator generates a variable frequency signal controlled linearly about a center frequency with high stability and is phase controlled by an applied voltage. Integration ahead of the digital circuitry provides linear operation with control voltage having appreciable noise components.

B67-10458

DESIGN FOR HIGH-TEMPERATURE /1800 DEG F/

LIQUID METAL PRESSURE TRANSDUCER

ENGDAHL, R. E. /CONSOLIDATED CONTROLS CORP./

01 ELECTRICAL (ELECTRONIC)

DATE- NOV. 1967

LEWIS-10144

Thermionic diode sensor is used as a pressure transducer in advanced space power systems using liquid metals as working and heat transfer media at temperatures up to 1800 deg F. The sensor converts the motion of a pressure actuated refractory alloy capsule into a suitable electrical output.

B67-10459

STABLE AC PHASE AND AMPLITUDE COMPARATOR

BRUCE, H. P. /MARTIN CO./ DATE- NOV. 1967

M-FS-13086

Stable ac phase and amplitude comparator detects excessive vehicle maneuvering or vibration. It has phase demodulation, low-pass filter, and multiple threshold-setting capability designed specifically for low drifts over a wide range of temperatures.

B67-10460

RANGE RECORDING TECHNIQUE ENABLES FOUR-WAY

POLARIZATION MEASUREMENTS

SWINDALL, P. E. DATE- NOV. 1967

M-FS-12447

Manually tracked antenna is the most critical part of range recording system which has signal strength recording responses from dc to 20 kHz. The system records all polarizations simultaneously.

B67-10461

PROTECTED, HIGH-TEMPERATURE CONNECTING CABLE

ENGDAHL, R. E. /CONSOLIDATED CONTROLS CORP./

DATE- NOV. 1967

LEWIS-10149

Ceramic insulated, swaged stainless steel, sheathed, protective atmosphere cable admits electrical leads into an 1800 deg F air-environment test chamber. The cable has some bending capability and provides for nine niobium alloy conductors. An argon purge during the TIG weld closure protects internal wires from oxidation and embrittlement.

B67-10467

AUTOMATIC TESTING DEVICE FACILITATES NOISE

CHECKS AND ELECTRONIC CALIBRATIONS

HARROLD, J. L. WEEGMANN, C. P. DATE- NOV. 1967

LEWIS-10173

Automatic Digital Noise Checker determines the noise content of the many analog inputs of a data acquisition system and whether the Electronic Calibrations /EC/ on some data channels are operating properly.

B67-10468

SERIES TRANSISTORS ISOLATE AMPLIFIER

FROM FLYBACK VOLTAGE

BANKS, W. /GEN. DYN. CORP./ DATE- NOV. 1967

MSC-11023

Circuit enables high sawtooth currents to be passed through a deflection coil and isolate the coil driving amplifier from the flyback voltage. It incorporates a switch consisting of transistors in series with the driving amplifier and deflection coil. The switch disconnects the deflection coil from the amplifier during the retrace time.

B67-10469

ULTRAMINIATURE TELEVISION CAMERA

DETREVILLE, R. J. DRAGO, N. /TELEDYNE SYSTEMS CO./

N. DATE- NOV. 1967

M-FS-11967

Ultraminiature television camera with a total volume of 20.25 cubic inches, requires 28 vdc power, operates on UHF and accommodates standard 8-mm optics. It uses microelectronic assembly packaging techniques and contains a magnetically deflected and electrostatically focused vidicon, automatic gain control circuit, power supply, and transmitter.

B67-10470

TECHNIQUE ELIMINATES HIGH VOLTAGE ARCING

AT ELECTRODE-INSULATOR CONTACT AREA

NEALY, G. DATE- NOV. 1967

LEWIS-10133

Coating the electrode-insulator contact area with silver epoxy conductive paint and forcing the electrode and insulator tightly together into a permanent connection, eliminates electrical arcing in high-voltage electrodes supplying electrical power to vacuum facilities.

B67-10471

TRANSIENT SENSOR DEVELOPMENT

CASH, J. /FED. ELEC. CORP./ DATE- NOV. 1967

M-FS-13370 M-FS-13371

Pulse width/amplitude- and noise-sensors are updated to integrated circuit design concepts, and rise time/amplitude sensor design is reduced to an operational prototype to make all the sensors compatible for one system operation. Therefore, transients interfering with the design operation of receivers could be individually isolated and identified.

B67-10475

BLOOD PRESSURE REPROGRAMMING ADAPTER

ASSISTS SIGNAL RECORDING

VICK, H. A. DATE- DEC. 1967

MSC-265

Blood pressure reprogramming adapter separates the two components of a blood pressure signal, a dc pressure signal and an ac Korotkoff sounds signal, so that the Korotkoff sounds are recorded on one channel as received while the dc pressure signal is converted to FM and recorded on a second channel.

B67-10481

CONVERTER PROVIDES CONSTANT ELECTRICAL

POWER AT VARIOUS OUTPUT VOLTAGES

PAULKOVICH, J. DATE- DEC. 1967

GSFC-519

Power converter, using an inverted flyback technique, transfers electrical energy at a constant rate from a solar cell source to a number of individual batteries, which are to be charged one at a time. The converter inverts the polarity of the solar cell source and provides the correct charging voltage.

B67-10482

SURFACE-CRACK DETECTION BY MICROWAVE METHODS

FEINSTEIN, L. HRUBY, R. DATE- DEC. 1967

ARC-10009

Microwave surface-crack detection system examines metallic surfaces with a noncontacting probe. The change in the microwave signal reflected from the surface under investigation is an indication of the existence of surface flaws. This technique can detect flaws and scratches as small as 100 microinches.

B67-10487

LONG TIME CONSTANT TIMER REQUIRES NO

RECOVERY TIME

SOMERLOCK, C. R. DATE- DEC. 1967

GSFC-10091

Timing circuit delivers relatively long pulses, yet requires no recovery time after turnoff. It can be retrigged before it has timed out and turned off.

B67-10496

DIGITAL SERVO READOUT SYSTEM INCREASES

RECORDING ACCURACY OF SERVO-BALANCE SCALES

FAUPELL, L. C. /WESTINGHOUSE ASTRONUCL. LAB./

DAVIES, J. B. /TRIDYNE

CORP./ DATE- DEC. 1967

NUC-10125

Digital servo readout system increases recording accuracy of servo-balance weighing scales. Reliability is also increased due to the reduction of the number of components.

B67-10497

HIGH TEMPERATURE THERMOCOUPLE DESIGN

PROVIDES GAS COOLING WITHOUT INCREASING

OVERALL SIZE OF UNIT

ZELLNER, G. J. /WESTINGHOUSE ASTRONUCL. LAB./

DATE- DEC. 1967

NUC-10515

High temperature thermocouple uses a thermoelement

of noncircular cross section with insulation of circular cross section to provide space for the flow of coolant gas down the probe.

B67-10499

VANADIUM DIAPHRAGM ELECTRODE SERVES AS HYDROGEN DIFFUSER IN LITHIUM HYDRIDE CELL
CROUTHANEL, C. E. HEINRICH, R. R. JOHNSON, C. E.
DATE- DEC. 1967 REAN- SEE ALSO B67-10189
ARG-10048

Lithium hydride cell uses vanadium diaphragm electrode as a hydrogen diffuser. Vanadium is high in hydrogen gas solubility and permeability, is least sensitive to adverse surface effects, maintains good mechanical strength in hydrogen atmospheres, and appears to be compatible with all alkali-halide electrolytes and lithium metals.

B67-10503

COMPOSITE SOLAR CELL MATRIX IS RELIABLE, LIGHTWEIGHT AND FLEXIBLE
YASUI, R. K. DATE- DEC. 1967
NPO-10821

Conducting strips mechanically and electrically connect individual solar cells into a linear array of cells, called a solar submodule, and then connect in series two or more submodules to form a solar cell matrix. Tiny perforations in the strip make it easy to solder them directly to the individual solar cells.

B67-10505

THIN FILM THERMAL DETECTOR
MASERJIAN, J. DATE- DEC. 1967
JPL-943

Abnormally large variation of capacitance with temperature is obtained in thin film capacitors when a fixed ionic space charge is present in sufficient density in a dielectric film. This effect is the basis for a new kind of thin film thermal detector, whose performance at room temperature equals or exceeds that of comparable devices at much lower temperatures.

B67-10506

PERFORMANCE OF TURBINE-TYPE FLOWMETERS IN LIQUID HYDROGEN
DATE- DEC. 1967 REAN- SEE ALSO NASA-TN-D-3770
LEWIS-10137

Tests using commercially available flowmeters provide information on the constancy in water of the calibration factor /pulses per unit volume/, on the maximum deviation of the factor from its mean value, and on the probability of predicting the calibration factor of a meter in liquid hydrogen at full scale.

B67-10507

TEST AND INSPECTION FOR PROCESS CONTROL OF MONOLITHIC CIRCUITS
SPANGENBERG, E. /WESTINGHOUSE ELEC. CORP./ DATE- DEC. 1967
M-FS-13084

Report details the test and inspection procedures for the mass production of high reliability integrated circuits. It covers configuration control, basic fundamentals of quality control, control charts, wafer process evaluation, general process evaluation, evaluation score system, and diffusion evaluation.

B67-10513

IMPROVED CIRCUIT FOR MEASURING CAPACITIVE AND INDUCTIVE REACTANCES
DALINS, I. MC CARTY, V. /ALA. UNIV. RES. INST./
DATE- DEC. 1967
M-FS-13083

Amplifier circuit measures very small changes of capacitive or inductive reactance, such as produced by a variable capacitance or a variable inductance displacement transducer. The circuit employs reactance-sensing oscillators in which field effect transistors serve as the active elements.

B67-10514

APPARATUS MAKES KLYSTRON OPERATING FREQUENCY ADJUSTABLE FROM REMOTE POINT
CLAUSS, R. C. DATE- DEC. 1967

NPO-09831

Apparatus makes possible proper frequency adjustment in a receiver using a pump klystron for a traveling-wave master. It incorporates a tunable overcoupled cavity with irises of appropriate size to accomplish frequency spread over the desired range and to maintain the Q of the klystron circuit at the optimum value.

B67-10515

VIDEO SYNCHRONIZATION PROCESSOR OVERCOMES POOR SIGNAL-TO-NOISE RATIO
WEBB, D. L. DATE- DEC. 1967
KSC-10002

Video synchronization processor overcomes poor signal-to-noise ratio which occurs during adverse signal conditions caused by flame attenuation, antenna pattern nulls, and near-horizon tracking. The system maintains sync lock far below the point where excessive noise would normally render the video useless.

B67-10517

CONE AND COLUMN SOLAR ENERGY CONCENTRATOR
MC CUSKER, T. J. /GOODYEAR AEROSPACE CORP./
DATE- DEC. 1967 REAN- SEE ALSO NASA-CR-52845
LANGLEY-210

Solar energy concentrator consists of a reflective membrane cone and a stepped parabolic column located along the optical axis of the cone. The membrane cone can be folded for packaging and is supported by an expandable ring at the rim of the cone when erected. The stepped parabolic column can be telescoped for packaging.

B67-10519

CIRCUIT MEASURES HYSTERESIS LOOP AREAS AT 30 HZ
HOFFMAN, C. /MIDWEST APPLIED SCI. CORP./ SPILO, D. DATE- OCT. 1967
M-FS-13069

Analog circuit measures hysteresis loop areas as a function of time during fatigue testing of specimens subjected to sinusoidal tension-compression stresses at a frequency of Hz. When the sinusoidal stress signal is multiplied by the strain signal, the dc signal is proportional to hysteresis loop area.

B67-10534

FLAME SPRAYED DIELECTRIC COATINGS IMPROVE HEAT DISSIPATION IN ELECTRONIC PACKAGING
MACKAY, T. L. /DOUGLAS AIRCRAFT CO./ HULLER, A. N. VANAMAN, J. B. DATE- DEC. 1967
M-FS-13569

Heat sinks in electronic packaging can be flame sprayed with dielectric coatings of alumina or beryllia and finished off with an organic sealer to provide high heat and electrical resistivity.

B67-10535

EUTECTIC FUSE PROVIDES CURRENT AND THERMAL PROTECTION UNDER HIGH VIBRATION
IEROKOMOS, N. /N. AM. AVIATION/ DATE- DEC. 1967
M-FS-13664

Eutectic fuses provide current and thermal protection to an electronic system and maintain this protection under high vibration environments. The fuses are embedded within heat shrinkable sleeving which provides positive closing action under the conditions of high current or temperature.

B67-10538

DOUBLE COPPER SHEATH MULTICONDUCTOR INSTRUMENTATION CABLE IS DURABLE AND EASILY INSTALLED IN HIGH THERMAL OR NUCLEAR RADIATION AREA
MC CRAE, A. W., JR. /AEROJET-GEN. CORP./ DATE- DEC. 1967
NUC-10007

Multiconductor instrumentation cable in which the conducting wires are routed through two concentric copper tube sheaths, employing a compressed insulator between the conductors and between the inner and outer sheaths, is durable and easily installed in high thermal or nuclear radiation area. The double sheath is a barrier against moisture, abrasion, and vibration.

01 ELECTRICAL (ELECTRONIC)

B67-10540
AUTOMATIC TRANSDUCER SWITCHING PROVIDES
ACCURATE WIDE RANGE MEASUREMENT OF PRESSURE
DIFFERENTIAL
 YODER, S. K. /AEROJET-GEN. CORP./ DATE- DEC. 1967

NUC-10001
 Automatic pressure transducer switching network sequentially selects any one of a number of limited-range transducers as gas pressure rises or falls, extending the range of measurement and lessening the chances of damage due to high pressure.

B67-10544
ANALOG BUFFER ISOLATES HIGH IMPEDANCE
SOURCE FROM LOW IMPEDANCE LOAD
 DENNY, W. A. /DOUGLAS AIRCRAFT CO./ DATE- DEC. 1967
M-FS-13481

Analog buffer amplifier isolates a high impedance source from a low impedance load through an impedance ratio of approximately 200 million to one. Isolation is accomplished with little alteration to temperature stability, linearity, and gain parameters.

B67-10545
INSTRUMENTATION MONITORS TRANSPORTED
MATERIAL THROUGH VARIETY OF PARAMETERS
 HANSON, H. S. /N. AM. AVIATION/ DATE- DEC. 1967
M-FS-12938

Transport instrumentation system used in transporting sensitive or delicate equipment measures the environmental parameters to which the equipment is exposed and records them constantly in time reference. The system provides a complete historical record plus the capability of taking corrective action where indicated by real time readout.

B67-10546
DEVELOPMENT OF LOW TEMPERATURE BATTERY
 ARMSTRONG, G. M. /LIVINGSTON ELECTRON CORP./
 DATE- DEC. 1967 REAN- SEE ALSO NASA CR-54970,
 NASA CR-72173
LEWIS-10326

Self-contained low temperature battery system consisting of a magnesium anode, potassium thiocyanate-ammonia electrolyte and a cathode composed of a mixture of sulfur, carbon, and mercuric sulfate operates for at least seventy-two hours within a discharge temperature range of plus 20 degrees C to minus 90 degrees C.

B67-10548
GMT/LOCAL-TIME CONVERSION CHART
 CREVELING, C. J. DATE- DEC. 1967
GSFC-10521

GMT/local-time conversion is made by a longitude pocket instrument that automatically indicates desired information by simply manipulating the moveable portion of the instrument in accordance with a set of simple instructions imprinted on the reverse side of the instrument.

B67-10550
HIGH-TEMPERATURE /1100 DEGREES F/ CAPACITORS
OPERATE WITHOUT SUPPLEMENT COOLING
 STAPLETON, R. E. /WESTINGHOUSE ELEC./ DATE- DEC. 1967
LEWIS-10324

Multilayered capacitor with one-mil thick pyrolytic boron nitride and wrap around sputtered electrodes achieves parallel electrical interconnections in a stacked configuration of 3 to 9 wafers. These capacitors are compact, lightweight, and suitable for operation in high temperatures without supplemental cooling.

B67-10552
LIGHT-CONTROLLED RESISTORS PROVIDE
QUADRATURE SIGNAL REJECTION FOR HIGH-GAIN
SERVO SYSTEMS
 MC CAULEY, D. D. /PHILCO/ DATE- DEC. 1967
WSO-340

Servo amplifier feedback system, in which the phase sensitive detection, low pass filtering, and multiplication functions required for quadrature

rejection, are preformed by light-controlled photoresistors, eliminates complex circuitry. System increases gain, improves signal-to-noise ratio, and eliminates the necessity for compensation.

B67-10553
SIMPLE FIRST ORDER DATA COMPRESSION
PROCESSOR CONCEPT
 ANDERSON, T. O. DATE- DEC. 1967
NPO-10338

Data-compression processing systems based on an analog-to-digital converter /ADC/, includes a qualitative comparator for comparison of the ADC output with a ramp generator, which is connected as a bidirectional binary counter with selective inputs. A bidirectional ramp counter selects the proper ramp through a ramp generator selection network.

B67-10554
CALIBRATION TECHNIQUE FOR ELECTROMAGNETIC
FLOWMETERS
 SAWOCHKA, S. G. /GE/ DATE- DEC. 1967 REAN- SEE
 ALSO NASA-CR-851
LEWIS-10328

Thermal calorimetric method is used to calibrate electromagnetic flowmeters for liquid alkali metals. The electromagnetic flowmeter is placed in the liquid metal flow system in series with a thermal calorimeter. Therefore, the calculated flow rate through the calorimeter can be compared directly with the respective electromagnetic flowmeter reading.

B67-10557
IMPROVED CAVITY-TYPE ABSOLUTE
TOTAL-RADIATION RADIOMETER
 KENDALL, J. M., SR. PLAMONDON, J. A., JR. DATE-
 DEC. 1967
JPL-807

Conical cavity-type absolute radiometer measures the intensity of radiant energy to an accuracy of one to two percent in a vacuum of ten to the minus fifth torr or lower. There is a uniform response over the ultraviolet, visible, and infrared range, and it requires no calibration or comparison with a radiation standard.

B67-10558
SOLID STATE SINGLE-ENDED SWITCHING
DC-TO-DC CONVERTER
 HONNELL, M. A. /AUBURN UNIV./ DATE- DEC. 1967
M-FS-13598

Solid state, single-ended switching dc-to-dc converter electrically isolated a dc supply from the prime dc power service.

B67-10559
SOLID STATE ZERO-BIAS BILATERAL SWITCH
 HUSTED, J. M. /RCA/ DATE- DEC. 1967
GSFC-532

Circuit switches a plus or minus 2.5 volt peak, dc to 300 kHz input to an operational amplifier. Featured is a bilateral transistor which draws a saturation current of equal amplitude and opposite polarity to the saturation current of the bilateral transistor, cancelling the dc bias effect at the output.

B67-10560
FLAT PACK INTERCONNECTION STRUCTURE
SIMPLIFIES MODULAR ELECTRONIC ASSEMBLIES
 KATZIN, L. DATE- DEC. 1967
JPL-819

Flat pack interconnection structure composed of stick modules simplifies modular electronic assemblies by allowing a single axis mother board. Two of the wiring planes are located in the stick module, which is the lower level of assembly, with the third wiring plane in the mother board.

B67-10561
TRANSISTOR H PARAMETER CONVERSION SLIDE
RULE
 BRANTNER, R. E. DATE- DEC. 1967
JPL-649

Slide rule enables the ready conversion of transistor h parameters from one form to another

and reduces calculation time by a factor of 5 to 10. The scales are selected to cover all ranges of each parameter that will normally exist for any transistor, and answers are given in the correct order of magnitude, making powers-of-ten calculations unnecessary.

B67-10562

IMPROVED DIGITAL TV ENCODING AND DECODING SYSTEM

DEUTERMANN, A. R. /PHILCO-FORD CORP./ DATE- DEC. 1967

MSC-11147

Analog-to-digital coder and digital-to-analog decoder system handles wideband TV signals. The system incorporates solid state plug-in modular units and is operated in a VSD /Variable Slope Delta Modulation/ mode or in the conventional one-bit DM /Delta Modulation/ mode.

B67-10565

LOGIC CIRCUIT DETECTS BOTH PRESENT AND MISSING NEGATIVE PULSES IN SUPERIMPOSED WAVETRAINS

RICE, R. E. /DOUGLAS AIRCRAFT/ DATE- DEC. 1967

M-FS-12518

Pulse divide and determination network provides a logical determination of pulse presence within a data train. The network uses digital logic circuitry to divide positive and negative pulses, to shape the separated pulses, and to determine, by means of coincidence logic, if negative pulses are missing from the pulse train.

B67-10569

MOSFET IMPROVES PERFORMANCE OF POWER SUPPLY REGULATOR

LOKERSON, D. C. DATE- DEC. 1967

GSFC-10022

Circuit with Metal Oxide Semiconductor Field Effect Transistor /MOSFET/ as the voltage reference, provides a high degree of power supply voltage regulation and temperature compensation.

B67-10571

ANALOG VOICING DETECTOR RESPONDS TO PITCH

ABEL, R. S. WATKINS, H. E. /PHILCO-FORD CORP./ DATE- DEC. 1967

GSFC-10085

Modified electronic voice encoder /Vocoder/ includes an independent analog mode of operation in addition to the conventional digital mode. The Vocoder is a bandwidth compression equipment that permits voice transmission over channels, having only a fraction of the bandwidth required for conventional telephone-quality speech transmission.

B67-10572

TELEPRINTER USES THERMAL PRINTING TECHNIQUE

PERKINS, R. D. PERKINS, W. E. TAYLOR, J. W. THOMAS, D. G. PERKINS, R. E. /NATL. CASH REGISTER CO./ DATE- DEC. 1967

MSC-11327

Alphanumeric/facsimile printer receives serial digital data in the form of a specified number of bits per group and prints it on thermally sensitive paper. A solid state shift-register memorizes the incoming serial digital data.

B67-10574

NONDESTRUCTIVE TESTING TECHNIQUES USED IN ANALYSIS OF HONEYCOMB STRUCTURE BOND STRENGTH

ERDMAN, D. C. MARTIN, G. MOORE, J. F. THOMAS, G. VARNEY, H. S. /N. AM. AVIATION/ DATE- DEC. 1967

M-FS-1214 M-FS-1221

DOT /Driver-Displacement Oriented Transducer/, applicable to both lap shear type application and honeycomb sandwich structures, measures the displacement of the honeycomb composite face sheet. It incorporates an electromagnetic driver and a displacement measuring system into a single unit to provide noncontact bond strength measurements.

B67-10575

IMPROVED FREQUENCY DIVIDER EMPLOYS

TRANSISTOR AVALANCHE EFFECT

JOHNS, C. E. DATE- DEC. 1967

NPO-10008

New frequency divider circuit can be synchronized over a wider input control frequency range, has greater phase stability, and is less sensitive to temperature changes than conventional synchronized oscillators. The new circuit uses the avalanche breakdown mode of operation of transistors.

B67-10576

MULTIPLEX TELEVISION TRANSMISSION SYSTEM

REED, W. R. DATE- DEC. 1967

MSC-11595

Time-multiplexing system enables several cameras to share a single commercial television transmission channel. This system is useful in industries for visually monitoring several operating areas or instrument panels from a remote location.

B67-10585

COMPUTER MEMORY ACCESS TECHNIQUE

ZOTTARELLI, L. J. DATE- DEC. 1967

NPO-10201

Computer memory access commutator and steering gate configuration produces bipolar current pulses while still employing only the diodes and magnetic cores of the classic commutator, thereby appreciably reducing the complexity of the memory assembly.

B67-10587

LASER COMMUNICATION SYSTEM IS INSENSITIVE TO ATMOSPHERICALLY INDUCED NOISE

PACKARD, J. N. /AIRCRAFT ARMAMENTS/ DATE- DEC. 1967

GSFC-10396

Angle modulated transmitted reference heterodyne laser communication system is insensitive to atmospherically induced amplitude noise fluctuations and phase distortions.

B67-10595

CONCEPTUAL SERVO TECHNIQUE FOR CONTROLLING TAPE DRIVERS

BENTLEY, R. /KINELOGIC CORP./ COUCHMAN, R. DATE- DEC. 1967

M-FS-12955

Electronic speed control design maintains magnetic tape in close synchronism at the airborne and ground stationed devices. Use of the servo system during the record and reproduce modes results in the minimum amount of frequency distortion and flutter.

B67-10598

CARDIOTACHOMETER WITH LINEAR BEAT-TO-BEAT FREQUENCY RESPONSE

DEBOO, G. J. POPE, J. M. SMITH, D. B. D. DATE- DEC. 1967

ARC-10033

Cardiotachometer detects and displays the human heart rate during physiological studies. It provides linear response to the heart rate, records heart rate during rest and under heavy stress, provides a beat-to-beat indication of changes in heart rate, and is relatively free of interfering signals from activities other than the heart rate.

B67-10603

MULTIPULSE CURRENT SOURCE OFFERS LOW POWER LOSSES AND HIGH RELIABILITY

SPON- INNOVATOR NOT GIVEN /STANFORD RES. INST./ DATE- DEC. 1967

LANGLEY-68

Pulse current source uses low loss, high reliability, LC circuits to provide the necessary high impedance for magnetic memory cores, frequently used in digital computational equipment. Square-loop reactors replace the semiconductor switches previously used.

B67-10606

PREDICTION OF RADIATION DAMAGE EFFECTS IN TRANSISTORS

SPON- INNOVATOR NOT GIVEN /RCA/ DATE- DEC. 1967

GSFC-10021

01 ELECTRICAL(ELECTRONIC)

Quantitative relationships between radiation dosage to transistors and resultant damage are established. Calculation of these dose levels is based on high energy particle population data and analysis of the shielding effect provided by the enclosures surrounding a given transistor.

B67-10614

STUDY OF THERMAL EFFECTS ON NICKEL-CADMIUM BATTERIES

FOLEY, R. T. /AM. UNIV./ WEBSTER, W. H. DATE- DEC. 1967 REAN- SEE ALSO B67-10615 GSFC-10003

Isothermal continuous flow calorimeter is designed to test a nickel-cadmium battery under numerous orbital conditions. This sensitive calorimeter collects cell data such as oxygen pressure and rate of heat generation, and calculates changes in enthalpy.

B67-10615

IMPROVED CALORIMETER PROVIDES ACCURATE THERMAL MEASUREMENTS OF SPACE BATTERIES

FOLEY, R. T. /AM. UNIV./ WEBSTER, W. H. DATE- DEC. 1967 GSFC-10003A

Isothermal continuous flow calorimeter measures the thermal characteristics of space batteries undergoing typical orbital cycling. This is 28 times as sensitive as calorimeters previously used.

B67-10616

VAPOR DEPOSITION PROCESS PROVIDES NEW METHOD FOR FABRICATING HIGH TEMPERATURE THERMOCOUPLES

REHLEY, G. A. /WESTINGHOUSE ASTRONUCL. LAB./ ZELLNER, G. J. DATE- DEC. 1967 NUC-10152

Fabrication techniques for high temperature thermocouples bind all components so that differential thermal expansion and contraction do not result in mechanical slippage and localized stress concentrations. Installation space is reduced or larger thermoelements and thicker insulation can be used to improve temperature measurement accuracy.

B67-10620

BALLPOINT PROBE GIVES OPTIMUM RESULTS IN ULTRASONIC TESTING

MELTON, R. E. /SPACO/ DATE- DEC. 1967 M-FS-13590

Ballpoint-type ultrasonic probe assembly focuses its beam precisely on the bond lines of a composite thin face sheet structure when testing for bond integrity. It can scan in any direction, and eliminate external couplant spray.

B67-10624

TEMPERATURE-STABILIZED, TRIGGERABLE MICROELECTRONIC ASTABLE MULTIVIBRATOR STARTS RELIABLY

STEBBINS, W. J. /WESTINGHOUSE ELEC. CORP./ DATE- DEC. 1967 MSC-1173

Multiple chip custom block, MIC construction is used to fabricate an ultracompact, low-power astable multivibrator. The design provides a multivibrator that free runs, eliminating lockup, is triggerable, pulling into synchronization with an external signal source, and permits design flexibility for controlling the frequency variations with temperature.

B67-10629

ELECTRONIC SKEWING CIRCUIT MONITORS EXACT POSITION OF OBJECT UNDERWATER

ROLLER, R. /WESTINGHOUSE ASTRONUCL. LAB./ YAROSHUK, N. DATE- DEC. 1967 NUC-10146

Linear Variable Differential Transformer /LVDT/ electronic skewing circuit guides a long cylindrical capsule underwater into a larger tube so that it does not contact the tube wall. This device detects movement of the capsule from a reference point and provides a continuous signal that is monitored on an oscilloscope.

B67-10635

CONNECTOR SHORTING CAP PROVIDES PIN ALIGNMENT, INSPECTION, AND STRAY VOLTAGE PROTECTION

PETERS, G. A. /N. AM. AVIATION/ WARNING, K. DATE- DEC. 1967 M-FS-13111

Electrical shorting cap provides pin alignment, protection from stray voltages, and inspection capabilities. A Teflon straightener insert is built in to overcome any problems with bent or misaligned pins. A clear plastic bottom allows for inspection of the presence and condition of the pins.

B67-10637

HYDRAULIC SERVO SYSTEM INCREASES ACCURACY IN FATIGUE TESTING

DIXON, G. V. KIBLER, K. S. DATE- DEC. 1967 LANGLEY-217

Hydraulic servo system increases accuracy in applying fatigue loading to a specimen under test. An error sensing electronic control loop, coupled to the hydraulic proportional closed loop cyclic force generator, provides an accurately controlled peak force to the specimen.

B67-10642

HIGHLY STABLE MICROWAVE DELAY LINE

HIGA, W. H. DATE- DEC. 1967 NPO-09828

TWM /Traveling Wave Master/ comb structure serves as a highly stable microwave delay line for determining the short-term stability of the hydrogen maser frequency standards used in the deep space network. Cryogenic cooling is used to minimize signal attenuation and thermal noise.

B67-10643

CONCEPT FOR AUTOMATIC DOPPLER COMPENSATION IN TWO-WAY COMMUNICATION SYSTEMS

MULLER, R. M. DATE- JAN. 1968 GSFC-10213

Automatic Frequency Control system compensates for Doppler shift in two-way communication systems where one or both stations are moving. This automatic correction can be applied to the reply link to eliminate frequency search for the reply or an excessive bandwidth to accommodate the Doppler.

B67-10646

AN IMPROVED MAGNETIC TAPE RECORDER

UBER, P. W. DATE- JAN. 1968 GSFC-08259

Magnetic tape recorder employs a single capstan for simultaneously driving the supply and take-up reels in such a manner that the tape passing between the reels is kept under a predetermined constant tension. This recorder operates with little power and is sufficiently rugged to withstand the severe stresses encountered in high-altitude balloon flight tests.

B67-10649

ELECTRON BEAM DEFLECTED TO DETERMINE FOCAL POINT LOCATION

DOWNING, R. D. /GE/ DATE- JAN. 1968 REAN- SEE ALSO B67-10650 M-FS-14107

System locates the focal point of an extremely high intensity electron beam. The electron beam is swept and scanned cyclically with deflection coils under a focusing lens, causing the beam focal point to move so the locus of its positions is a spherical surface symmetrical to the beam axis.

B67-10650

ELECTRON BEAM STANDBY ABSORBER SYSTEM

DOWNING, R. D. /GE/ DATE- JAN. 1968 REAN- SEE ALSO B67-10649 M-FS-14108

Electron beam energy is absorbed by deflectors which allow beam distribution over an absorber located between the deflectors and workpiece. The undeflected beam passes through a hole in the absorber when the deflection is de-energized, when energized, the beam is kept to a minimum power

level by deflection rate change.

B67-10652

DEVELOPMENT OF DETONATION REACTION ENGINE

LANGE, O. H. STEIN, R. J. TUBBS, H. E. DATE-
JAN. 1968 REAN- SEE ALSO B67-10649
M-PS-14020

Reaction engine operates on the principle of a controlled condensed detonation. In this engine the gas products that are expelled from the engine to produce thrust are generated by the condensed detonation reaction. The engine is constructed of two basic sections consisting of a detonation wave generator section and a condensed detonation reaction section.

B67-10656

LOW COST SCR LAMP DRIVER INDICATES CONTENTS OF DIGITAL COMPUTER REGISTERS

CLIFF, R. A. DATE- DEC. 1967
GSFC-10221

Silicon Controlled Rectifier /SCR/ lamp driver is adapted for use in integrated circuit digital computers where it indicates the contents of the various registers. The threshold voltage at which visual indication begins is very sharply defined and can be adjusted to suit particular system requirements.

B67-10657

REFLECTOMETER FOR RECEIVER INPUT SYSTEM

STELZRIED, C. T. DATE- JAN. 1968
NPO-10843

Reflectometer, built into a microwave input system, measures the match of devices in the waveguide system of tracking receivers. Match measurements can be made on a routine calibration basis. It was installed in the S-band receiving system in the feed cone of the 210-ft antenna.

B67-10658

DAMAGES IN ROLLING ELEMENT BEARINGS MAY BE DETECTED EARLY

WEICHBRODT, B. /GE/ DATE- DEC. 1967
HQ-10031

Early detection method locates damage or small defects in rolling element bearings of critical machine components. This detection method operates on the principle that an impact is generated each time a defect in an otherwise smooth surface is in intimate moving contact with another smooth surface.

B67-10661

AIR SAMPLER COLLECTS AND PROTECTS MINUTE PARTICLES

WOOD, R. C. /LITTON SYSTEMS/ DATE- DEC. 1967
HQ-10037

Air ejector impactor sampler collects and protects samples of particles greater than 0.1 micron in diameter. In operation, it causes impaction of particle-laden air onto several collection surfaces within a collection cylinder. When not operating, the collector cylinder is maintained in a retracted state within a protective envelope.

B67-10662

PHASE PLANE DISPLAYS DETECT INCIPIENT FAILURE IN SERVO SYSTEM TESTING

AFFENITO, F. J. /DUNLAP AND ASSOCIATES/ WOHL, J. G. DATE- DEC. 1967
HQ-10018

Computer based data conditioning and display technique detects incipient failure in servo system testing, for use in prelaunch checkout of complex nonlinear servomechanisms. These phase plane displays enable identification of on line, unusual or abnormal servo responses which can be displayed compactly in the time domain on a cathode ray tube.

B67-10668

UNIQUE FREQUENCY-SHIFT-KEYED DEMODULATION SYSTEM

STALOFF, C. /RCA/ TELTELBAUM, S. DATE- JAN. 1968
GSFC-217

Frequency-Shift-Keyed /FSK/ demodulator provides a frequency discriminator whose outputs

are separate and applied to two identical decoding channels, one decoding binary ones and the other decoding binary zeros. This demodulator rejects data applied to it at any frequency higher than design.

B67-10669

ULTRAMINIATURE MANOMETER-TIPPED CARDIAC

CATHETER

COON, G. W. DATE- DEC. 1967 REAN- SEE ALSO
NASA-TN-D-3319 AND B63-10429
ARC-10054

Miniature diaphragm-type capacitance transducer capable of being mounted on the end of a cardiac catheter has been developed for measurement of intravascular pressures. The transducer can be inserted in small ducts /arteries and veins/ without disturbing the flow characteristics. It is very useful for making measurements in babies.

B67-10672

THERMIONIC DIODE SWITCHING HAS HIGH TEMPERATURE APPLICATION

LUEBBERS, S. S. SHIMADA, K. DATE- JAN. 1968
NPO-10404

Thermionic converter switch permits chopping in the immediate vicinity of a low-voltage, high current power source, eliminating line losses due to temperature limitations of semiconductor devices.

B67-10674

AREAS OF IRREGULAR, DISCONTINUOUS PATTERNS RAPIDLY AND ACCURATELY MEASURED

MUNFORD, J. A. WHITFIELD, C. E. DATE- JAN. 1968
GSFC-10184

Simple, rapid method measures the surface area of a pattern such as comprised by the conductors on a printed circuit board. A negative or positive film of the circuit layout is placed over a uniformly illuminated translucent surface and the proportion of light transmitted to silicon solar cells is determined.

B67-10675

BROADBAND CHOKE SUPPRESSES SPURIOUS CURRENTS IN ANTENNA STRUCTURE

BISHOP, O. L. /MCDONNELL-DOUGLAS CORP./ BOLT, C. A., JR. DATE- JAN. 1968
MSC-10013

Quarter-wavelength chokes are mounted on the coaxial line of an antenna structure to prevent induced spurious currents from affecting the antenna radiation frequency pattern. The choke-absorbent combination approximately doubled the usable frequency range for the antenna system studied.

B67-10676

SCAN RATE CONVERTER FOR TAPE RECORDING AND PLAYBACK OF TV PICTURES

HOLT, N. I. DATE- JAN. 1968
NPO-10166

Magnetic tape recording and playback equipment converts television pictures, both black and white and color, from one scan rate to another. The equipment indexes color picture frames for retrieval electronically and can be used as a document storage and retrieval medium that is compatible with hard-copy printout machines.

B68-10001

DC PIN-TO-PIN TESTING OF INTEGRATED CIRCUITS

THOMAS, E. F. DATE- JAN. 1968
GSFC-10284

External pin-to-pin nondestructive testing procedure measures the electrical characteristics of each element in an integrated circuit. The procedure involves choosing specific pairs of pins and applying appropriate test voltages to them.

B68-10002

GAGE MONITORS QUALITY OF CROSS-WIRE RESISTANCE WELDS

ETZEL, J. PILICH, A. DATE- JAN. 1968
GSFC-90549

Gage nondestructively monitors the quality of cross-wire resistance welds during the welding

01 ELECTRICAL (ELECTRONIC)

operation. The gage gives a dial indication of the relative embedment of the cross wires during the actual welding operation. A direct relationship exists between the depth of embedment and both weld strength and consistency.

B68-10003
LINEAR ANALOG DC VOLTAGE-TO-PULSE-WIDTH
CONVERTER
 CROCKET, W. R. DATE- JAN. 1968
 GSFC-556

Circuit converts a dc analog input signal to pulse widths that are proportional to the input signal voltage. The circuit would be particularly useful as an analog-to-digital converter where low power, ruggedness, reliability, and good linearity are prime requirements.

B68-10007
BINETAL SENSOR AVERAGES TEMPERATURE OF
NONUNIFORM PROFILE
 DITTRICH, R. T. DATE- JAN. 1968
 LEWIS-10362

Instrument that measures an average temperature across a nonuniform temperature profile under steady-state conditions has been developed. The principle of operation is an application of the expansion of a solid material caused by a change in temperature.

B68-10008
IMPROVED PHASE LOCKED LOOP RECEIVER
 DALEY, T. J. /GEN. DYN./ELECTRON./ DATE- JAN. 1968
 GSFC-09561

Improved phase locked loop receiver tracks and demodulates a signal whose signal-to-noise ratio may be low and whose information sidebands are close in frequency. This receiver recovers the carrier from input signals and applies it to a demodulator which recovers the sidebands.

B68-10012
ONE-SHOT PULSE SHAPER CIRCUIT
 RADYS, R. G. /HUGHES AIRCRAFT CO./ DATE- JAN. 1968
 XGS-11379

Pulse shaper circuit exhibits low power dissipation, self setting, and easy triggering. It is basically a magnetic one-shot multivibrator consisting of two blocking oscillators and an inhibit circuit.

B68-10015
INPUT GATE CIRCUIT CONVERTED FOR USE AS
LINEAR AMPLIFIER
 HARPER, T. P. /IBM/ DATE- JAN. 1968
 M-FS-14265

Commercially available integrated circuit that is marketed as a digital computer input gate circuit was converted to a linear amplifier in a microphone circuit that has high input impedance, low output impedance, low cost, and is small enough to fit on a standard printed circuit card.

B68-10016
SMALL, LOW POWER ANALOG-TO-DIGITAL
CONVERTER
 DUNN, R. D. FULLERTON, D. H. /BOEING CO./ DATE- JAN. 1968
 M-FS-13954

A small, low-power, high-speed, 8-bit analog-to-digital converter using silicon chip integrated circuits is suitable for use in airborne test data systems. The successive approximation method of analog-to-digital conversion is used to generate the digital output.

B68-10017
REGULATED DC-TO-DC CONVERTER FEATURES LOW
POWER DRAIN
 THORNWALL, J. DATE- JAN. 1968
 GSFC-03429

A regulated dc-to-dc converter requires negligible standby power for the operation of critical electronic equipment. The main operating circuitry consumes power intermittently according to load conditions, rather than constantly.

B68-10018
DIGITAL DATA AVERAGER IMPROVES CONVENTIONAL
MEASUREMENT SYSTEM PERFORMANCE
 NAYLOR, T. K. ROBERTS, J. A., JR. SCHELLENBACH, R. R. /RCA/ DATE- FEB. 1968
 MSC-12078

Multipurpose digital averager provides measurement improvement in noisy signal environments. It provides increased measurement accuracy and resolution to basic instrumentation devices by an arithmetical process in real time. It is used with standard conventional measurement equipment and digital data printers.

B68-10019
CIRCUIT DETECTS VOLTAGE DECREASE IN
COMPUTER POWER SUPPLY
 HOUCK, W. H. DATE- FEB. 1968
 KSC-67-120

Rapid-response monitoring circuit detects voltage decrease or dropout in any single phase or all three phases simultaneously of a 3-phase 60 Hz computer power supply. It uses lamps to indicate voltage conditions and provides a digital pulse output for a chronological record of voltage irregularities.

B68-10027
ANALYSIS OF FLUTTER IN TAPE TRANSPORT
SYSTEMS
 DAVIS, R. C. SIMPSON, R. S. /ALABAMA UNIV./ DATE- JAN. 1968
 M-FS-11970

Effect of flutter on digital data is recorded by magnetic tape recorders used with instrumentation systems. Major effect for both FM and direct recording techniques is shown to be a perturbation of the signal time base.

B68-10028
ELECTRONIC APERTURE CONTROL DEvised FOR
SOLID STATE IMAGING SYSTEM
 ANDERS, R. A. CALLAHAN, D. E. MC CANN, D. H. /WESTINGHOUSE ELEC. CORP./ DATE- FEB. 1968
 M-FS-12428

Electronic means of performing the equivalent of automatic aperture control has been devised for the new class of television cameras that incorporates a solid state imaging device in the form of phototransistor mosaic sensors.

B68-10030
FLARE ANGLES MEASURED WITH BALL GAGE
 CLEGHORN, D. WALL, W. A. DATE- MAY 1968
 M-FS-14690

Precision tungsten carbide balls measure the internal angle of flared joints. Measurements from small and large balls in the flare throat to an external reference point are made. The difference in distances and diameters determine the average slope of the flare between the points of ball contact.

B68-10051
THIN FILM HEAT TRANSFER GAGE IS STABLE
AT HIGHER TEMPERATURES
 LOYD, J. R. PICKARD, R. F. /ASTRO-SPACE LABS./ DATE- MAR. 1968 REAN- SEE ALSO B66-10180
 M-FS-12396

Thin film convective heat transfer gage functions effectively for prolonged periods at temperatures up to 1000 degrees F. An initial resistance shift does not inhibit the performance or accuracy of the gages, as the original resistance-temperature relationship remains unchanged.

B68-10054
AMPLITUDE AND FREQUENCY READOUT OVERLAY
 FITCH, A. E. DATE- MAR. 1968
 GSFC-10183

Amplitude and frequency readout overlay simplifies the interpretation of oscillograph traces for full scale deflections of one inch. The overlay increases accuracy in data interpretation and saves time in analyzing oscillograph records.

B68-10056
LUMINESCENT SCREEN COMPOSITION FOR

CATHODE RAY TUBES

HILBORN, E. H. DATE- MAR. 1968
ERC-19

Screen composition for cathode ray tubes exhibits differential color of emission as a function of beam current variation at a constant accelerating voltage. The screen consists of a mixture of phosphors which emit different hues, have different current saturation values and exhibit a nonlinear current-brightness characteristic.

B68-10058

SIMPLIFIED, HIGH-SPEED BINARY DATA DECODER

ANDERSON, T. O. DATE- FEB. 1968
NPO-10118

Simplified, high-speed decoder of encoded binary data received over a noisy channel is provided in a versatile apparatus that can accommodate more than one particular set of codes. The apparatus is applicable to satellite, lunar, and planetary data transmission.

B68-10059

THERMAL SHORT IMPROVES SENSITIVITY OF CRYOGENICALLY COOLED MASER

CLAUSS, R. C. DATE- MAR. 1968
NPO-09975

In-line, quarter-wave thermal short cools the center conductor of the signal-input coaxial transmission line to a cryogenically cooled traveling wave maser. It reduces both the thermal noise contribution of the coaxial line and the heat leak through the center conductor to the maser at 4.4 degrees K.

B68-10061

ELECTRONIC CIRCUIT PROVIDES AUTOMATIC LEVEL CONTROL FOR LIQUID NITROGEN TRAPS

TURVY, R. R. DATE- MAR. 1968
KSC-10127

Electronic circuit, based on the principle of increased thermistor resistance corresponding to decreases in temperature provides an automatic level control for liquid nitrogen cold traps. The electronically controlled apparatus is practically service-free, requiring only occasional reliability checks.

B68-10063

PLASTIC PREFORMS FACILITATE FABRICATION OF WELDED CORDWOOD ELECTRONIC MODULES

STURMAN, J. C. DATE- MAR. 1968
LEWIS-90339

Molded plastic preform facilitates the fabrication of small lots of welded cordwood circuits. The preforms retain the components during welding and electrical checkout and facilitate encapsulation of the welded module when used with a conventional potting shell.

B68-10065

MULTICHANNEL IMPLANTABLE TELEMETRY SYSTEM

FRYER, T. B. DATE- MAR. 1968 REAN- SEE ALSO
B64-10171, B66-10057, AND B66-10624
ARC-10083

Multichannel telemetry system is used for chronic implantation in animals to monitor a variety of physiological parameters. A hermetically sealed unit, the system uses a time-sharing multiplex scheme to commute between various sensor inputs and enables the number of channels to be increased or decreased.

B68-10067

SELF-CORRECTING, SYNCHRONIZING RING COUNTER USING INTEGRATED CIRCUIT DEVICES

MAASBERG, W. A. /IBM/ DATE- MAY 1968
M-FS-13901

Three nand gate circuits are used to add error detection and reset logic circuitry for initiating and retaining the correct binary state in the flip-flop circuits of a ring counter. As the input signals are counted, the position of the specified state moves in ordered sequence around circuit loop.

B68-10068

DIVERSITY RF RECEIVING SYSTEM WITH

IMPROVED PHASE-LOCK CHARACTERISTICS

DI LOSA, V. J. LAUGHLIN, C. R., JR. DATE- MAR. 1968

XGS-01222

Improved diversity receiving system automatically utilizes the combined output from its two independent receiving channels /with cross-polarized receiving antennas/ to increase the reliability of maintaining the requisite phase lock for optimum signal reception. It is adapted for use with AM, PM, or narrow band FM signals.

B68-10069

PRINCIPLES OF OPTICAL-DATA PROCESSING TECHNIQUES

SHULMAN, A. R. DATE- MAR. 1968
GSFC-10271

Document presents optical-data processing information on a level which will convey the basic principles involved to those having a general technical background. Mathematical discussions are included but are not required for a basic understanding.

B68-10070

DEVELOPMENT OF BIAxIAL TEST FIXTURE

INCLUDES CRYOGENIC APPLICATION

HELF, J. C. KELLY, R. E. KEER, D. A. WALDRON, C. R. /N. AM. AVIATION/ DATE- APR. 1968
M-FS-14185 M-FS-14189

Test fixture has the capability of producing biaxial stress fields in test specimens to the point of failure. It determines biaxial stress by dividing the applied load by the net cross section. With modification it can evaluate materials, design concepts, and production hardware at cryogenic temperatures.

B68-10073

NEW MICROELECTRONIC POWER AMPLIFIER

NEW, T. C. /WESTINGHOUSE ELEC. CORP./ DATE- MAR. 1968

M-FS-13621

Integrated push-pull power amplifier fabricated on a chip of silicon has interdigitated power transistors and is hermetically encapsulated in a beryllia flat package. It provides current output greater than the nominal 10 amperes from an input current drive of 1 ampere.

B68-10074

IMPROVED DC VOLTAGE MULTIPLIER

SAVELLE, C. R., JR. /SPACO/ DATE- MAR. 1968
M-FS-14042

Circuit multiplies a dc input voltage in the millivolt range to yield a larger dc output voltage bearing a fixed ratio to the input voltage. The supply voltage need not be precisely regulated, the potentiometer need not be linear, and the gain of servo amplifier is not critical.

B68-10079

MAGNETIC TAPE TRANSPORT CONTROLLED BY ROTATING TRANSDUCER HEADS

CHUPITY, J. SALCEDO, G. SPERRY, J. D. /AMPEX CORP./ DATE- MAR. 1968

GSFC-483

Magnetic tape transport includes a common drive for both the tape drive capstans and the rotating record/reproduce heads. Speed of the drive may be varied within a preselected range, but, once selected, remains constant so head and capstan are driven in synchronization and at constant speed.

B68-10083

TWIN SOLUTION CALORIMETER DETERMINES HEATS OF FORMATION OF ALLOYS AT HIGH TEMPERATURES

DARBY, J. B., JR. KLEB, R. KLEPPA, O. J. /CHICAGO UNIV./ DATE- APR. 1968

ARG-10114

Calvert-type, twin liquid metal solution calorimeter determines the heats of formation of transition metal alloys at high temperatures. The twin differential calorimeter measures the small heat effects generated over extended periods of time, has maximum operating temperature of 1073 degrees K and an automatic data recording system.

01 ELECTRICAL (ELECTRONIC)

B68-10084

GYRATOR-TYPE CIRCUITS REPLACE UNGROUNDED
INDUCTORS
DEBOO, G. J. DATE- MAR. 1968
XAC-10608

Gyrator circuits using only transistors, capacitors, and resistors which can replace both grounded and ungrounded inductors have been developed to permit complete microminiaturization of circuitry by integration of the components.

B68-10086

METHOD OF DISJOINING ADHESIVELY BONDED
ELECTRONIC CORDWOOD MODULES
SACRAMONE, P. J. /RCA/ DATE- MAY 1968
MSC-12060

Embedment of resistive heating elements in a cordwood module used for packaging electronic components, facilitates separation of the adhesive bond between the module, and metal heat sink and the potting material without damaging the components. Electrical power applied to the elements causes breakdown of bonding material.

B68-10087

SUPERCONDUCTING SWITCH PERMITS MEASUREMENT
OF SMALL VOLTAGES AT CRYOGENIC TEMPERATURES
GOVEDNIK, R. E. HUEBENER, R. P. DATE- APR. 1968
ARG-90260

Dual-coil, superconducting, on-off switch measures small, thermoelectrically generated voltages produced by thermocouples in a liquid helium bath. Placed in a shunt configuration between the thermocouple and the measuring device, the measuring device sees the sum of the voltage to be measured and the spurious thermoelectric voltages.

B68-10088

NEW CAMERA TUBE IMPROVES ULTRASONIC
INSPECTION SYSTEM
BERGER, H. COLLIS, W. J. JACOBS, J. E.
/NORTHWESTERN UNIV./ DATE- APR. 1968
ARG-90237

Electron multiplier, incorporated into the camera tube of an ultrasonic imaging system, improves resolution, effectively shields low level circuits, and provides a high level signal input to the television camera. It is effective for inspection of metallic materials for bonds, voids, and homogeneity.

B68-10089

MONITOR SENSES AMOUNT OF CONTAMINATION
DEPOSITED ON SURFACES
SHEEHY, R. N. DATE- MAR. 1968
GSFC-10212

Monitoring device detects and indicates directly the amount of contamination deposited on a surface. It uses an optical system in conjunction with a reliable collimated light source and associated electronics. Change in its output signal is proportional to change in the optical absorption characteristics of the sample plate surface.

B68-10091

AUTOMATIC CONTOUR WELDER INCORPORATES
SPEED CONTROL SYSTEM
WALL, W. A., JR. DATE- MAR. 1968
M-FS-14574

Speed control system maintains the welding torch of an automatic welder at a substantially constant speed. The system is particularly useful when welding contoured or unusually shaped surfaces, which cause the distance from the work surface to the weld carriage to vary in a random manner.

B68-10093

ACCUMULATOR FOR SHAFT ENCODER
CARROLL, C. C. CHILDS, J. A. ROBISON, R. J.
/AUBURN UNIV./ DATE- MAR. 1968
M-FS-13599

Digital accumulator relies almost entirely on integrated circuitry to process the data derived from the outputs of gyro shaft encoder. After the read command is given, the output register collects and stores the data that are on the set output terminals of the up-down counters.

B68-10100

ALTERNATING CURRENT ELECTROMAGNETIC SERVO
INDUCTION METER
BOGUE, R. K. DATE- MAY 1968
XPR-03838

Electromagnetic device accurately indicates the responses of various sensors in high performance flight research aircraft to conditions encountered in flight. The device responds to sensor inputs to move a slideable armature along an indicator scale by the force of currents induced in the armature winding.

B68-10106

PORTABLE PULSE CODE MODULATION /PCM/
SUBSYSTEM
BRADANINI, P. A. KLUTH, J. T. /N. AM. AVIATION/
DATE- MAR. 1968
MSC-11369

Small, programmable, high speed PCM subsystem, supports the variety of signals inherent in sophisticated equipment. A signal generated by a transducer is first conditioned to the proper signal range, then sampled by an external multiplexer or by the subsystem directly and then converted and transmitted to a receiving station.

B68-10112

PROJECTION TRANSPARENCIES FROM PRINTED
MATERIAL
GRUNEWALD, L. S. NICKERSON, T. B. /BOEING CO./
DATE- APR. 1968
M-FS-14608

Method for preparing project transparencies, or view graphs, permits the use of almost any expendable printed material, pictures, charts, or text, in unlimited color or black and white. The method can be accomplished by either of two techniques, with a slight difference in materials.

B68-10114

PIGGY-BACK MOUNTING WOULD INCREASE
MICROCIRCUIT PACKAGING DENSITY
GAUDIANO, S. DATE- APR. 1968
MSC-12059

Piggy-back method of packaging integrated circuits will increase packaging density and design flexibility. It will also eliminate interconnection leads between the die and associated inductances, and thus increase the attainable frequency response of the circuit.

B68-10116

HIGH EFFICIENCY, HIGH FREQUENCY MAGNETIC
DEFLECTION DRIVER
SCHAFF, P. L. /WESTINGHOUSE ELEC. CORP./ DATE-
APR. 1968
MSC-11597

Electromagnetic deflection yoke stores energy during the scan and releases it in the flyback or retrace. The operation of the device involves a method of switching to a voltage high enough to dissipate the flyback pulse during the retrace time and then operating during the scan time at a much lower voltage.

B68-10118

BILATERAL, ZERO-IMPEDANCE STATIC
SEMICONDUCTOR SWITCH
DOUGHMANN, C. L. /WESTINGHOUSE ELEC. CORP./
DATE- APR. 1968
LEWIS-10129

Static semiconductor switching circuit eliminates the undesirable features of electromechanical relays and conventional semiconductor switching circuits. There is a net zero voltage drop at the terminals and thus a zero impedance for bilateral currents there.

B68-10121

CIRCUIT ENHANCES VERTICAL RESOLUTION IN
RASTER SCANNING SYSTEMS
ALSOVSKY, W. H. GREENWOOD, J. R. HOLLEY, O. M.
/PHILCO-FORD CORP./ DATE- APR. 1968
MSC-12123

Circuit enhances vertical resolution in electron beam, raster scanning systems exhibiting aperture distortion in the vertical direction. A sensitized area /image/ produces a video output

when the scan beam nears it, which causes vertical elongation in the reconstructed images of all sensitized areas on the surface.

B68-10124
RELIABLE, SELF-CALIBRATING VIBRATION
TRANSDUCER
 MC KINNEY, R. L. DATE- APR. 1968
 LANGLEY-89

Transducer system measures the uniaxial vibration amplitudes /deflections/ and frequency of a body subjected to mechanical vibration. The basic system is self-calibrating and provides an output which unambiguously indicates the direction as well as the magnitude of the uniaxial deflections.

B68-10129
COMPENSATION CIRCUIT IMPROVES OPERATION OF
INDUCTIVE COUPLING TRANSFORMERS
 SPON- INNOVATOR NOT GIVEN /SPERRY GYROSCOPE CO./
 DATE- APR. 1968
 M-FS-13801

Circuitry eliminates undesirable modulation effects in rotary transformers which transfer electrical energy to and from angular rate transducers on a gyroscope. It cancels the error by feeding back compensation signals through a tertiary winding on the stator of the output rotary transformer.

B68-10130
PHASE-LOCK LOOP FREQUENCY CONTROL AND THE
DROPOUT PROBLEM
 ATTWOOD, S. KLINE, A. J. /MOTOROLA/ DATE- APR. 1968
 M-FS-13948 M-FS-13950

Technique automatically sets the frequency of narrow band phase-lock loops within automatic lock-in-range. It presets a phase-lock loop to a desired center frequency with a closed loop electronic frequency discriminator and holds the phase-lock loop to that center frequency until lock is achieved.

B68-10131
AUTOMATED PATIENT MONITORING SYSTEM
 BEDARD, R. E. BUXTON, R. L. DAWSON, W. S.
 /BOEING CO./ DATE- MAY 1968 REAN- SEE ALSO
 B68-10065
 M-FS-14552

Radio-linked patient monitoring system collects several channels of physiological data from as many as 64 hospital patients and transmits the data in digital form to a central control station. The system consists of a central control station and battery-operated patient units comprising small strap-on electronics packages.

B68-10133
IMPROVED COMPENSATION CIRCUIT FOR
DIRECT-COUPLED AMPLIFIERS
 BREUER, D. R. /TRW SPACE TECHNOL. LABS./ DATE- APR. 1968
 MSC-11148 MSC-11235

Drift- and offset-control circuit compensates the inherent temperature drift and offset of a closed-loop feedback amplifier. It overcomes the disadvantages of conventional chopping circuits used to minimize drift in low-level, direct-coupled amplifiers.

B68-10138
ELECTRONIC CALORIMETRIC COMPUTER
 HECKELMAN, J. D. DATE- APR. 1968
 LEWIS-90254

Electronic calorimetric computer calculates nuclear reactor thermal power output to a nominal accuracy of 1 percent. Heat balance is determined by an electronic approach. The thermal power is calculated using the inlet and outlet temperatures and the volume of cooling water and is displayed by a digital readout system.

B68-10140
INSTRUMENTATION FOR BONE DENSITY MEASUREMENT
 MEHAGG, L. S. /KAMAN INSTR./ DATE- APR. 1968
 MSC-11388

Measurement system evaluates the integrated bone

density over a specific cross section of bone. A digital computer converts stored bone scan data to equivalent aluminum calibration wedge thickness, and bone density is then integrated along the scan by using the trapezoidal approximation integration formula.

B68-10141
STEREO PHOTOMACROGRAPHY SYSTEM
 LINDSEY, W. F. DATE- APR. 1968
 LANGLEY-10176

Stereo photomacrography system provides sharply focused and correctly exposed stereo pairs of photographs through a stereomicroscope. The system uses components of the old system but incorporates a sharp focusing system and includes an improved photometer.

B68-10144
CARDIAC R-WAVE DETECTOR
 GEBBEN, V. D. DATE- APR. 1968 REAN- SEE ALSO
 NASA-TM-X-1489
 LEWIS-10394

Cardiac R wave detector obtains the systolic contraction signal of the human heart and uses it as a reference signal for the heart-assist pump cycle. It processes the electrocardiac signal /QRS wave complex/ of the natural heart in a sequence of operations which essentially eliminates all components from the input signal except the R wave.

B68-10145
HIGH-PRESSURE GAS FACILITATES CALIBRATION OF
TURBINE FLOWMETERS FOR LIQUID HYDROGEN
 KRAUSE, L. N. SZANISZLO, A. J. DATE- MAY 1968
 REAN- SEE ALSO B67-10506 AND NASA-TN-D-3773
 LEWIS-10402

Nitrogen gas at a pressure of 60 atmospheres and ambient temperature facilitates the calibration of turbine flowmeters used for monitoring the flow of liquid hydrogen in cryogenic systems. Full-scale calibration factors can be obtained to an accuracy of 0.4 percent.

B68-10147
DEFLECTION CIRCUIT MONITORS FORCE ON OBJECT
UNDER WATER
 ROLLER, R. YAROSHUK, N. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- MAY 1968
 NUC-10147

Capsule containing samples for radiation testing is guided under through a seal to an exact position within a nuclear reactor. A Linear Variable Differential Transformer /LVDT/ flexplate deflection circuit monitors the force on the capsule as it is positioned within the reactor.

B68-10148
SILICON SOLAR CELL MONITORS HIGH TEMPERATURE
FURNACE OPERATION
 ZELLNER, G. J. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- MAY 1968
 NUC-10163

Silicon solar cell, attached to each viewpoint, monitors that incandescent emission from the hot interior of a furnace without interfering with the test assembly or optical pyrometry during the test. This technique can provide continuous indication of hot spots or provide warning of excessive temperatures in cooler regions.

B68-10149
SYSTEM REMOTELY INSPECTS, MEASURES, AND
RECORDS INTERNAL IRREGULARITIES IN PIPING
 BERRY, F. H. CUNNINGHAM, J. Y. HEISMAN, R. M.
 ICELAND, W. F. NORWOOD, L. B. /N. AM. AVIATION/ DATE- MAY 1968
 M-FS-14545

Video electromechanical probe visually inspects and measures internal offset and peaking of welds in relatively large piping. Irregularity dimensions are recorded on peripheral equipment consisting of video tape and X-Y plotter. The probe is used for inspection of vacuum-jacketed liquid lines that cannot be inspected externally.

01 ELECTRICAL (ELECTRONIC)

B68-10151

IMPROVED S/N METER

WINDETT, C. B. /MOTOROLA/ DATE- MAY 1968

MSC-11656

Signal-to-noise ratios /S/N/ meter containing a variable-frequency notch filter measures noise plus interference in the presence of carrier or modulation signals. A noise source and calibration signal source are included in the instrument for calibration purposes.

B68-10152

MM-WAVE POWER METER MOUNT

MULLEN, D. L. OLTMAN, D. A. STELZRIED, C. T.

DATE- MAY 1968

NPO-10348

E-band thermistor mount and a technique for adjusting a temperature compensating thermistor to provide an electrically balanced bridge are used for measuring RF power in the mm-wavelength. The mount is relatively insensitive to temperature effects that cause measurement errors in single ended circuits.

B68-10155

HYDRA 1 DATA DISPLAY SYSTEM

HODGKINS, R. L. CSGOOD, D. R. DATE- MAY 1968

MSC-11594

System, named Hydra, generates charts, graphs, and printed matter on slides or conventional negatives and positives, and combines these media with a capability of storage on magnetic tape for future updating to accommodate engineering changes or contract modifications to be readily added to basic data.

B68-10156

PRECISION BOLONETER BRIDGE

WHITE, D. R. /N. AM. AVIATION/ DATE- MAY 1968

MSC-11473

Prototype precision bolometer calibration bridge is manually balanced device for indicating dc bias and balance with either dc or ac power. An external galvanometer is used with the bridge for null indication, and the circuitry monitors voltage and current simultaneously without adapters in testing 100 and 200 ohm thin film bolometers.

B68-10157

THERMAL RESISTANCES OF SOLDER-BOSS/POTTING COMPOUND COMBINATIONS

VEILLEUX, E. D. /RCA/ DATE- MAY 1968

MSC-12074

Formulas, which can be used as a design tool, are derived to calculate the thermal resistance of solder-boss/potting compound combinations, for different depths of a solder boss, in electronic cordwood modules. Since the solder boss is the heat source, its shape and position will affect the thermal resistance of the surrounding potting compound.

B68-10163

IMPROVED PROCESS FOR MAKING THIN-FILM SODIUM NIOBATE CAPACITORS

MICKA, E. Z. /TRW SPACE TECHNOL. LABS./ DATE- MAY 1968

MSC-11231

Sodium niobate, formed by high vacuum, flash, and reactive evaporations, has a high dielectric constant and is used as a thin film dielectric in microelectronic capacitors. High purity films are formed from relatively inexpensive, pure starting materials. Crystalline sodium niobate films can be formed on amorphous or crystalline materials.

B68-10166

SILICON SURFACE BARRIER DETECTORS USED FOR LIQUID HYDROGEN DENSITY MEASUREMENT

JAMES, D. T. MILAM, J. K. WINSLETT, H. B. /ORTEC CO./ DATE- JUN. 1968

M-FS-14115

Multichannel system employing a radioisotope radiation source, strontium-90, radiation detector, and a silicon surface barrier detector, measures the local density of liquid hydrogen at various levels in a storage tank. The instrument

contains electronic equipment for collecting the density information, and a data handling system for processing this information.

B68-10171

SILICON OXIDE FILMS GROWN IN MICROWAVE DISCHARGE

KRAITCHMAN, J. /WESTINGHOUSE RES. LABS./ DATE- JUN. 1968

M-FS-14634

Silicon oxide films thicker than 1000 angstrom are produced in the dense plasma of a microwave discharge. The oxide growth is characterized by a rate limiting diffusion process modified by sputtering effects produced by the discharge. Silicon is rapidly oxidized at temperatures estimated to be 500 degrees C or lower.

B68-10173

TUNNEL DIODE CIRCUIT USED AS NANOSECOND-RANGE TIME MARKER

LARSEN, R. N. SHEAR, E. B. DATE- JUN. 1968

ARG-90164

Simple tunnel diode time marker circuit determines the time at which an event occurs in a scintillation crystal. It is capable of triggering at voltages as low as the noise level of a 10-stage PM tube.

B68-10175

CAPACITANCE-COUPLED WIPER INCREASES POTENTIOMETER LIFE

DINEFF, J. DATE- JUN. 1968 REAN- SEE ALSO

NASA-TN-X-1235

ARC-10060

Capacitively-coupled wiper reduces the friction between the sliding contact and the potentiometer element in conventional potentiometers. A small preamplifier employed close to the wiper reduces errors caused by output cable capacitance. The device is friction free with resultant low wear and has high speed and high resolution.

B68-10182

STEADY-STATE DIFFERENTIAL CALORIMETER MEASURES GAMMA HEATING IN REACTOR

HERBST, D. TALBOY, J. H. DATE- JUN. 1968 REAN- SEE ALSO

ANL-7178

ARG-10120

Steady-state differential calorimeter, which displays good accuracy and reproducibility of results, is used to measure gamma heating in a reactor environment. The calorimeter has a long life expectancy since it is virtually unharmed by the reactor environment.

B68-10183

DETECTION AND LOCATION OF METALLIC OBJECTS IMBEDDED IN NONMETALLIC STRUCTURES

BROWN, R. L. NEUSCHAEFER, R. W. DATE- JUN. 1968

M-FS-14790

Small battery operated eddy current proximity measuring device detects and locates metal objects the size of a dime at distances up to one foot within nonmetallic structures. This device weighs approximately two pounds, occupies approximately 60 cubic inches, and is battery powered.

B68-10185

CONCEPT FOR SLEEVE INDUCTION MOTOR WITH 1-MSEC MECHANICAL TIME CONSTANT

WIEGAND, D. E. DATE- JUN. 1968

ARG-10124

Conductive sleeve induction motor having a 1-msec mechanical time constant is used with solid-state devices to control all-electric servo power systems. The servomotor rotor inertia is small compared to the maximum force rating of the servo motion, permitting high no-load acceleration.

B68-10188

HIGH- AND LOW-PRESSURE PNEUMOTACHOMETERS MEASURE RESPIRATION RATES ACCURATELY IN ADVERSE ENVIRONMENTS

FAGOT, R. J. MC DONALD, R. T. /NORTHROP

NORTRONICS/ ROMAN, J. A. DATE- JUN. 1968 REAN- SEE ALSO

NASA-TN-D-4217

FRC-10012 FRC-10022

Respiration-rate transducers in the form of pneumotachometers measure respiration rates of pilots operating high performance research aircraft. In each low pressure or high pressure oxygen system a sensor is placed in series with the pilots oxygen supply line to detect gas flow accompanying respiration.

B68-10202

FAST-RESPONSE CUP ANEMOMETER FEATURES
COSINE RESPONSE

FRENZEN, P. DATE- JUN. 1968 REAN- SEE ALSO
ANL-7360
ARG-90193

Six-cup, low-inertia anemometer combines high resolution and fast response with a unique ability to sense only the horizontal component of the winds fluctuating rapidly in three dimensions. Cup assemblies are fabricated of expanded polystyrene plastic.

B68-10203

ELECTRONIC LOAD FOR TESTING POWER
GENERATING DEVICES

FRIEDMAN, E. B. STEFFER, G. DATE- JUN. 1968
NPO-10350

Instrument tests various electric power generating devices by connecting the devices to the input of the load and comparing their outputs with a reference voltage. The load automatically adjusts until voltage output of the power generating device matches the reference.

B68-10205

MULTILAYER PLATED WIRE SHOWS PROMISE AS
MEMORY DEVICE

KADISH, D. /MIT/ DATE- JUN. 1968
MSC-11587

Multilayer plated wire memory system surpasses planar thin film memories because of its high speed, simplicity, and high output. The device consists of 5 mil Be-Cu wire plated with Ni-Fe alloy about 1 micron thick crossed orthogonally by word lines.

B68-10207

FACSIMILE VIDEO ENHANCEMENT DEVICE
VERMILLION, C.-H. DATE- JUN. 1968

GSFC-10185

Video remodulation unit enhances facsimile transmission using an amplitude-modulated 2400 Hz carrier. The unit demodulates the signal and then remodulates it, using the same carrier. By using the unit controls, modulation can be set to levels that compensate for picture in-transit degradation.

B68-10210

ACTIVE RC NETWORKS OF LOW SENSITIVITY FOR
INTEGRATED CIRCUIT TRANSFER FUNCTION SYNTHESIS

HUELSMAN, L. P. KERWIN, W. J. NEWCOMB, R. W.
DATE- JUN. 1968

ARC-10146

Active RC network is capable of extremely high Q performance with exceptional stability and has independently adjustable zeros and poles. The circuit consists of two integrators and two summers that are interconnected to produce a complete second-order numerator and a second-order denominator.

B68-10213

TECHNIQUE INCREASES STORAGE CAPACITY IN
CAMERA TUBE TARGET

BOLL, K. F. DE VRIES, H. R. /WESTINGHOUSE ELEC.
CORP./ DATE- JUN. 1968

MSC-11599

Technique increases the signal current, where direct beam readout is used, in Secondary Electron Conduction /SEC/ camera tubes. Increasing the storage capacity and therefore the dynamic range of the SEC target permits satisfactory operation at reduced frame rates.

B68-10218

ZINC-OXYGEN PRIMARY CELL YIELDS HIGH
ENERGY DENSITY

GRAFF, C. B. DATE- JUN. 1968
M-PS-14661

Zinc-oxygen primary cell yields high energy density for battery used as an auxiliary power source in space vehicle systems. Maximum reliability and minimum battery weight is achieved by using a stacking configuration of 23 series-connected modules with 6 parallel-connected cells per module.

B68-10220

NEW ELECTRICAL PLETHYSMOGRAPH MONITORS
CARDIAC OUTPUT

KUBICEK, W. B. PATTERSON, R. P. WITSOE, D. A.
/MINNESOTA UNIV./ DATE- JUN. 1968

MSC-11447

Four-electrode impedance plethysmograph measures ventricular stroke volume of cardiac output of humans. The instrument is automatic, operates with only one recording channel, and minimizes patient discomfort.

B68-10223

LIGHTWEIGHT HEATER GENERATES HIGH
TEMPERATURES FROM LOW CURRENT

HANSEN, E. L. DATE- JUL. 1968
SAN-10004

Double spiral molybdenum heater element uses low current, needs no insulation, and requires support only at the ends, which are also the power input points. Because there is no insulation or internal support necessary, the heater is lightweight. Its temperature potential will vary with its size and environment.

B68-10224

SEMICONDUCTOR AC STATIC POWER SWITCH

VRANCIK, J. DATE- JUN. 1968
LEWIS-10344

Semiconductor ac static power switch has long life and high reliability, contains no moving parts, and operates satisfactorily in severe environments, including high vibration and shock conditions. Due to their resistance to shock and vibration, static switches are used where accidental switching caused by mechanical vibration or shock cannot be tolerated.

B68-10230

IMPROVED ATOMIC RESONANCE GAS CELL FOR USE
IN FREQUENCY STANDARDS

HUGGETT, G. R. /VARIAN ASSOCIATES/ DATE- JUL.
1968

MSC-11666

Atomic resonance gas cell maintains a stable operating frequency in the presence of pressure fluctuations in the ambient atmosphere. The new cell includes an envelope which is transparent to radiation in the optical region and to microwave energy at the atomic resonance frequency of the alkali-metal vapor within the envelope.

B68-10233

ELECTROCARDIOGRAPH TRANSMITTED BY RF AND
TELEPHONE LINKS IN EMERGENCY SITUATIONS

CARPENTER, L. R. LEWIS, C. E., JR. MC DONALD, R.
T. DATE- JUL. 1968

FRC-10031

Electrocardiograph of an injured human subject is transmitted by RF and telephone links from the ambulance at the emergency scene, to the hospital emergency facilities. This system eliminates delay in the diagnosis of required therapy, thereby enhancing emergency and rescue operations.

B68-10236

QUASI-STATIC VAPOR PRESSURE MEASUREMENTS
ON REACTIVE SYSTEMS IN INERT ATMOSPHERE BOX

FISCHER, A. K. DATE- JUL. 1968

ARG-90142

Apparatus makes vapor pressure measurements on air-sensitive systems in an inert atmosphere glove box. Once the apparatus is loaded with the sample and all connections made, all measuring operations may be performed outside the box. The apparatus is a single-tube adaptation of the double-tube quasi-static technique.

B68-10238

ASTRONAUT SPACE SUIT COMMUNICATION ANTENNA

LINDSEY, J. F., III NASON, G. H. DATE- JUL. 1968

01 ELECTRICAL (ELECTRONIC)

MSC-12101

Astronaut space suit communication antenna consists of a spring steel monopole in a blade-type configuration. This antenna is mounted in a copper cup filled with a potting compound that is recessed in the center to facilitate bending the blade flat for stowing when not in use.

B68-10241

PARALLEL-TO-SERIAL BIPHASE-DATA CONVERTER

TRUELOVE, R. D. /N. AM. AVIATION/ DATE- JUL. 1968

MSC-11600

Data converter produces a serial biphasic output signal from parallel input data. Alternate bits are loaded into a shift register in complement form so that the bits appear at the end of the shift register in a true-complement form sequence.

B68-10242

WELDER ANALYZER

MILLER, I. L. /GEN. MOTORS CORP./ DATE- JUL. 1968

MSC-12068

Welder analyzer circuit evaluates and certifies resistance welding machines. The analyzer measures peak current, peak voltage, peak power, total energy, and first-pulse energy. It is used as an energy monitor while welding is being performed, or a precision shunt load for a pure electrical evaluation of the weld machine.

B68-10244

IMPROVED TRAVELING WAVE MASER AMPLIFIER

CLAUSS, R. C. DATE- JUL. 1968

NPO-10548

Traveling Wave Maser /TWM/ that operates at S-band frequencies is characterized by a greatly improved gain-bandwidth product with relatively low equivalent-noise temperature. Tests indicate that its performance exceeds that of any other type of S-band amplifier.

B68-10246

MINIATURE PRESSURE TRANSDUCER FOR STRESSED

MEMBER APPLICATION

WALKER, R. R. WICKHAM, C. G. /N. AM. AVIATION/ DATE- JUL. 1968

MSC-11869

Miniature pressure transducer responds to static or dynamic pressures acting against a structural surface without introducing errors caused by stresses in the structural surface. This is accomplished by a thin stainless steel pressure sensing diaphragm with an attached foil strain gage.

B68-10254

HARMONIC DISTORTION ANALYZER SPEEDS SETUP OF

MAGNETIC TAPE RECORDERS

TINARI, D. F. DATE- JUL. 1968

GSFC-10198

Harmonic distortion analyzer effects rapid and accurate setup and calibration of magnetic tape instrumentation recorders. The analyzer is portable, requires no warmup period and need not be calibrated for normal usage. Average setup time with this analyzer is approximately 30 seconds per track.

B68-10258

ACQUISITION OF PSEUDONOISE SIGNALS BY

SEQUENTIAL ESTIMATION

WARD, R. B. /LOCKHEED MISSILES AND SPACE CO./

DATE- JUL. 1968

M-PS-13898

Rapid Acquisition by Sequential Estimation /RASE/ system is used in the receivers of tracking and communications systems to bring identical locally generated pseudonoise digital modulation signal into time synchronization with the incoming pseudonoise signal. This acquisition system is particularly suited for medium input signal-to-noise ratios.

B68-10262

SILICON STRAIN SENSORS ENABLE PRESSURE MEASUREMENT AT CRYOGENIC TEMPERATURES

BOWMAN, R. BURNS, J. MC LELLAN, W. /ELECTRO-OPTICAL SYSTEMS/ DATE- JUL. 1968
M-PS-14703

Miniature pressure transducers with diffused, heavily doped silicon strain-gage sensor elements, operates over a wide temperature range. Small thermal mass combined with close coupling between a metallic diaphragm and sensor elements minimizes sensitivity to temperature transients.

B68-10263

IMPROVED FUEL-CELL-TYPE HYDROGEN SENSOR

RUDEK, F. P. RUTKOWSKI, M. D. /GE/ DATE- JUL. 1968

M-PS-14656

Modified hydrogen sensor replaces oxygen cathode with a cathode consisting of a sealed paste of gold hydroxide and a pure gold current collector. The net reaction which occurs during cell operation is the reduction of the gold hydroxide to gold and water, with a half-cell potential of 1.4 volts.

B68-10264

CONCEPTUAL DEAD WEIGHT DEVICE TO PROVIDE

PRESSURE CALIBRATION

KARCHER, G. OLSON, G. /CHRYSLER CORP./ DATE- JUL. 1968

M-PS-14672

Dead weight testing device uses a common force plane piston manometer to set accurate gage pressure in pounds per square inch. An additional piston gage easily adapts the device for absolute pressure calibration.

B68-10267

MOEBIUS RESISTOR IS NONINDUCTIVE AND

NONREACTIVE

DAVIS, R. L. DATE- JUL. 1968

SAN-10020

Moebius strip made of insulated resistive materials with electrical leads attached directly opposite one another provides a noninductive, nonreactive resistor which is simple, inexpensive, and flexible in usage, and can be made to almost any desired size and shape.

B68-10268

VIBRATION TESTING AND DYNAMIC STUDIES OF

RELAYS

SPON- INNOVATOR NOT GIVEN /OKLAHOMA STATE UNIV./

DATE- JUL. 1968

M-PS-14542

Study has been undertaken to determine the separation criteria for a preloaded, idealized set of contacts when they are subjected to a steady-state sinusoidal excitation and when the elasticity of one contact is nonlinear. The study consists of two phases, theoretical and experimental.

B68-10269

LOW ENERGY OHMMETER CAN BE USED TO TEST

SENSITIVE CIRCUITS, OTHER METERS

PLATT, L. W. DATE- JUL. 1968

SAN-10013

Hazardous circuit ohmmeter is of sufficiently low energy output that it may be used to test extremely sensitive circuits safely, reliably, and accurately. A polyurethane-foam-lined aluminum case provided protection for the unit assembly.

B68-10272

NOISE FIGURE MEASUREMENT CONCEPT FOR

ACOUSTIC AMPLIFIERS

JOHNSON, V. R. YEAGER, J. R. /MICROWAVE

ELECTRON./ DATE- JUL. 1968

GSFC-10066

Optimum length buffer crystals are used with an amplification section for measuring the noise figure for acoustic amplifiers. Measuring the time required to saturate with noise a signal, which is reflected back and forth in the circuit, gives a direct measurement of the amplifiers noise figure.

B68-10273

RECHARGE UNIT PROVIDES FOR OPTIMUM

RECHARGING OF BATTERY CELLS

BAER, D. FORD, F. E. DATE- AUG. 1968
GSFC-10688

Percent recharge unit permits each cell of a rechargeable battery to be charged to a preset capacity of the cell. The unit automatically monitors and controls a rechargeable battery subjected to charge-discharge cycling tests.

B68-10280

IGNITION OF BINARY ALLOYS OF URANIUM

BAKER, L., JR. BINGLE, J. D. SCHNIZLEIN, J. G.
DATE- AUG. 1968

ARG-10057

Experiments determine the effect of alloying additives on the ignition of uranium. Data on oxidation rates, ignition temperatures, and burning curves are provided in the report.

B68-10283

HIGH-VOLTAGE PULSE GENERATOR DEVELOPED FOR

WIDE-GAP SPARK CHAMBERS

KELLER, L. P. WALSHON, E. G. DATE- AUG. 1968
ARG-10136

Low-inductance, high-capacitance Marx pulse generator provides for minimization of internal inductance and suppression of external electromagnetic radiation. The spark gaps of the generator are enclosed in a pressurized nitrogen atmosphere which allows the charging voltage to be varied by changing the nitrogen pressure.

B68-10289

DEEP SPACE FM SYSTEM, A CONCEPT

DOLAND, G. D. /LOCHKEED ELECTRON. CO./ DATE-
AUG. 1968

MSC-11825

Deep space frequency modulation system permits transmission of data where the signal deviation is greater than 1/2 the predetection bandwidth. It provides satisfactory performance at great distances or with low signal levels.

B68-10290

DYNAMIC LINEARITY MEASUREMENT TECHNIQUE

MERZ, K. MORRELL, L. /BOEING CO./ DATE- AUG.
1968

KSC-10186

Measurement technique involves frequency modulated discriminator which produces an error signal as two signals, one of known and one of unknown frequency. The signals are electronically switched to a discriminator input, allowing independent measuring of dynamic linearity in a frequency modulated subcarrier oscillator.

B68-10291

CRYOGENIC LIQUID LEVEL MEASURING PROBE

DINKEL, J. A. WEGNER, C. R. DATE- AUG. 1968
ARG-10138

Universal probe, which contains a unique frequency discriminator, measures the static and dynamic levels of cryogenic liquids in a hydrogen bubble chamber. The probe allows boiling conditions or other turbulence to be observed throughout all the transition stages.

B68-10301

RANDOM ACCESS-RANDOM RELEASE RELAY SWITCHING

MATRIX

CARTER, J. A. EVANS, F. E. /N. AM. ROCKWELL
CORP./ DATE- AUG. 1968

M-FS-12590

XY relay switching matrix provides complete random access and random release of 400 points. A mercury-wetted bistable relay with independent set and reset coils is the unique feature associated with each point.

B68-10303

CONCEPTUAL APPARATUS FOR DETECTING LEAKS OF
NONCONDUCTIVE LIQUIDS

WALSH, G. D. /BOEING CO./ DATE- AUG. 1968
M-FS-14713

Apparatus detects leaks at joints in lines carrying electrically nonconductive liquids. The proposed apparatus could include a panel that would give a visual or audible indication of a leak /to permit manual shutdown/ and/or an electromechanical actuator that would

automatically cut off the flow when a leak occurs.

B68-10305

CURRENT-LIMITING VOLTAGE REGULATOR

CLEVELAND, E. F. DATE- AUG. 1968

MSC-11824

Voltage regulator, which operates within preset current limits, acts as a circuit breaker to prevent overload failure, and automatically resets when the overload is removed. The power dissipated in the series transistor of the circuit is constant from normal load to short circuit condition.

B68-10306

COMMUNICATION SYSTEM FEATURES DUAL MODE

RANGE ACQUISITION PLUS TIME DELAY

MEASUREMENT

ATWOOD, S. W. KLINE, A. W., JR. WELTER, N. E.
/MOTOROLA/ DATE- AUG. 1968

M-FS-14323 M-FS-14324

Communication system combines range acquisition system and time measurement system for tracking high velocity aircraft and spacecraft. The range acquisition system uses a pseudonoise code to determine range and the time measurement system reduces uncontrolled phase variations in the demodulated signal.

B68-10307

ENCAPSULATION TECHNIQUE ELIMINATES THERMAL

STRESSES IN WELDED ELECTRONIC MODULES

KIMMEL, M. /N. AM. ROCKWELL CORP./ DATE- AUG.
1968 REAN- SEE ALSO B67-10367

M-FS-14581

Encapsulation technique minimizes embedment and thermal stresses in welded electronic modules. A coating of thinned room-temperature vulcanizing silicone rubber having a high coefficient of expansion and flexibility at low temperature, is applied first and then an encapsulating epoxy resin having a relatively low coefficient of expansion is added.

B68-10308

SOLID STATE HIGH-VOLTAGE PULSER OPERATES

WITH LOW SUPPLY VOLTAGE

MILBERGER, W. E. /WESTINGHOUSE ELEC. CORP./
DATE- AUG. 1968

M-FS-14034

High speed klystron cathode pulser requires low voltage to generate high-voltage pulses. Broadband video transformers are wound in two configurations - /1/ transmission line, multifilar toroids and /2/ loop coupling toroids. The circuit adapts to generate high-speed, high-voltage, high-stability power pulses at megawatt levels.

B68-10309

FEASIBILITY STUDY OF WIRELESS POWER

TRANSMISSION SYSTEMS

ROBINSON, W. J., JR. DATE- AUG. 1968

M-FS-14691

Wireless microwave or laser energy transfers power from a manned earth-orbiting central station to unmanned astronomical substations. More efficient systems are required for the microwave power transmission.

B68-10310

STANDARDS FOR COMPATIBILITY OF PRINTED

CIRCUIT AND COMPONENT LEAD MATERIALS

SPON- INNOVATOR NOT GIVEN /MARTIN CO./ DATE- AUG.
1968

M-FS-14531

Study of packaging of microminiature electronic components reveals methods of improving compatibility of lead materials, joining techniques, transfer molding concepts, printed circuit board materials, and process and material specifications.

B68-10311

IMPROVED ELECTRO-OPTICAL TRACKING SYSTEM

JOHNSON, R. E. WEISS, P. F. /SYLVANIA ELECTRON.
SYSTEMS/ DATE- AUG. 1968

M-FS-14791

Electro-optical tracking system employs a laser

01 ELECTRICAL (ELECTRONIC)

beam illuminating source, an electronic laser beam deflector, and an image dissector photomultiplier. An electronic scanning transmitter and receiver follows rapid movements or accelerations of the target.

B68-10312
SYSTEM MEASURES ARC ENERGY DISSIPATED IN RELAY CONTACT CYCLING
 SPON- INNOVATOR NOT GIVEN /OKLAHOMA ST. UNIV./
 DATE- AUG. 1968
 M-FS-14541

System, containing cycle timer, measures the energy dissipated at the contacts of a relay operating in an electric circuit. The system measures as well as records the energy for a large number of repetitive operations.

B68-10313
ANALYSIS AND DESIGN OF A CLASS-D AMPLIFIER
 SPON- INNOVATOR NOT GIVEN /AUBURN UNIV./ DATE- AUG. 1968
 M-FS-14803

Analysis of a basic class-D amplifier circuit configuration shows its adaptability to a variety of applications. The feedback, input and output configuration and the frequency spectrum of the pulse-width-modulated signal are analyzed.

B68-10314
COLOR-TELEVISED MEDICAL MICROSCOPY
 HEATH, M. A. PECK, J. C. DATE- AUG. 1968
 MSC-13086

Color television microscopy used at laboratory range magnifications, reproduces a slide image with sufficient fidelity for medical laboratory and instructional use. The system is used for instant pathological reporting between operating room and remotely located pathologist viewing a biopsy through this medium.

B68-10315
GIMBAL ANGLE SENSOR
 ZAREMBA, J. G. /TRW SYSTEMS GROUP/ DATE- AUG. 1968
 GSFC-10305

Detector flake located parallel to a slotted mask mechanical differentiator, senses the rotation of a gimbal reaction wheel mounting. As the gimbal moves light passes through the mask and strikes a section of the detector, the electrical output of which has been calibrated in terms of degrees of rotation.

B68-10316
OPTIMETRIC SYSTEM FACILITATES COLORIMETRIC AND FLUOROMETRIC MEASUREMENTS
 HALEY, F. C. DATE- AUG. 1968
 NPO-10233

Compact, unitary optometric systems uses a single device for colorimetric, fluorometric and spectral absorption measurements. The basic element of the unitary systems is a test cell containing filter elements with uniquely fabricated lenses.

B68-10317
METHOD OF REDUCING TIME BASE ERROR IN DIGITAL MAGNETIC RECORDERS
 MOORE, J. M. /ELECTRO-MECH. RES./ DATE- AUG. 1968
 GSFC-10108

Apparatus reduces Time Base Error /TBE/ in the playback of digital data from magnetic recording equipment. The apparatus uses a magnet which employs a servo position control of the tape by which the playback data clock is phase locked with a fixed frequency reference signal.

B68-10319
ULTRASONIC TEMPERATURE MEASURING DEVICE
 CARNEVALE, E. H. LYNNWORTH, L. C. /PARAMETRICS/ DATE- AUG. 1968
 LEWIS-10446

Pulse echo ultrasonic system automatically determines the temperature in the core of a nuclear rocket engine by measuring the transit time of an acoustic pulse in a wire sensor. The measurement is based on the fact that the speed of sound in the sensor material is a function of

temperature.

B68-10321
CONCEPT TO CONVERT ELECTRICAL POWER
 RATTI, N. /LEAR SIEGLER/ DATE- AUG. 1968
 GSFC-10222

Moving fluid conductor transforms electrical power from one voltage to another. The electrically conductive fluid acts as a coupling medium between or among multiple electromagnetic fields producing the conversion.

B68-10323
HYDROGEN SAFETY MANUAL
 SPON- INNOVATOR NOT GIVEN /LEWIS/ DATE- AUG. 1968 REAN- SEE ALSO NASA-SP-5032 AND NASA-TM-X-52454
 LEWIS-10487

Hydrogen safety manual covers the characteristics and nature of hydrogen, design principles for hydrogen systems, protection of personnel and equipment, and operating and emergency procedures. It sets standards and practices for minimum safety requirements at hydrogen installations.

B68-10325
ELECTROCHEMICAL CELL HAS INTERNAL RESISTIVE HEATER ELEMENT
 COLSTON, E. F. FORD, P. E. HENNIGAN, T. J. DATE- AUG. 1968
 GSFC-10358

External source supplies power to electrochemical cells containing internal resistive heater element. Each cell plate is individually contained in its own Pellon bag, enabling the heater element to be arranged in a continuous, parallel circuit.

B68-10327
POWER CONSUMPTION IN ACOUSTIC AMPLIFIERS UNDER CONDITIONS OF MAXIMUM STABLE GAIN
 JOHNSON, V. R. /MICROWAVE ELECTRON./ DATE- AUG. 1968
 GSFC-10067

Comparison is made of the power consumed and the acoustic amplification realized when a dc bias field is placed across a piezoelectric semiconductor and adjusted to amplify a microwave acoustic signal to the point where the forward gain is just equal to the reverse attenuation. This represents the maximum possible gain condition.

B68-10328
TRANSISTORIZED MARX BANK PULSE CIRCUIT PROVIDES VOLTAGE MULTIPLICATION WITH NANOSECOND RISE-TIME
 JUNG, E. A. LEWIS, R. N. DATE- AUG. 1968
 ARG-10110

Base-triggered avalanche transistor circuit used in a Marx bank pulser configuration provides voltage multiplication with nanosecond rise-time. The avalanche-mode transistors replace conventional spark gaps in the Marx bank. The delay time from an input signal to the output signal to the output is typically 6 nanoseconds.

B68-10330
SIMULTANEOUS MESSAGE FRAMING AND ERROR DETECTION
 FREY, A. H., JR. /IBM/ DATE- SEP. 1968
 MSC-12001

Circuitry simultaneously inserts message framing information and detects noise errors in binary code data transmissions. Separate message groups are framed without requiring both framing bits and error-checking bits, and predetermined message sequence are separated from other message sequences without being hampered by intervening noise.

B68-10333
AUTOMATIC, NONDESTRUCTIVE TEST MONITORS IN-PROCESS WELD QUALITY
 DEAL, F. C. /MARTIN CO./ DATE- SEP. 1968
 M-FS-14996

Instrument automatically and nondestructively monitors the quality of welds produced in microresistance welding. It measures the

infrared energy generated in the weld as the weld is made and compares this energy with maximum and minimum limits of infrared energy values previously correlated with acceptable weld-strength tolerances.

B68-10336

FULLY AUTOMATIC TELEMETRY DATA PROCESSOR
COX, F. B. /BECKMAN INSTR. CO./ KEIPERT, F. A.
LEE, R. C. DATE- SEP 1968 REAN- SEE ALSO
NASA-TN-D-3981
GSFC-10576

Satellite Telemetry Automatic Reduction System
/STARS 2/, a fully automatic computer-controlled telemetry data processor, maximizes data recovery, reduces turnaround time, increases flexibility, and improves operational efficiency. The system incorporates a CDC 3200 computer as its central element.

B68-10337

TEMPERATURE OR PRESSURE CONTROLLER
GILLET, J. D. /N. AM. ROCKWELL CORP./ DATE-
SEP. 1968
LEWIS-10297

Silicon chip thermal sensor coupled into a solid state power source controls temperature or pressure in combustion research. The silicon chip sensing element is embedded in a ceramic support for insulation, and connected to a high resistance bridge which operates the solid state power amplifiers.

B68-10341

SUPERCONDUCTIVE THIN FILM MAKES CONVENIENT
LIQUID HELIUM LEVEL SENSOR
BECKER, H. H. DATE- SEP. 1968
LANGLEY-10289

Sensor consisting of superconductive film mounted on a dipstick measures the level of liquid helium in a Dewar flask. The sensor is made by depositing a thin film of niobium metal to a thickness of 2000 angstroms on a quartz substrate, which is then mounted on a graduated dipstick.

B68-10342

INDIUM ADHESION PROVIDES QUANTITATIVE
MEASURE OF SURFACE CLEANLINESS
KRIEGER, G. L. WILSON, G. J. DATE- SEP. 1968
SAN-10024

Indium tipped probe measures hydrophobic and hydrophilic contaminants on rough and smooth surfaces. The force needed to pull the indium tip, which adheres to a clean surface, away from the surface provides a quantitative measure of cleanliness.

B68-10350

FLUIDIC-THERMOCHROMIC DISPLAY DEVICE
GRAFSTEIN, D. HILBORN, E. H. DATE- SEP. 1968
REAN- SEE ALSO NASA-CR-80016 AND NASA-CR-86031
ERC-10031

Fluidic decoder and display device has low-power requirements for temperature control of thermochromic materials. An electro-to-fluid converter translates incoming electrical signals into pneumatics signal of sufficient power to operate the fluidic logic elements.

B68-10357

CLOSED CIRCUIT TV SYSTEM AUTOMATICALLY
GUIDES WELDING ARC
STEPHANS, D. L. /HAYES INTERN. CORP./ WALL, W.
A., JR. DATE- SEP. 1968
M-FS-20084

Closed circuit television /CCTV/ system automatically guides a welding torch to position the welding arc accurately along weld seams. Digital counting and logic techniques incorporated in the control circuitry, ensure performance reliability.

B68-10362

RATING OF ELECTRICAL WIRES IN VACUUM
ENVIRONMENTS
SCHAEFER, J. L. SVENSON, F. C. /N. AM. ROCKWELL
CORP./ DATE- OCT. 1968
MSC-15108

Electric conductors used in vacuum environments

have smaller cross sections. This report provides data on the correct size wire for a required current load in free-air, low-pressure oxygen, and vacuum environments.

B68-10364

NONDESTRUCTIVE TEST DETERMINES OVERLOAD
DESTRUCTION CHARACTERISTICS OF CURRENT
LIMITER FUSES
SWARTZ, G. A. /ELECTRA-MIDLAND CORP./ DATE- OCT.
1968
XGS-08566

Nondestructive test predicts the time required for current limiters to blow /open the circuit/ when subjected to a given overload. The test method is based on an empirical relationship between the voltage rise across a current limiter for a fixed time interval and the time to blow.

B68-10365

AUTOMATIC PATIENT RESPIRATION FAILURE
DETECTION SYSTEM WITH WIRELESS TRANSMISSION
DINEFF, J. POPE, J. M. DATE- OCT. 1968
ARC-10174

Automatic respiration failure detection system detects respiration failure in patients with a surgically implanted tracheostomy tube, and actuates an audible and/or visual alarm. The system incorporates a miniature radio transmitter so that the patient is unencumbered by wires yet can be monitored from a remote location.

B68-10367

DETECTION OF EFFECT OF DEPOSITS ON OPTICAL
WINDOWS OF PYROMETER MEASUREMENTS
CIPOLONE, P. DATE- OCT. 1968
LEWIS-10366

Temperatures measurements in an enclosed test chamber are more accurate when the reflectivity of the inner coated surface is compared to the outer clean surface of an optical window. Temperature readings are corrected by correlating the reflectivity of the deposits with their effect on the temperature measurement.

B68-10370

COOLED MINIATURE PRESSURE TRANSDUCERS
EFFECTIVE AT HIGH TEMPERATURES
ARMENTROUT, E. C. DATE- OCT. 1968
LEWIS-10401

Miniature pressure transducers in compact water-cooled mounts are placed in hotter and more confined environments than previously possible. It quantitatively measures high frequency total pressure fluctuations resulting from rotating stall in an axial flow engine compressor.

B68-10379

AUTOMATIC SYSTEM NONDESTRUCTIVELY MONITORS
AND RECORDS FATIGUE CRACK GROWTH
HOPPE, F. INMAN, N. S. /FAIRCHILD HILLER CORP./
DATE- OCT. 1968
LANGLEY-10091

Ultrasonic reflection system automatically and nondestructively detects and records the propagation of fatigue cracks in test specimens undergoing fatigue cycling. A reflector plate obtains a reference signal and monitors the location of the tip of a propagating fatigue crack.

B68-10382

SYSTEM MEASURES RESPONSE TIME OF
PHOTOMULTIPLIER TUBES
LAUVER, M. R. DATE- OCT. 1968
LEWIS-10437

Calibration system enables precise determination of rise time of photosensitive detectors. To perform a calibration, the time-voltage curve of the excitation voltage for a light source is compared with the time-voltage curve of the voltage output from a photosensitive detector which is responding to the light.

B68-10384

IMPROVED LIMITER FOR TURN-ON CURRENT
TRANSIENT
HALLBERG, F. C. DATE- OCT. 1968
GSFC-10413

01 ELECTRICAL (ELECTRONIC)

Circuit limits the turn-on current transient to a specified amplitude and provides a low-impedance path between supply voltage and load after a prescribed time interval. The circuit offers a wide range of flexibility in adjusting peak current and automatic control of the initial peak current.

B68-10386
LOW-COST, FAST-RESPONSE DRIVE CIRCUIT FOR ELECTROMAGNETIC TORQUE MOTORS
 ZELLER, J. R. DATE- OCT. 1968
 LEWIS-10143

Fast-response coil drive circuit, for electromagnetic torque motors, reduces the inductive coil time constant with a minimum of circuit sophistication. The low-cost modulator servoamplifier is used with a compatible preamplifier stage which provides the servo-loop function of summing, adjustable gain and compensation.

B68-10388
METHOD FOR REDUCING SNAP IN MAGNETIC AMPLIFIERS
 FISCHER, R. L. E. WORD, J. L. DATE- OCT. 1968
 LEWIS-10388

Method of reducing snap in magnetic amplifiers uses a degenerative feedback circuit consisting of a resistor and a separate winding on a magnetic core. The feedback circuit extends amplifier range by allowing it to be used at lower values of output current.

B68-10389
METHOD FOR MAKING SMALL POINTED THERMOCOUPLES
 STOVER, C. M. DATE- OCT. 1968
 SAN-10014

Constantan wire worked to a needle point and covered with a copper coating produces a small, concentric, fast-reaction thermocouple that has the fast response time necessary to measure rapid temperature changes accurately and only slightly alters the environment being measured.

B68-10397
CHARTS DESIGNATE PROBABLE FUTURE OCEANOGRAPHIC RESEARCH FIELDS
 SPON- INNOVATOR NOT GIVEN /MCDONNELL DOUGLAS CO./
 DATE- OCT. 1968
 M-FS-20202

Charts outline the questions and problems of oceanographic research in the future. NASA uses the charts to estimate the probable requirements for instrumentation carried by satellites engaged in cooperative programs with other agencies concerned with identification, analysis, and solution of many of these problems.

B68-10399
AUTOMATIC SOLAR LAMP INTENSITY CONTROL SYSTEM
 LEVERONE, H. MANDELL, N. DATE- NOV. 1968
 XGS-10017

System that substitutes solar cells directly in the path of the radiation incident on the test volume and uses a dc bridge-null system was developed. The solar cell is affixed to a heat sink mounted on each of three arms for each solar lamp. Control of the radiation from the solar lamps is automatic.

B68-10400
LITHIUM-TELLURIUM BIMETALLIC CELL HAS INCREASED VOLTAGE
 CAIRNS, E. J. ROGERS, G. L. SHIMOTAKE, H. DATE- NOV. 1968
 ARG-10141

Lithium-tellurium secondary cell with a fused lithium halide electrolyte, tested in the temperature range 467 degrees to 500 degrees C, showed improvement over the sodium bismuth cell. The voltage of this bimetallic cell was increased by using the more electropositive anode material, lithium, and the more electronegative cathode material, tellurium.

B68-10402
SYSTEM FOR MEASURING SPATIAL DISTRIBUTION OF EJECTED DROPLETS, A CONCEPT
 AYYAZIAN, R. A. /N. AM. ROCKWELL CORP./ DATE- NOV. 1968
 NPO-10185

System measures the spatial distribution of high-velocity droplets ejected from a nozzle or spray gun. The system employs an electrically resistive grid as the sensing screen, electrical leads, and a signal scanner such as a cathode ray tube.

B68-10404
DESIGN CONCEPT FOR NONARCING ELECTRICAL CONNECTOR
 HOLMEN, R. E. /DOUGLAS AIRCRAFT CO./ DATE- NOV. 1968
 M-FS-14937

Connector plug automatically minimizes arcing during mating and demating. This plug uses a high-resistivity outer sheath as an extension to the regular pin contact. It is used in atmospheres containing explosive gases, and reduces erosion at the contact surfaces where mating and demating are performed frequently.

B68-10411
INVERTED GROUNDING TECHNIQUE FOR ELECTRON BEAM HEATING
 JIRBERG, R. J. DATE- DEC. 1968
 LEWIS-10543

In the production of high temperature by electron bombardment the cathode is held at ground potential while the hot anode is raised to a high negative potential. An annealing chamber using the inverted grounding is constructed around a commercially available stainless steel cross.

B68-10412
AUTOMATIC CALIBRATION SYSTEM FOR PRESSURE TRANSDUCERS
 SPON- INNOVATOR NOT GIVEN /G. T. SCHJELDAHL CO./
 DATE- DEC. 1968
 M-FS-20127

Fifty-channel automatic pressure transducer calibration system increases quantity and accuracy for test evaluation calibration. The pressure transducers are installed in an environmental tests chamber and manifolded to connect them to a pressure balance which is uniform.

B68-10413
UV DETECTOR MONITORS ORGANIC CONTAMINATION OF OPTICAL SURFACES
 GLENN, C. G. KENNEDY, B. W. DATE- DEC. 1968
 M-FS-20246

Silicon carbide, insensitive to visible light, is used in photodetectors. System contamination can be monitored during the normal operation without interference to the operator, and without shielding from ambient light.

B68-10415
NEW BIMETALLIC EMP CELL SHOWS PROMISE IN DIRECT ENERGY CONVERSION
 HESSON, J. C. SHIMOTAKE, H. DATE- NOV. 1968
 ARG-10183

Concentration cell, based upon a thermally regenerative cell principle, produces electrical energy from any large heat source. This experimental bimetallic EMP cell uses a sodium-bismuth alloy cathode and a pure liquid sodium anode. The cell exhibits reliability, corrosion resistance, and high current density performance.

B68-10420
HIGH RESOLUTION GE/LI/ SPECTROMETER REDUCES RATE-DEPENDENT DISTORTIONS AT HIGH COUNTING RATES
 BRENNER, R. LARSEN, R. N. MANN, R. M. RUDNICK, S. J. SHERMAN, I. S. STRAUSS, M. G. DATE- NOV. 1968
 ARG-10144

Modified spectrometer system with a low-noise preamplifier reduces rate-dependent distortions at high counting rates, 25,000 counts per second. Pole-zero cancellation minimizes pulse

undershoots due to multiple time constants, baseline restoration improves resolution and prevents spectral shifts.

B68-10429
CONDITIONING FLAT CONDUCTORS FOR FLAT
CONDUCTOR CABLE PRODUCTION
SPON- INNOVATOR NOT GIVEN /VITRO CORP. OF AM./
DATE- DEC. 1968
M-FS-14914

Apparatus can straighten, anneal, clean, and a tension to stretch a cable one percent to assure uniform cross-sectional area. A conductor passes through temperature controlled distilled water and through a toroid coil. As the conductor enters the water, steam performs the cleaning action. Quenching and annealing also take place.

B68-10430
SYSTEM CONVERTS OPTICAL PHASE CHANGES TO
RF PHASE CHANGES
LOGUE, S. S. /GEN. DYN./CONVAIR/ DATE- NOV. 1968
M-FS-20091

System converts phase changes at optical frequencies to equal phase changes at RF. This system operates in conjunction with either a Michelson interferometer or conventional interferometers.

B68-10431
CHARGE CONTROL OF NICKEL-CADMIUM BATTERIES
BY COULOMETER AND THIRD ELECTRODE METHOD
FORD, F. PAULKOVITCH, J. DATE- SEP. 1968
GSFC-10487

Combined coulometer/third electrode control circuit for a nickel-cadmium battery included at least one cell of the third electrode type is illustrated. The coulometer/third electrode sensing circuit controls the series regulator as necessary to maintain the sensing voltage at the preset sensing level.

B68-10432
HIGH-EFFICIENCY STEP-UP REGULATOR
LISTER, L. R. /SPERRY RAND CORP./ DATE- DEC. 1968
M-FS-20049

Single-ended step-up regulator-chopper power supply /employing conventional chopper circuitry/ combines the advantages of the chopper and switching regulator circuits. Schematic of the power supply incorporating the step-up regulator is shown.

B68-10434
SELECTIVE VIDEO BLANKING TECHNIQUE
SABOE, M. M. TREUDE, R. C. /WESTINGHOUSE ELEC. CORP./ DATE- DEC. 1968
M-FS-20013

Adverse viewing effects caused by faulty photosensitive elements are eliminated. A linear maximal /or nonmaximal/ sequence generator gives a pseudorandom pulse train to selectively blank the display monitor during specified mosaic interrogation times. The outputs minimize the length of the required shift register generator.

B68-10436
COMPACT ROTATING CUP ANEMOMETER
WELLMAN, J. B. DATE- DEC. 1968
NPO-10563

Compact, collapsible rotating cup anemometer is used in remote locations where portability and durability are factors in the choice of equipment. This lightweight instrument has a low wind-velocity threshold, is capable of withstanding large mechanical shocks while in its stowed configuration, and has fast response to wind fluctuations.

B68-10437
TWO-WAY DIGITAL DRIVER/RECEIVER USES ONE
SET OF LINES
BURNETT, G. J. PFEIFER, A. F. /N. AM. ROCKWELL CORP./ DATE- OCT. 1968
ERC-10055

Two-way /bilateral/ digital driver/receiver system using MOS circuits was designed for a multiprocess computer having several subsystems at

relatively close locations. The system requires only a single set of communication lines between subsystems, thus achieving lower cost with increased reliability.

B68-10438
NOSEPIECE RESPIRATION MONITOR
LAVERY, A. L. LONG, L. E. RICE, N. E. DATE-
SEP. 1968
ERC-10136

Comfortable, inexpensive nosepiece respiration monitor produces rapid response signals to most conventional high impedance medical signal conditioners. The monitor measures respiration in a manner that produces a large signal with minimum delay.

B68-10443
SHORT CIRCUIT PROTECTION FOR A POWER
DISTRIBUTION SYSTEM
OWEN, J. R., III /IBM/ DATE- JAN. 1969
M-FS-14993

Sensing circuit detects when the output from a matrix is present and when it should be present. The circuit provides short circuit protection for a power distribution system where the selection of the driven load is accomplished by digital logic.

B68-10456
AMPLIFIER IMPROVEMENT CIRCUIT
STURMAN, J. DATE- DEC. 1968
LEWIS-10712

Stable input stage was designed for the use with a integrated circuit operational amplifier to provide improved performance as an instrumentation-type amplifier. The circuit provides high input impedance, stable gain, good common mode rejection, very low drift, and low output impedance.

B68-10501
READOUT SYSTEM FOR RADIATION DETECTOR
BAKER, B. R. CASHION, K. D. DATE- NOV. 1968
MSC-90180

Improved electrical circuit determines the amount of light detected by a photomultiplier tube when its output signal is in the dark-current range of the tube. The low-intensity light to which the tube responds arises from a thermo-luminescent ionized dosimeter.

B68-10502
RAPID-RESPONSE, LIGHT-EXPOSURE CONTROL
SYSTEM
KUEHL, D. K. ZWILLENBERG, M. L. /UNITED AIRCRAFT CORP./ DATE- DEC. 1968
NPO-10238

Rapid-response electro-optical, light exposure control system, will maintain the light reaching a camera film or other light-sensitive detector at essentially constant level, despite wide variations in the brightness of the light source. The system permits detailed photographic or photoelectric recording of the phenomenon over a range of brightnesses.

B68-10505
LONG-TERM DATA STORAGE AND RETRIEVAL
SYSTEM, A CONCEPT
FOX, T. L. /RCEING CO./ DATE- NOV. 1968
M-FS-14789

Combination magnetic tape/microfilm system may give reliable long-term storage and immediate retrieval. The recording, storage, and retrieval of data would be accomplished by computers, without manual intervention. The proposed system retrieves data in less than one hour after being stored for periods of up to 50 years.

B68-10511
ROCKET ENGINE ANALOG SIMULATION
PHILYAW, B. K. RANDAZZO, G. J. /BOEING CO./
DATE- NOV. 1968
M-FS-14511

Mathematical equations simulate the operation of a rocket engine, simulate destructive and nondestructive tests to verify engine design feasibility, and investigate nonlinear variations in engine performance.

01 ELECTRICAL (ELECTRONIC)

B68-10513

METHOD FOR MEASURING ALTERNATOR VOLTAGE TRANSIENTS

PERZ, D. A. DATE- NOV. 1968
LEWIS-10373

Transient voltage detection circuit measures voltage excursions and recovery times resulting from step-load changes applied to a combination alternator-voltage regulator.

B68-10514

AUTOMATIC CALIBRATION APPARATUS FOR TELEMETRY SYSTEMS

ALLEN, W. W. DATE- NOV. 1968
NPO-10560 NPO-10754

Apparatus automatically calibrates and tests spacecraft telemetry systems. The apparatus can generally be used to calibrate analog-to-digital converters.

B68-10516

HIGH-TEMPERATURE THERMIONIC EMISSION MICROSCOPE

CAMPBELL, A. E., JR. HAMERDINGER, R. W. /ELECTRO-OPT. SYSTEMS/ DATE- NOV. 1968
NPO-10584

Thermionic emission microscope was designed to operate with metal specimen cathode temperatures of 2000 degrees C.

B68-10518

INTEGRATED METAL TRANSISTOR LEADS

CARLEY, D. R. CASTERLINE, E. T. /RCA/ DATE- JUL. 1968
GSFC-90536

Technique that makes the metal leads integral to the transistor wafer and reduces capacitance in the device, thereby increasing its efficiency is outlined.

B68-10525

DIGITAL LASER-BEAM DEFLECTION SENSOR

POWELL, V. J. /GEN. TELEPHONE AND ELECTRON. LABS./ DATE- NOV. 1968
M-FS-14785

Sensor automatically and accurately measures the two-dimensional deflection angles of a laser beam to provide closed-loop servomechanism control of laser beam directivity.

B68-10529

IMPROVED COMMUNICATION SYSTEM FOR LARGE OPERATIONS CENTER

DRAPER, H. S. /BOEING CO./ DATE- NOV. 1968
M-FS-15016

When several microphones are fed into a common system, sound originating at any given source results in poor articulation. Introduction of an automatic microphone priority control suppresses echo and reverberation.

B68-10539

ACTIVE RC FILTER PERMITS EASY TRADE-OFF OF AMPLIFIER GAIN AND SENSITIVITY TO GAIN

KERWIN, W. J. SHAFER, C. V. DATE- NOV. 1968
ARC-10042

Passive RC network was designed with zeros of transmission in the right half of the complex frequency plane in the feedback loop of a simple negative-gain amplifier. The proper positioning provides any desired trade-off between amplifier gain and sensitivity to amplifier gain.

B68-10541

FAILURE RATES FOR ACCELERATED ACCEPTANCE TESTING OF SILICON TRANSISTORS

TOYE, C. R. DATE- NOV. 1968
ERC-10198

Extrapolation tables for the control of silicon transistor product reliability have been compiled. The tables are based on a version of the Arrhenius statistical relation and are intended to be used for low- and medium-power silicon transistors.

B68-10542

HIGH DIELECTRIC THICK FILMS FOR SCREENED CIRCUIT CAPACITORS

ULRICH, D. R. DATE- DEC. 1968

LANGLEY-10294

Techniques and materials have recently been developed to obtain high dielectric films /K of 300 to 800/. High dielectric barium titanate particles are mixed in a barium titanate glass.

B68-10543

TEMPERATURE CONTROLLED STRAIN GAGED EXTENSOMETER

RAMOS, G. L. SELOW, S. /AEROJET GEN./ DATE- DEC. 1968
LEWIS-10353

Temperature controlled strain-gaged extensometer measures longitudinal and girth deflections of pressure vessels in excess of one percent strain during pressurization and depressurization with cryogenic fluids at cryogenic temperatures. The device is of beryllium-copper strips.

B68-10544

COOLING OF 2-KW H SUBSCRIPT 2-0 SUBSCRIPT 2 FUEL CELL

ALLAN, K. N. BJORKMAN, H. K. ELBERT, T. E. HURLEY, J. R. /ALLIS-CHALMERS/ DATE- DEC. 1968
M-FS-13737 M-FS-13740 M-FS-13749

An extensive research and development program has been carried out to devise an improved method of removing waste heat of reaction from a developmental 2 kW hydrogen-oxygen fuel cell.

B68-10545

A 35 GHZ SOLID STATE TRANSMITTER/DRIVER

DE ANGELIS, X. A. DATE- DEC. 1968
M-FS-20152

Solid state transmitter/driver /multiplier/ signal source has been designed and fabricated to produce a stable crystal-controlled CW power output of 100 mw at 35 GHz.

B68-10547

OPERATIONAL INTEGRATOR

LUTZ, E. B. DATE- NOV. 1968
NPO-10230

System operates in the nonreturn-to-zero mode, maintaining the increased bit density capability of this mode but with much higher noise immunity than conventional schemes offer. This integrator performs a mathematical integrating function on inputs from 100 Hz through 100 MHz.

B68-10555

ELECTROLYTIC SILVER ION CELL STERILIZES WATER SUPPLY

ALBRIGHT, C. F. GILLERMAN, J. B. /GARRETT CORP./ DATE- DEC. 1968 REAN- SEE ALSO NASA-CR-65738
MSC-11827

Electrolytic water sterilizer controls microbial contamination in manned spacecraft. Individual sterilizer cells are self-contained and require no external power or control. The sterilizer generates silver ions which do not impart an unpleasant taste to water.

B68-10558

COMBINATION PROBE FOR AIRFLOW MEASUREMENTS

DUDZINSKI, T. J. GLAW, G. E. KRAUSE, L. N. DATE- DEC. 1968
LEWIS-10281

Probe combines a high-recovery shielded thermocouple for sensing total temperature, a total pressure sensing tube, and a flow direction sensing wedge having a 60 degree included angle.

B68-10559

ACCELERATION INSENSITIVE FLUID EXPANSION COMPENSATOR

HUGHES, L. F. /MIT/ DATE- OCT. 1968
ERC-10152

Device compensates for temperature and acceleration effects on a fluid-floated mass in a sealed container of a high performance angular or acceleration sensing instrument. It is used in precision instruments for regulation of gases or liquids in a moving body.

B68-10562

RELIABLE METHOD FOR TESTING GROSS LEAKS IN SEMICONDUCTOR COMPONENT PACKAGES

ALTSCHULER, T. L. DATE- DEC. 1968

ERC-10150

Simple, reliable, inexpensive method for gross-leak testing has been devised, based upon the conventional fine-leak technique. The sensitivity ranges from the detection of very large leaks down to leaks of 10 to the minus seven cc helium per sec.

B68-10563

PRESSURE-SENSITIVE BONDED JUNCTION
TRANSDUCERS

IANNINI, A. RINDNER, W. DATE- OCT. 1968

ERC-10087

Miniature transducers involve the use of appropriate commercial epoxy resins. Design protects the sensitive semiconductor surface from ambients and excludes an air space in the device capsule.

B68-10565

LOCATING **SNEAK PATHS** IN ELECTRICAL
CIRCUITRY

DANNBACK, T. M. /BOEING CO./ DATE- DEC. 1968

M-FS-15018

Use of a matrix system wherein circuit pin connections are assigned arbitrary designators and these used in formation of the matrix is illustrated. The matrix is a format that shows the current paths.

B68-10566

WELDING SKATE WITH COMPUTERIZED CONTROLS

WALL, W. A., JR. DATE- NOV. 1968

M-FS-20224

New welding skate concept for automatic TIG welding of contoured or double-contoured parts combines lightweight welding apparatus with electrical circuitry which computes the desired torch angle and positions a torch and cold-wire guide angle manipulator.

B68-10572

DESIGN OF DISSIPATIVE LINEAR PHASE FILTERS

PHARES, R. L. /SPACO, INC./ DATE- DEC. 1968

M-FS-14698

Set of design curves eliminates work involved in designing linear phase filters by being normalized in such a way as to apply to low, band, and high-pass filters of any bandwidth. Similar curves for any number of poles are plotted by solving a system of simultaneous equations.

B69-10012

MICROWAVE INTERFEROMETER CONTROLS CUTTING
DEPTH OF PLASTICS

HEISMAN, A. M. ICELAND, W. F. /N. AM. ROCKWELL
CORP./ DATE- FEB. 1969

M-FS-14673

Microwave interferometer system controls the cutting of plastic materials to a prescribed depth. The interferometer is mounted on a carriage with a spindle and cutting tool. A cross slide, mounted on the carriage, allows the interferometer and cutter to move toward or away from the plastic workpiece.

B69-10013

DEVICE FOR DIODE TUNING IN A STRIPLINE
VARACTOR HARMONIC MULTIPLIER

STEELE, K. P. /SYLVANIA ELECTRON. SYSTEMS/ DATE-
FEB. 1969

M-FS-20153

Stripline varactor harmonic multiplier uses a device for positioning the varactor diode with respect to the stripline circuit to obtain series resonance. The device also reduces detuning effects, due to thermal expansion, over a wide temperature range.

B69-10014

ISOLATED, MULTIPLE-OUTPUT VOLTAGE DC-TO-DC
CONVERTER

SPON- INNOVATOR NOT GIVEN /AUBURN UNIV./ DATE-
FEB. 1969 REAN- SEE ALSO NASA-CR-61737

M-FS-14976

Isolated, multiple output voltage dc-to-dc converter provides power for television transmitter used in space vehicles. The isolation is accomplished by using a single-end

switching transformer circuit. The converter is completely solid state.

B69-10015

MILLIVOLT SIGNAL LIMITER

HANSEN, I. G. PETERSON, V. S. DATE- FEB. 1969

LEWIS-90297

Low-voltage limiter circuit suppresses the output of platinum probes at temperatures beyond their operating range. The limiter circuit comprises an operational amplifier with a dual feedback loop. The signal limiter is useful in low-voltage instrumentation circuits normally operable or set for cryogenic temperatures.

B69-10027

MOSSBAUER-EFFECT DATA-COLLECTION SYSTEM

ASCHENBRENNER, R. A. VONDEROHE, R. H. DATE- FEB.
1969 REAN- SEE ALSO ANL-7386

ARG-10282

Automated data collection system which uses a small, general-purpose digital computer provides data acquisition from, and minor control of, four Mossbauer-effect experiments. This system is economical with no loss of versatility to the experimenter and is useful in handling large volumes of data from research experiments.

B69-10032

SIMPLE SWITCH ACTUATED BY FORCE APPLIED
OVER WIDE SOLID ANGLE

NELSON, B. /HUGHES AIRCRAFT CO./ DATE- FEB. 1969

XNP-09808

Electric switch can be actuated /closed/ by a force applied from any direction within a hemispheric envelope. The switch is comprised of a flexible, electrically conductive reed holding a conductive contact disc, mounted concentrically within a conductive tube.

B69-10037

USE OF BOTH LINEAR AND LOGARITHMIC
TRANSFER FUNCTIONS TO INCREASE DYNAMIC
RANGE OF VISUAL CHANNEL

PERETKO, H. T. /RCA/ DATE- FEB. 1969

GSFC-10675

Using both linear and logarithmic transfer functions in the visual channels of a dual channel radiometer increases the dynamic range to better than 1 to 10,000 foot-lamberts.

B69-10045

THICK TRANSDUCERS USED FOR GENERATING
SHORT-DURATION STRESS PULSES IN THIN
SPECIMENS

PETERSON, R. G. ROSEN, M. DATE- FEB. 1969

ARG-10232

By generating short stress pulses with thick transducers, the pulse-echo method for determining sound velocities and acoustic attenuation can be applied to thin specimens. The stress pulses enter a specimen where one pulse is reflected several times before a succeeding pulse enters the specimen.

B69-10050

FLOW ANGLE SENSOR AND READOUT SYSTEM

HANSEN, I. G. PETERSON, V. S. DATE- FEB. 1969

LEWIS-90298

Sensor determines fluid flow angles by means of a simple vane that positions itself in the direction of the flow. The vane rotates a small light-reflecting disc as it moves while the readout system uses two cyclically polarized light beams.

B69-10056

FRANGIBLE ELECTROCHEMICAL CELL AND SEALING
TECHNIQUE

HALPERT, G. HAYNOS, J. SHERPEY, J. DATE- MAR.
1969

XGS-10010

Electrochemical cell assembly, which includes a positive electrode plate between two negative electrode plates, is both flexible and compact, and frangible under severe shock conditions. Leak-tight integrity of the housing is maintained by polymer-to-polymer fusion bonds through holes in the expanded metal electrode terminals.

01 ELECTRICAL (ELECTRONIC)

B69-10063

MICROELECTRONIC OSCILLATOR, 2

KLEINBERG, L. L. DATE- MAR. 1969 REAN- SEE ALSO

B69-10064

GSFC-10387

Microelectronic oscillator uses a bipolar transistor to circumvent the problem of developing suitable inductors for lower frequencies. The oscillator is fabricated by hybrid thin film techniques or by monolithic construction. Discrete microminiature components may also be employed.

B69-10064

MICROELECTRONIC OSCILLATOR

KLEINBERG, L. L. DATE- MAR. 1969 REAN- SEE ALSO

B69-10063

GSFC-10375

Bipolar transistor operated in a grounded base configuration is used as the inductor in a microelectronic oscillator. This configuration is employed using thin-film hybrid technology and is also applicable to monolithic technology.

B69-10070

ANALYSIS OF MAGNETICALLY-CONTROLLED PROCESSES IN PULSE-MODULATION SYSTEMS

VEILLETTE, L. J. DATE- MAR. 1969

GSFC-10241

Investigation established analytic expressions for the design of pulse modulators with modulating signal control of the reset level of flux in a nonlinear magnetic core. Expressions derived are applicable to both pulse-width and pulse-rate modulator designs.

B69-10073

ELECTRONIC VISUALIZATION OF GAS BEARING BEHAVIOR

EVANS, R. C. KLASSEN, H. A. WONG, R. Y. DATE- MAR. 1969

LEWIS-10711

Visualization technique produces a visual simulation of gas bearing operation by electronically combining the outputs from the clearance probes used to monitor bearing component motion. Computerized recordings of the probes output are processed, displayed on an oscilloscope screen and recorded with a high-speed motion picture camera.

B69-10090

PERFORMANCE OF LOW-PRESSURE THERMIONIC CONVERTERS IS EVALUATED

RICHARDS, H. K. DATE- MAR. 1969 REAN- SEE ALSO

ANL-7377

ARG-10276

Experiments, evaluating the performance of low-pressure thermionic converters, were conducted with cesium, potassium, and sodium-metal vapors. The results of the investigation are useful in the selection of favorable conditions for the design of thermionic reactor fuel elements, including RF output for special applications.

B69-10093

STRUCTURAL ANALYSIS AND MATRIX INTERPRETIVE SYSTEM /SAMIS/

SPON- INNOVATOR NOT GIVEN /PHILCO CORP./ DATE- APR. 1969 REAN- SEE ALSO B67-10171

NPO-10839

SAMIS digital computer program simplifies automated structural analysis and eliminates reprogramming for problem changes. Program objectives are achieved by standardizing, by providing a modular program, and by programming for intermediate-size problems.

B69-10094

ON-LINE COMPUTER SYSTEM FOR USE WITH LOW-ENERGY NUCLEAR PHYSICS EXPERIMENTS IS REPORTED

GEMMELL, D. S. DATE- MAY 1969 REAN- SEE ALSO

ANL-6993

ARG-10257

Computer program handles data from low-energy nuclear physics experiments which utilize the ND-160 pulse-height analyzer and the PHYLIS computing system. The program allows

experimenters to choose from about 50 different basic data-handling functions and to prescribe the order in which these functions will be performed.

B69-10095

SIMPLE DEMODULATOR FOR TELEMETRY PHASE-SHIFT KEYED SUBCARRIERS

COUVILLON, L. A. DATE- MAY 1969

NPO-11000

Circuit, suitable for operation at high signal-to-noise ratio environments, recovers pulse-code modulated data from digital telemetry systems which use phase-shift keyed subcarrier techniques. This demodulator is easily constructed from microcircuit elements and may be applied where low-cost, relatively high-level signal systems are used.

B69-10096

SILICON CARBIDE DIODE FOR INCREASED LIGHT OUTPUT

GRIFFITHS, L. B. MLAVSKY, A. I. /TYCO LABS./ DATE- JUN. 1969

M-FS-20063

Transition metals improve the overall light output and the output in particular regions of the electroluminescent of a silicon carbide semiconductor device. These metals /impurities/ introduce levels that can be pumped electrically and affect the efficiency of the recombination process involved in emission of radiation.

B69-10097

MOUNTING METHOD IMPROVES ELECTRICAL AND VIBRATIONAL CHARACTERISTICS OF SCREEN ELECTRODES

NELSON, R. E. /WESTINGHOUSE ELEC. CORP./ DATE- JUN. 1969

M-FS-20169

Electrical characteristics of the mesh or screen electrodes used in electron tubes are improved by decreasing the shunt capacitance of the tube while retaining the close spacing needed for the required resolution. Vibrational characteristics are enhanced by raising the natural resonant frequency.

B69-10101

IMPROVED PHASE-SHIFT-KEYED DETECTOR

CHANDLER, J. /SPERRY RAND CORP./ DATE- MAY 1969

M-FS-20064

Improved phase-shift-keyed detector contains an active filter circuit which uses an operational amplifier and resistor-capacitor network. The detector is used in the Saturn space vehicle and Apollo telescope mount command systems to translate an analog signal from the command receiver into digital information for the command decoder.

B69-10113

SURFACE TEMPERATURE MAPPING WITH INFRARED PHOTOGRAPHIC PYROMETRY

POLLACK, F. G. DATE- JUN. 1969

LEWIS-10763

Infrared photographic pyrometry method measures and maps the temperature distribution on a heated surface with accuracy and precision. This method involves the collection, detection and measurement of a narrow bandwidth of emitted infrared radiation. Standard commercially-available equipment is used, together with systematic procedures.

B69-10114

OPTICALLY INDUCED FREE CARRIER LIGHT MODULATOR

GRUBER, C. L. RICHARDS, W. E. DATE- APR. 1969

GSFC-10216

Signal carrier laser beam is optically modulated by a second laser beam of different frequency acting on a free carrier source to which the signal carrier laser is directed. The second laser beam affects the transmission characteristics of the free carrier source to light from the signal carrier laser, thus modulating it.

B69-10115

RING LASER ANGLE ENCODER

COCCOLI, J. D. LAWSON, J. R. MC GARTY, T. P.
NICKLES, J. E. /MIT/ DATE- APR. 1969
MSC-13099

Ring laser angle encoder with a scanning photometer autocollimator and an isolation axis, provides continuous digital readout. It measures the angular difference in inertial attitudes of target /any phenomena generating or reflecting a light beam/ two at a time relative to target one at a time.

B69-10116

SIMPLE TUNNEL DIODE CIRCUIT FOR ACCURATE ZERO CROSSING TIMING

NETZ, A. J. DATE- APR. 1969
ARG-10309

Tunnel diode circuit, capable of timing the zero crossing point of bipolar pulses, provides effective design for a fast crossing detector. It combines a nonlinear load line with the diode to detect the zero crossing of a wide range of input waveshapes.

B69-10117

REMOTELY-ACTUATED BIOMEDICAL SWITCH

LEE, R. D. DATE- APR. 1969
ARC-10105

Remotely-actuated biomedical switching circuit using transistors consumes no power in the off position and can be actuated by a single-frequency telemetry pulse to control implanted instrumentation. Silicon controlled rectifiers permit the circuit design which imposes zero drain on supply batteries when not in use.

B69-10120

BOOTSTRAP UNLOADER

PFIFFNER, H. J. /HUGHES AIRCRAFT CO./ DATE- MAY 1969
XNP-09768

Circuit can sample a number of transducers in sequence without drawing from them. This bootstrap unloader uses a differential amplifier with one input connected to a circuit which is the equivalent of the circuit to be unloaded, and the other input delivering the proper unloading currents.

B69-10121

CIRCUITRY SELECTIVELY LIMITS DATA STORAGE IN GENERAL PURPOSE COMPUTER

SLOPPER, D. K. /WESTINGHOUSE ELEC. CORP./ DATE- MAY 1969
GSFC-10605

Circuitry limits storage in the memory of a stored program general purpose digital computer by permitting storage or writing to certain, specified areas of memory. The limit register used in the computer is easily set under program control, and the memory block size and position is readily changed to suit each specific program.

B69-10125

MOSSBAUER VIBRATION CALIBRATION SYSTEMS

EVALUATED
HOBBS, J. V. NETUSIL, W. F. /ROCKETDYNE/ DATE- MAY 1969 REAN- SEE ALSO B67-10339 AND NASA SP-132
M-PS-20014

Mossbauer effect vibration calibrator measures the velocity of high frequency, low amplitude vibration at various velocity and frequency ranges. It contains a highly precise calibrations standard unit and a vibration measuring system and may be applied to ultrafine testing and calibrating piezoelectric shakers, and vibration transducers.

B69-10126

INTEGRATED CIRCUIT WITH MULTIPLE COLLECTOR CURRENT SOURCE

HELLSTROM, M. J. LIN, H. C. /WESTINGHOUSE ELEC. CORP./ DATE- MAY 1969
M-PS-20177

Integrated circuit with multiple collector current source achieves the equivalent of a large number of resistors in a small area. Functional

equivalents of a transistor reduce the size requirement for low power integrated circuits, providing an efficient alternative to the conventional diffused resistor process in integrated circuit fabrication.

B69-10129

CONCEPT FOR A MULTIFUNCTIONAL OSCILLOSCOPE PROBE

STRINGER, E. J. /N. AM. ROCKWELL CORP./ DATE- MAY 1969
M-PS-16390

Multifunctional oscilloscope probe incorporates required electronic components so that any one of three desired functions /direct, demodulation, or low capacitance/ can be switched into the oscilloscope. The probe obviates the need for the three separate oscilloscope probes previously used in checking electronic equipment.

B69-10130

TUNABLE BANDPASS FILTER WITH VARIABLE SELECTIVITY

KERWIN, W. J. SHAFFER, C. V. DATE- MAY 1969
REAN- SEE ALSO B68-10210
ARC-10191

Basic active RC networks constructed from stages that realize second-order transfer functions using two integrators offer excellent stability. Modifications of the basic network produce a highly stable bandpass filter having separate controls that independently adjust center frequency, Q, and center frequency gain.

B69-10131

HIGH-ENERGY, HIGH-POWER, LONG-LIFE BATTERY

ABENS, S. G. /HONEYWELL/LIVINGSTON ELECTRON. LAB./ DATE- MAY 1969
LEWIS-10724

High-energy-density primary battery achieves energy densities of up to 130 watt hrs./lb. The electrochemical couple consists of a lithium anode, a copper-fluoride cathode, and uses methyl formate/lithium hexafluoroarsenate for the electrolyte. Once achieved, battery life is approximately 30 hours.

B69-10133

ONE HUNDRED MHZ VOLTAGE-CONTROLLED OSCILLATOR ELECTRICAL POTENTIAL

SWARD, A. V., JR. DATE- MAY 1969
NPO-11004

Voltage controlled oscillator /VCO/ generates a center frequency of 100 MHz with low phase noise. VCOs at this and lower frequencies are applied to phase-lock-loop detection systems used in tracking receivers and telemetry systems.

B69-10135

MASS TRANSPORT MECHANISM IN POROUS FUEL CELL ELECTRODES

JONSSON, I. LINDHOLM, I. /ALLMAENNA SVENSKA ELECK. AKTIEBOLAGET/ DATE- MAY 1969
HQ-10343

Results of experiments on hydrogen-oxygen fuel cells show that higher current densities are obtained with cell anodes having a 100 micron thin active layer of porous nickel containing silver electrocatalyst. Increase in current density is attributed to a convective mass transport mechanism.

B69-10140

FULL WAVE DC-TO-DC CONVERTER USING ENERGY STORAGE TRANSFORMERS

MOORE, E. T. WILSON, T. G. /WILMORE ELECTRON. CO./ DATE- MAY 1969
LEWIS-10375

Full wave dc-to-dc converter, for an ion thruster, uses energy storage transformers to provide a method of dc-to-dc conversion and regulation. The converter has a high degree of physical simplicity, is lightweight and has high efficiency.

B69-10143

SCHMITT TRIGGER MULTIVIBRATOR

ZRUBEK, W. E. DATE- MAY 1969
MSC-10955

01 ELECTRICAL (ELECTRONIC)

Schmitt trigger multivibrator circuit, capable of astable, monostable or bistable operation, incorporates an input circuit in conjunction with a Schmitt trigger circuit. The circuits form two output signal levels, are useful in switching circuit applications, initiates oscillations, and forms highly unsymmetrical wave forms.

B69-10149
CALIBRATION OF A RESISTANCE THERMOMETER
DOWN TO 0.04 DEGREES K
CULBERT, H. V. SUNGAILA, Z. DATE- MAY 1969
ARG-10318

Method for calibrating germanium-resistance thermometers in cryostats between 0.4 degrees K and 4 degrees K involves extrapolating the specific heat of a sample metal to low temperatures. This method is used when a magnetic thermometer is not available.

B69-10151
POSITIVE AND NEGATIVE OUTPUT CIRCUITS
HASLOWSKI, E. A. DATE- MAY 1969
LEWIS-10715

Trigger circuit has a fixed positive output in the on state and a fixed negative output in the off state. The amplitude of the positive and negative pulses may be independently chosen.

B69-10152
SURFACE IRREGULARITIES DETECTED BY FLARE
INSPECTION INSTRUMENT
ZOIKE, H. M. /METRO PHYS./ DATE- MAY 1969
N-PS-20157

Portable fiber optics sensing device which detects surface irregularities in a specific tube flare, permits discrete dimensional measurements to be taken, scanned and read out with only one setup. Capabilities of the instrument can be expanded to include surface inspection of various kinds of tube flares.

B69-10153
PCM BIT DETECTION WITH CORRECTION FOR
INTERSYMBOL INTERFERENCE
THUMIN, A. I. /NEW YORK UNIV./ DATE- MAY 1969
GSFC-10155

For pulse code modulation bits, received signals are filtered by integrate and dump filter from which samples are directed to end of PCM bit. Threshold decision circuit determines level of sample voltage. Effects of interference of known past bit can be corrected by raising or lowering threshold voltage value.

B69-10155
TECHNICAL REPORT ON GALVANIC CELLS WITH
FUSED-SALT ELECTROLYTES
CAIRNS, E. J. CROUTHAMER, C. E. FISCHER, A. K. FOSTER, M. S. HESSON, J. C. JOHNSON, C. E. SHIMOTAKE, H. TEVEBAUGH, A. D. DATE- JUN. 1969
REAN- SEE ALSO ANL-7316
ARG-10297

Technical report is presented on sodium and lithium cells using fused salt electrolytes. It includes a discussion of the thermally regenerative galvanic cell and the secondary bimetallic cell for storage of electricity.

B69-10156
VACUUM GAGE SYSTEM FOR RADIATION ENVIRONMENT
SUMMERS, R. L. DATE- MAY 1969
LEWIS-10797

Hot-cathode ionization gages used to measure high-vacuum pressures are subject to error when ionizing radiation is present. Because this radiation creates additional ions, a second ion gage is mounted near the pressure-measuring gage to detect and measure the radiation induced error.

B69-10161
EXPERIMENTAL PREDICTION OF PERFORMANCE
BY SUPERCONDUCTING CABLES
BROOKS, J. M. PURCELL, J. R. DATE- JUN. 1969
ARG-10215

Broken superconductor method of short sample testing makes possible the prediction of the performance of well cooled, stabilized, superconducting cable coils. It yields a

field-versus-current curve for a short sample of cable. Plots are given for the superconductor and copper currents at various magnetic field strengths.

B69-10162
MAGNETOHYDRODYNAMIC GENERATORS USING
TWO-PHASE LIQUID-METAL FLOWS
PETRICK, M. DATE- JUN. 1969
ARG-10168

Two-phase flow generator cycle of a magnetohydrodynamic /MHD/ generator uses a working fluid which is compressible and treated as an expanding gas. The two-phase mixture passes from the heat source through the MHD generator, where the expansion process takes place and the electrical energy is extracted.

B69-10173
GAGE PROVIDES AUDIBLE SIGNAL TO FACILITATE
CHECKOUT OF CONNECTOR PINS
NORTHERN, E. J. /BOEING CO./ DATE- JUN. 1969
KSC-10335

Commercial push gage has been modified to enable rapid, accurate testing of paddle pins in distributors, bullet pins and patch boards. The purpose of the gage is to ensure that the pins will not break electrical contact when they are subjected to a minimum, preset pressure.

B69-10186
SPHERICAL ION SOURCE
HALL, L. G. /SDS DATA SYSTEMS/ DATE- JUN. 1969
XNP-08898

Radial focusing of electrons in ion source produces greater ion densities, resulting in higher resolution and focus capability for a given source volume. Electron beam is focused near exit aperture by spherical fields. High density ions allow focusing ion beam to high density at echo, allowing high current through small aperture.

B69-10191
LINEAR-LOG COUNTING-RATE METER USES
TRANSCONDUCTANCE CHARACTERISTICS OF A
SILICON PLANAR TRANSISTOR
EICHHOLZ, J. J. DATE- JUL. 1969 REAN- SEE ALSO
ANL-6968
ARG-10158

Counting rate meter compresses a wide range of data values, or decades of current. Silicon planar transistor, operating in the zero collector-base voltage mode, is used as a feedback element in an operational amplifier to obtain the log response.

B69-10212
A MAGNIFYING SCRATCH-GAGE FORCE TRANSDUCER
SCOTT, C. E. DATE- JUL. 1969
LANGLEY-10496

Single-component scratch-gage transducer incorporates a unique motion magnification scheme to increase the magnitude of the load measuring scratch approximately 15 times over that of conventional models. It is small, load carrying and high in natural frequency.

B69-10213
MAGNETICALLY COUPLED EMISSION REGULATOR
SPON- INNOVATOR NOT GIVEN /CONSULTANTS AND
DESIGNERS/ DATE- JUL. 1969
GSFC-10056

Magnetic coupling between input and power handling circuits isolates high voltage. A feedback regulator samples the ion source bias current and provides deviation signals to a magnetic amplifier pulse modulator. The pulse modulator controls the dc to ac power inverter which in turn, controls the emission current.

B69-10215
TECHNIQUE FOR TUNING ANTENNA SYSTEMS
PRODUCING NEGLIGIBLE SIGNAL RADIATION
HERZ, K. /BOEING CO./ DATE- AUG. 1969
KSC-10060

Sweep and marker generators tune and match antenna system in its operational environment. Sweep generator simulates transmissions over entire

frequency range of the antenna receiving system. Marker generator identifies frequency points along the wave form displayed on oscilloscope.

B69-10216
COMPENSATION OF PULSE-REBALANCED INERTIAL INSTRUMENTS

LORY, C. B. DATE- JUL. 1969
 MSC-13098

Study explains the basic concept of pulse-rebalanced inertial instruments in terms of an idealized model which performs the processes of integration, prediction and quantization. An analytical model of an actual pulse-rebalanced instrument was derived in a form comparable to the idealized system.

B69-10217
LOW-COST VOLTAGE-LEVEL DETECTOR
 STURMAN, J. C. DATE- JUL. 1969
 LEWIS-10885

Integrated circuit senses when the voltage level has exceeded or is below a given reference level. The circuit, consisting of a differential amplifier, an SCR, and a pair of zener diodes, is useful for overload detection and monitoring power supplies.

B69-10218
PROTECTIVE CLOTHING FOR WORKERS WITH 5-KW AND 20-KW SHORT-ARC LAMPS
 ARGOU, M. J. DATE- JUL. 1969
 NPO-11155

Two suits of protective clothing reduce hazards to personnel working near short-arc lamps. One suit is worn during assembly or servicing of inoperative 5- and 20-kw lamps. The other suit is worn during adjustment or focusing of operating 5-kw lamps.

B69-10220
LINEAR VOLTAGE-TO-FREQUENCY CONVERTER
 LOKERSON, D. C. DATE- JUL. 1969
 GSFC-10546

Voltage-to-frequency converter, with ultra-high input impedance and linear response, is used in analog to digital data conversion systems. Voltage-to-current converter, using MOSFET devices and a multivibrator, has ultra-linear voltage-to-frequency characteristics. It replaces voltage sensitive magnetic-core oscillators.

B69-10221
MULTIPLE-MASK CHEMICAL ETCHING
 CANNON, D. L. /LOCKHEED ELECTRON CO./ DATE- AUG. 1969
 MSC-13114

Multiple masking techniques use lateral etching to reduce the total area of the high etch-rate oxide exposed to the chemical etchant. One method uses a short-term etch to remove the top layer from the silicon oxide surface, another acts before the top layer is grown.

B69-10224
TWO DEVICES FOR ANALYSIS OF NYSTAGMUS
 GUEDRY, P. E., JR. /NAVAL AEROSPACE MED. INST./
 TURNIPSEED, G. /NAVAL AEROSPACE MED. CENTER/
 DATE- JUL. 1969
 HQ-10273

Electromechanical Slope Computer /ESC/ and Electronic Summation Device /ESD/ facilitates rapid analysis of nystagmus records. The ESC reads out the slope and time of each nystagmus wave form. The ESD provides much faster analysis than the ESC. It provides an immediate analog display and digital display of analyzed nystagmus.

B69-10225
RF NOISE SUPPRESSION USING THE PHOTODIELECTRIC EFFECT IN SEMICONDUCTORS
 ARNDT, G. D. DATE- JUL. 1969
 MSC-12259

Technique using photodielectric effect of semiconductor in high-Q superconductive cavity gives initial improvement of 2-4 db in

signal-to-noise enhancement of conventional RF communication systems. Wide band signal plus noise can be transmitted through a narrow-band cavity due to parametric perturbation of the cavity frequency or phase.

B69-10228
COBALT IMPROVES NICKEL HYDROXIDE ELECTRODES FOR BATTERIES
 LERNER, S. R. /GULTON IND./ SEIGER, H. N. DATE- JUL. 1969
 LEWIS-10760

Positive nickel hydroxide electrodes containing 20 mole percent of cobalt hydroxide are more efficient than when impregnated to the same degree by weight with nickel hydroxide alone. Charge-acceptance and oxygen-evolution tests indicate cobalt electrodes are more efficient than plain positive nickel hydroxide electrodes at all rates of charge.

B69-10230
HIGHLY LINEAR, SENSITIVE ANALOG-TO-DIGITAL CONVERTER
 COX, J. /GULTON IND./ FINLEY, W. R. DATE- JUL. 1969
 MSC-13110

Analog-to-digital converter converts 10 volt full scale input signal into 13 bit digital output. Advantages include high sensitivity, linearity, low quantizing error, high resistance to mechanical shock and vibration loads, and temporary data storage capabilities.

B69-10233
SEGMENTED SIGE-PBTE COUPLES
 EGGERS, P. E. /BATTELLE MEM. INST./ MUELLER, J. J. DATE- JUL. 1969
 GSFC-10746

New design of segmented couples incorporates an intermediate junction contacted by pressure, and eliminates transition members that bond materials differing in thermal expansion. Development of a reproducible and reliable intermediate junction between PbTe and SiGe will be applicable to direct conversion of energy.

B69-10244
CONCEPTUAL TECHNIQUES FOR REDUCING PARASITIC CURRENT GAIN OF LATERAL PNP TRANSISTORS
 GALLAGHER, R. C. /WESTINGHOUSE ELEC. CORP./
 SCOTT, J. M. DATE- JUL. 1969
 MSC-13199 MSC-13200

Two techniques have been conceptually proposed as possible means of reducing parasitic beta in lateral p-n-p transistors. One method uses a degenerate substrate and high concentration P /plus/ guard-ring diffusion, another places the base contact at the center of an annular ring structure.

B69-10246
NOVEL TERMINAL STRIPS FOR TRANSFORMERS
 WILER, E. M. DATE- JUL. 1969
 NPO-10842

Spacing tinned terminal leads between two tapes of woven glass fiber that are sandwich-bonded with pliable epoxy adhesive alleviates problems of taped leads pulling away from the transformer and shorting due to crossover of wires. Individual leads may or may not be enclosed in glass-fiber sleeves.

B69-10247
SIMPLIFIED SYSTEM DISPLAYS COMPLEX CURVES CORRESPONDING TO INPUT DATA
 DERTOUZOUS, M. L. GRAHAM, H. L. /MIT/ DATE- AUG. 1969
 HQ-10073

Cathode ray oscilloscope displays curves or contours of complex shapes corresponding to sets of x,y coordinates. It requires few storage facilities and produces a rapid display of complex curves with a fewer number of commands than previous systems.

B69-10251
LOW-LOSS **C BAND PARASITIC PROBE**

01 ELECTRICAL (ELECTRONIC)

CRIBB, H. E. DATE- JUL. 1969
KSC-09348

Low insertion-loss C band parasitic probe couples RF energy from a transmitting medium to a receiving medium with a minimum of interference in order to minimize power requirements.

B69-10253
RADIATION TOLERANT SILICON NITRIDE INSULATED GATE FIELD EFFECT TRANSISTORS
NEWMAN, P. A. DATE- JUL. 1969
GSFC-10581

Metal-Insulated-Semiconductor Field Effect Transistor /MISFET/ device uses a silicon nitride passivation layer over a thin silicon oxide layer to enhance the radiation tolerance. It is useful in electronic systems exposed to space radiation environment or the effects of nuclear weapons.

B69-10259
REDUCING QUANTIZER DEADBAND WITH A **RANGE SWITCHING** DIGITAL FILTER
CARROLL, C. C. /AUBURN UNIV./ DATE- AUG. 1969
M-FS-20419

Range switching digital filter with three predetermined quantization levels decreases quantization deadband. Mathematical program form implements the transfer function of the filter.

B69-10269
MULTI-FEED CONE FOR CASSEGRAINIAN ANTENNA
STELZRIED, C. T. DATE- AUG. 1969
NPO-10539

Multiple-cone feed horn system for a Cassegrainian antenna using a rotatable hyperboloid in conjunction with a multiple cone system is possible by moving hyperboloid relative to fixed multiple feeds and paraboloid. The hyperboloid can be adjusted so that, for each feed, it is in the best possible position.

B69-10270
PRECISE GIMBALLING MECHANISM
FERRERA, J. D. JOHNSON, K. G. PERKINS, G. S. DATE- AUG. 1969
NPO-11057

Prototype support mechanisms allow precise and repeatable gimballing of engines with a minimum of lost motion and backlash. It also minimizes the use of gears and reduces lubrication requirements for long time space operations of several years duration.

B69-10271
IMPROVED METHOD OF FABRICATING PLANAR GALLIUM ARSENIDE DIODES
ROY, M. M. YEH, T. H. DATE- AUG. 1969
XNP-04235

Improved method fabricates electroluminescent planar P-N gallium arsenide diodes. GaAs is masked with silicon monoxide to allow P-type impurities to be diffused into unmasked portions of GaAs to form P-N junctions.

B69-10272
NONDESTRUCTIVE EVALUATION OF PRINTED WIRING BOARDS BY MICROHM RESISTANCE MEASUREMENTS
STIEFELD, B. DATE- AUG. 1969
SAN-10034

Application of the microhm measuring circuit to measurement of plated-through hole resistances, when combined with appropriate probes, provides data that can be related to the quality of copper plating on printed wiring boards. Acceptance limits can be established and continuous inspection performed, with plating defects causing abnormal readings.

B69-10274
RESONANT MICROWAVE DICHROIC SURFACE
ESTEP, H. /LOCKHEED ELECTRONICS CO./
SAKELLARPOULOS, E. G. DATE- DEC. 1969
GSFC-10658

Dichroic surface has high stopband filter characteristics with a low stopband-to-passband frequency ratio. It utilizes two stagger-tuned, resonant artificial dielectric surfaces and is virtually polarization insensitive.

B69-10281
PIEZOELECTRIC LOCK MECHANISM RESISTS LOCKPICKING
STUETZER, O. M. DATE- AUG. 1969
SAN-10037

Electrically coded piezoelectric lock mechanisms are strong, have few moving parts, are resettable, and are relatively unaffected by high magnetic fields. Codes are extremely difficult to circumvent.

B69-10289
SWEEP FREQUENCY DETECTOR
CLAUSS, R. C. DATE- AUG. 1969
NPO-10669

Sweep detector or passive spectrum analyzer provides a positive monitoring of the bandwidth of the input amplifier of a tracking receiver. Used with an oscilloscope, it provides a visual display of a microwave amplifier bandpass.

B69-10290
HIGH-POWER MICROWAVE POWER DIVIDER CONCEPT
KOEBLY, R. B. /CALIF. INST. OF TECHNOL./ DATE- AUG. 1969
NPO-11031

Variable power divider keeps microwave transmitter at full power. This preserves the bandwidth and modulation characteristics and proportions any amount of the full power from the normal antenna into a dissipative load.

B69-10297
MAXIMUM RMS ERROR COMPARISON OF SEVERAL REDUNDANCY TECHNIQUES
BREAUX, J. N. /BOEING CO./ DATE- AUG. 1969
M-FS-15075

Paper presents mathematical comparison of several techniques with the limiting slope technique for data reduction and reconstruction. Limiting slope method results in maximum possible RMS error versus data compression ratio advantage of 2-to-1 over step and fan methods and 3-to-1 over the two point projection method.

B69-10306
EVALUATION OF MAGNETIC MATERIALS FOR STATIC INVERTERS AND CONVERTERS
FROST, R. M. /WESTINGHOUSE ELEC. CORP./ MC VAY, R. E. PAVLOVIC, D. M. DATE- AUG. 1969
LEWIS-10343

Program studies materials for use in static inverters and converters. It gives suitable data on the behavior of commonly used materials when excited with square wave power.

B69-10307
REMOTE CONTROL THERMAL ACTUATOR
ENGLUND, D. R. HARRIGILL, W. T. KRSEK, A. DATE- AUG. 1969
LEWIS-10873

Thermal actuator makes precise changes in the position of one object with respect to another. Expansion of metal tubes located in the actuator changes the position of the mounting block. Capacitance probe measures the change in position of the block relative to the fixed target plate.

B69-10308
SURVEY OF MAN-MADE ELECTRICAL NOISE AFFECTING RADIO BROADCASTING
BISIGNANI, W. T. /RADIO CORP. OF AM./ GARNER, W. B. DATE- AUG. 1969
HQ-10290

Survey, consisting of limited noise measurements, was made to augment and verify existing data at HF and VHF and to obtain basic data at UHF. Exact frequencies were determined by the absence of intentionally generated signals around three selected frequencies.

B69-10312
NEW PASSIVE TELEMETRY SYSTEM
VISSCHER, J. /FAIRCHILD HILLER CORP./ DATE- AUG. 1969
HQ-10214

Passive telemetry system enables the monitoring of vital biological functions from living organisms, without external connections or power sources.

The FM system, using a phase locked loop technique, keeps the information frequency and powering frequencies separate.

is determined by a crystal oscillator.

B69-10313

CIRCUIT COUNTS PULSES AND INDICATES TIME OF OCCURRENCE OF SLOW PULSES

BAUMER, W. E. /COMPUTER CONTROL CO./ TIMM, J. D.
DATE- AUG. 1969
XNP-06234

Counter includes one section which counts the first several pulses, and a second section which counts pulses from a clock between the beginning of a sampling interval and the receipt of the first pulse by the circuit. The number of clock pulses indicates receipt time of the first pulse.

B69-10314

SELF-SHIELDING PRINTED CIRCUIT BOARDS FOR HIGH FREQUENCY AMPLIFIERS AND TRANSMITTERS

GALVIN, D. /MIT/ DATE- AUG. 1969

HQ-10433

Printed circuit boards retaining as much copper as possible provide electromagnetic shielding between stages of the high frequency amplifiers and transmitters. Oscillation is prevented, spurious output signals are reduced, and multiple stages are kept isolated from each other, both thermally and electrically.

B69-10315

SEPARATION SIMULATOR

PHLIEGER, G. A., JR. DATE- AUG. 1969
KSC-67-15

Separation simulator, consisting of a control panel and an electromechanical simulator unit, simulates electrical separation of space flight vehicle stages. Simulation is accomplished by electrically inserting the simulator between the normal interstage couplings of the vehicle. Actual separation is accomplished by energizing two solenoids.

B69-10316

INTEGRATED SEQUENCE DISPLAY DEVICE

ROSINE, D. R. /BOEING CO./ DATE- AUG. 1969
KSC-10381

Device integrates a planned test sequence with real-time changes indicated on a visual display which includes a record of both planned and unplanned events related to a time base. Motor driven paper chart can be advanced or reversed to display the time span of interest.

B69-10318

IMPROVED ANODE DESIGN FOR METAL-OXYGEN CELLS

ARRANCE, F. C. /MC DONNELL DOUGLAS CORP./
ROBERTSON, W. A. ROSA, A. G. DATE- AUG. 1969
LEWIS-10871

Method for returning electrolyte to the anode compartment in metal-oxygen second battery cells eliminates the problem of the anode drying out during charge-discharge cycling. Electrolyte forced out of the separator is returned to the anode by a microporous insert and wicking material.

B69-10322

FIELD EFFECT TRANSISTOR /FET/ CIRCUIT FOR VARIABLE GAIN AMPLIFIERS

SPAID, G. H. DATE- SEP. 1969
GSFC-10116

Amplifier circuit using two FETs combines improved input and output impedances with relatively large signal handling capability and an immunity from adverse effects of automatic gain control. Circuit has sources and drains in parallel plus a resistive divider for signal and bias to either of the gate terminals.

B69-10323

SIMPLE, ACCURATE AUTOMATIC FREQUENCY CONTROL CIRCUIT

BYRNE, F. DATE- DEC. 1969
KSC-10393

Automatic frequency control circuit is designed for use with voltage-controlled variable-frequency oscillators. The output frequency of the circuit

B69-10325

COMBINATION RANGING SYSTEM AND MAPPING RADAR

GOLDSTEIN, R. M. HORTTOR, R. L. DATE- SEP. 1969
NPO-11001

Transmitter, radiating at a right angle to the spacecraft trajectory and intersecting the surface at a shallow angle, yields accurate radar maps of lunar or planetary surfaces. Earth based station receives the signal reflected from the planetary surface. Mapping coordinates and signal strength are produced by earth based transmitter.

B69-10326

AN INTEGRATED CIRCUIT SWITCH

BONIN, E. L. /TEXAS INSTRUMENTS INC./ DATE- SEP. 1969
NPO-11073

Multi-chip integrated circuit switch consists of a GaAs photon-emitting diode in close proximity with Si phototransistor. A high current gain is obtained when the transistor has a high forward common-emitter current gain.

B69-10327

AN IMPROVED METHOD FOR ELECTRICAL CABLE TERMINATIONS

BAKER, C. D. DATE- OCT. 1969
NPO-10694

Method utilizes a standard terminal lug, a braided wire passed through the barrel and overlapping the top of the lug, and a ferrule to clamp the end of the wire. Electrical connectors can be sterilized and visibly inspected for reliability.

B69-10329

TECHNIQUE FOR PREDICTING TEMPERATURE DISTRIBUTION IN GASES

KASCAK, A. RAGSDALE, R. DATE- SEP. 1969
LEWIS-10918

Simple algebraic equations enable calculation of the temperature distribution throughout a heat generating, radiation gas. They apply over the entire range of opacities, for any heat flux, for a temperature dependent absorption coefficient, and for a non-uniform distribution of volumetric heat sources.

B69-10333

THE EFFECT OF MISMATCHED COMPONENTS ON MICROWAVE NOISE-TEMPERATURE CALIBRATIONS

OTOSHI, T. Y. DATE- SEP. 1969
NPO-11163

Analysis of errors on microwave noise-temperature measurements is important due to development of very low-noise antenna receiving systems and in the absolute accuracies to which the noise temperatures of these systems can be calibrated. Scattering parameters describe properties of the microwave network connected between noise source and receiver.

B69-10338

A METHOD FOR REDUCING SAMPLING JITTER IN DIGITAL CONTROL SYSTEMS

ANDERSON, T. O. HURD W. J. DATE- SEP. 1969
NPO-11088

Digital phase lock loop system is designed by smoothing the proportional control with a low pass filter. This method does not significantly affect the loop dynamics when the smoothing filter bandwidth is wide compared to loop bandwidth.

B69-10340

HELICAL RECORDER

COLE, P. T. STUDDER, P. A. TYLER, A. L. DATE- NOV. 1969
GSFC-10614

Tape recorder, using metallic tape, has a minimum of moving parts and no belts. It permits long-term bulk storage in extreme environments, and has less weight and bulk than present recording equipment.

B69-10347

TRACER OF ELECTRICAL CONDUIT OR PIPES

01 ELECTRICAL(ELECTRONIC)

PECK, R. R. /N. AM. ROCKWELL CORP./ DATE- SEP. 1969

MSC-15223

Device matches ends of a buried conduit, transversing an inaccessible area, without cutting the current.

B69-10349

AUTOMATIC GAUSSIAN RANDOM-NOISE LIMITER

WOODBURY, R. C. DATE- SEP. 1969

NPO-10169

Circuit limits the positive and negative peaks of a random-noise signal. It accurately establishes a known limiting level relative to any given RMS value of the random-noise signal input.

B69-10351

FOOT-OPERATED CELL-COUNTER

EISLER, W. J., JR. FRY, R. J. M. LE BUIS, D.

DATE- SEP. 1969 REAN- SEE ALSO ANL-7409

ARG-10315

Cell-counter for cell indices consists of a footboard with four pressure sensitive switches and an enclosure for the components and circuitry. This device increases the operators efficiency by reducing the number of required hand movements.

B69-10354

AN INFRARED TELEVISION SYSTEM FOR HYDROGEN

FLAME DETECTION

WODE, M. G. /BROWN ENGINEERING CO./ DATE- SEP. 1969

KSC-10368

Infrared sensitive vidicon camera system, utilizing a single camera operating in the near infrared, detects a hydrogen flame burning in a bright sunlit environment.

B69-10356

IDENTIFICATION OF THERMOCOUPLE MATERIAL

NELSON, R. F. /N. AM. ROCKWELL CORP./ VROLYK, J.

J. DATE- SEP. 1969

M-FS-18540

Fabrication of probes from a representative selection of materials used to make thermocouples identifies materials used in thermocouple junctions. Generating a thermoelectric electromotive between hot and cold junctions verifies whether or not the material in question is the same as the probe.

B69-10359

OPTIMUM FM PRE-EMPHASIS

MEERZ, K. W. /BOEING CO./ DATE- SEP. 1969

KSC-10151

Calibrated RF signal generator, precision RF attenuator, and a wave analyzer are used to determine the spectral noise characteristics in the baseband of receiver as a function of RF input power.

B69-10362

AN OVERVIEW OF ELECTROMAGNETIC INTERFERENCE

PROBLEMS IN SPACECRAFT

BASTOW, J. G. DATE- SEP. 1969

NPO-11170

Electromagnetic Interference Workshop held at JPL /Feb., 1968/ permitted an exchange of information on electromagnetic interference problems encountered in aerospace programs. The experiences related at this workshop dealt primarily with Surveyor, Lunar Orbiter, OGO, ATS, and Mariner unmanned programs.

B69-10364

PRESSURE TRANSDUCER

BAKER, C. D. DATE- SEP. 1969

NPO-10853

Pressure-sensitive transducer, consisting of a series of spindle-supported electrically conductive metal washers connected to electrical sensing circuitry, determines the force exerted between a mounting bolt and nut on relatively fragile components.

B69-10369

IMPROVED DC VOLTAGE REGULATOR

BARNES, H. F. DATE- SEP. 1969

XKS-06467

Simplified solid-state circuit provides a closely regulated dc voltage from an unregulated dc source. It eliminates the undesirable loading effect of the emitter-base current of a transistor used in an error-sensing circuit of a regulated dc power supply.

B69-10376

HIGH-TEMPERATURE, GAS-FILLED CERAMIC

RECTIFIERS, THYRATONS, AND

VOLTAGE-REFERENCE TUBES

BAUM, E. A. /GE/ DATE- SEP. 1969

LEWIS-90271

Thyratron, capable of being operated as a rectifier and a voltage-reference tube, was constructed and tested for 1000 hours at temperatures to 800 degrees C. With current levels at 15 amps and peak voltages of 2000 volts and frequencies at 6000 cps, tube efficiency was greater than 97 percent.

B69-10378

IMPROVED VHF DIRECTION FINDING SYSTEM

GRAF, E. R. /AUBURN UNIV./ NEFF, H. DATE- SEP. 1969

M-FS-20439

Direction finding device operating at very high frequencies requires a loop antenna, mechanical rotation, and large structures. The system is applicable to an unmanned configuration. Direction information is extracted in the form of a direction cosine analog.

B69-10380

ENERGY-STORAGE OF A PRESCRIBED IMPEDANCE

SEATON, A. F. /HUGHES AIRCRAFT CO./ DATE- SEP. 1969

NPO-10303

Reflector antenna of the parabolic type offers complete control of its aperture illumination function. The antennas beam width can be changed easily by excitation of various amounts of the line-source feed. The conical reflector collimates a beam when the feed complies with certain geometric constraints.

B69-10381

PHASE MULTIPLYING ELECTRONIC SCANNING ARRAY

SEATON, A. F. /HUGHES AIRCRAFT CO./ DATE- SEP. 1969

NPO-10302

Scanning array was designed with properties of low RF loss and phase control. The array consists of a series of special waveguides, hybrids made up of two variable reactance branch arms for input signals, an edge slot for the difference port, and a sum arm for the unradiated signal.

B69-10382

IMPROVED CIRCULARLY POLARIZED PLANAR-ARRAY

ANTENNA

SEATON, A. F. /HUGHES AIRCRAFT CO./ DATE- SEP. 1969

NPO-10301

Slots sitting astride the virtual wall in a multimode wave guide can be used for generation of one component of a circularly polarized beam. There is a high degree of efficiency without the use of a slow-wave structure.

B69-10383

WIDE-BAND DOUBLER AND SINE WAVE QUADRATURE

GENERATOR

CROW, R. B. DATE- SEP. 1969

NPO-11133

Phase-locked loop with photoresistive control, which provides both sine and cosine outputs for subcarrier demodulation, serves as a telemetry demodulator signal conditioner with a second harmonic signal for synchronization with the locally generated code.

B69-10384

AUTOMATIC CALORIMETRY SYSTEM MONITORS RF

POWER

HARNES, B. W. HEIBERGER, E. C. DATE- SEP. 1969

NPO-11033

Calorimetry system monitors the average power dissipated in a high power RF transmitter.

Sensors measure the change in temperature and the flow rate of the coolant, while a multiplier computes the power dissipated in the RF load.

B69-10385

IMPROVED PERCEPTUAL-MOTOR PERFORMANCE MEASUREMENT SYSTEM

PARKER, J. F., JR. /BIOTECHNOLOGY, INC./ REILLY, R. E. DATE- SEP. 1969

HQ-10123

Battery of tests determines the primary dimensions of perceptual-motor performance. Eighteen basic measures range from simple tests to sophisticated electronic devices. Improved system has one unit for the subject containing test display and response elements, and one for the experimenter where test setups, programming, and scoring are accomplished.

B69-10386

REAL-TIME OPERATING SYSTEM/360

HOFFMAN, R. L. /IBM CORP./ KOPP, R. S. MUELLER, H. R. POLLAN, W. D. VAN SANT, B. W. WEILER, P. W. DATE- SEP. 1969

MSC-12148

RTOS has a cost savings advantage for real-time applications, such as those with random inputs requiring a flexible data routing facility, display systems simplified by a device independent interface language, and complex applications needing added storage protection and data queuing.

B69-10390

A THIRTY-SIX ELEMENT ARRAY ANTENNA SYSTEM

GRAF, E. R. /AUBURN UNIV./ DATE- SEP. 1969

M-FS-20435

Thirty-six element square array, with mutual coupling between crossed slots for array elements, is used as an electronically scanned tracking antenna. The system does not require the movement of the antenna or the presence of an operator.

B69-10392

AN ELECTRONIC CIRCUIT FOR SENSING

MAJFUNCTIONS IN TEST INSTRUMENTATION

MILLER, W. M., JR. /BOEING CO./ DATE- DEC. 1969

KSC-10209

Monitoring device differentiates between malfunctions occurring in the system undergoing test and malfunctions within the test instrumentation itself. Electronic circuits in the monitor use transistors to commutate silicon controlled rectifiers by removing the drive voltage, display circuits are then used to monitor multiple discrete lines.

B69-10401

IMPROVED FERROUS SHIELDING FOR FLAT CABLES

DRECHSLER, R. J. /DOUGLAS AIRCRAFT CO./ DATE- SEP. 1969

M-FS-14524

To improve shielding of flat multicore cables, a thin, seamless ferrous shield around all cores optimizes low frequency magnetic shielding. Such shielding is covered with an ultrathin seamless coat of highly conductive nonferrous material.

B69-10402

NONDESTRUCTIVE TESTING OF WELDS ON

THIN-WALLED TUBING

HAGEMAIER, D. J. /N. AM. ROCKWELL CORP./

POSAKONY, G. J. DATE- SEP. 1969

M-FS-18144

Special ultrasonic search unit, or transducer assembly, reliably inspects the quality of melt-through welds of fusion welded tubing couplers for hydraulic lines. This instrumentation can also be used to detect faulty braze bonds in thin-walled, small diameter joints and wall thickness of thin-walled metal tubing.

B69-10407

A POSITIVE TAPER TRAVELING-WAVE TUBE

GRECHBERG, R. W. /WATKINS-JOHNSON CO./ ROBERTS,

L. A. DATE- SEP. 1969

LANGLEY-10263

Synchronism can be maintained between the RF beam current and the circuit electromagnetic waves over

substantially the entire length of a traveling-wave tube by increasing the pitch of the last portion of the helical wave structure. There is no loss of linearity or beam conversion efficiency.

B69-10410

NOVEL MULTIPURPOSE TIMER FOR LABORATORIES

EISLER, W. J. KLEIN, P. D. DATE- SEP. 1969

ARG-10147

Multipurpose digital delay timer simultaneously controls both a buffer pump and a fraction-collector. Timing and control may be in 30-second increments for up to 15 hours. Use of glassware and scintillation vials make it economical.

B69-10416

PUNCH-MAGNET DELAY ELIMINATED BY

MODIFICATION OF CIRCUIT

COHN, C. E. DATE- SEP. 1969

ARG-10333

Reduction of retardation by diode-resistor networks of the current-decay time of a punch magnet by connection of a Zener diode in series with the damping network increases the reliability of data on paper tape.

B69-10418

RADIOGRAPHIC THRESHOLD DETECTION LEVELS OF

ALUMINUM WELD DEFECTS

TRYON, R. W. /GEN. DYNAMICS/ DATE- SEP. 1969

M-FS-20487

Test program is used in the design and fabrication of special graduated aluminum penetrometers. The program evaluates the threshold detection capabilities of a fixed radiographic technique in detecting surface and subsurface cracks in one-quarter inch aluminum welds. The radiographic films were evaluated and the threshold detection capabilities defined.

B69-10419

THERMAL CALIBRATION TARGET

BULLER, J. S. /SANTA BARBARA RES. CENTER/ DATE-

SEP. 1969

XGS-11144

Blackbody source calibrates the response of a medium resolution infrared radiometer used on a meteorological satellite. This approach controls the temperature of a thermal calibrating device over a wide range without the need for controlling a liquid nitrogen input to the device. The availability of liquid nitrogen achieves the required thermal control.

B69-10427

A COMPACT ROTARY VANE ATTENUATOR

NIXON, D. L. CTOSH, T. Y. STELZRIED, C. T.

DATE- SEP. 1969

NPO-10562

Rotary vane attenuator, when used as a front end attenuator, introduces an insertion loss that is proportional to the angle of rotation. New technique allows the construction of a shortened compact unit suitable for most installations.

B69-10429

ACCURATE NINE-DECADE TEMPERATURE-COMPENSATED

LOGARITHMIC AMPLIFIER

BOBIS, J. P. MC DOWELL, W. P. PAUL, V. H. DATE-

SEP. 1969

ARG-10480

Transistor-driven temperature-stable amplifier with logarithmic operating characteristics permits presentation of the entire range of the reactor without range switching. This circuit is capable of monitoring ion chamber currents over spans of 8 or 9 decades and is used in nuclear reactor instrumentation. Application is found in materials under ultrahigh vacuum.

B69-10436

LEADS INTEGRAL WITH THE INTERNAL

INTERCONNECTION THAT PENETRATE THE

MOLDED WALL OF A PACKAGE

MARLEY, J. /ITT FEDERAL LABS./ DATE- SEP. 1969

LANGLEY-10228

Multiplicity of external ribbon leads makes

01 ELECTRICAL (ELECTRONIC)

possible connections to a sealed or encapsulated microassembly. The leads are integral with the internal connections on a single part that can be fabricated economically by fine-detail electroplating.

B69-10438

LEAKAGE MEASURING METHOD

CLAUSEN, R. J. /DOUGLAS AIRCRAFT CO./ DATE- SEP. 1969

M-FS-14722

Technique measures leakages of high pressure test specimens occurring on the input rather than the output side of a test specimen. Technique involves paralleling-off the pressure supply line and duplicating and measuring the leakage flowing into a specimen rather than attempting to measure the leakage flowing out of it.

B69-10439

SIMPLE QUASI-EXPONENTIAL SLOPE GENERATOR

ANDERSON, T. O. HURD, W. J. DATE- SEP. 1969

NPO-11130

Circuitry for digitally generating an exponentially decaying wave function permits discrete values to be sampled from the exponential waveform for comparison with a binary number of specified accuracy. This exponential-decay generator employs a simple binary counter to count in the sequence of exponential decay.

B69-10440

TEMPERATURE-CONTROLLED RESISTOR

PERKINS, T. G. DATE- SEP. 1969

NPO-10713

Electrical resistance of a carbon-pile resistor is controlled by the compression or relaxation of a pile of carbon disks by a thermally actuated bimetallic spring. The concept is advantageous in that it is direct-acting, can cover a wide range of controllable characteristics, and can handle considerable power directly.

B69-10441

IMPROVED METHOD OF DICING INTEGRATED CIRCUIT WAFERS INTO CHIPS

LITANT, I. SCAPICCHIO, A. J. DATE- SEP. 1969

ERC-10138

Method employing a pressure chamber is used for dicing semiconductor single-crystal wafers, containing integrated circuits, into small chips along pre-scribed lines. Uniform bending of the scribed wafer over the convex surface of a perforated hemisphere, breaks it cleanly into individual chips without damaging the circuits.

B69-10443

THE QUANTASYN, AN IMPROVED QUANTUM DETECTOR

GORSTEIN, M. MC WILLIAMS, I. G. /MIT/ SEWARD, H. H. DATE- SEP. 1969

ERC-10148

Quantasyn provides absolute measurement of radiation flux in the range 1000 Å to 4500 Å and into the vacuum ultraviolet. This radiation detector combines the high quantum efficiency and inherent linearity of the silicon solar cell with the constant quantum response of the fluorescent organic compound lumogen.

B69-10445

CURRENT-SWITCHING TECHNIQUE FOR ANALOG PULSE CIRCUITS

LARSEN, R. N. DATE- SEP. 1969

ARG-10479

Circuit technique uses a signal diode as a series current-pass element. Technique is applied to the design of a biased amplifier circuit and a nanosecond-pulse stretcher circuit.

B69-10452

AUTOMATIC TUNING OF HYDROGEN MASERS

LEVINE, M. /HEWLETT-PACKARD/ VESSOT, R. DATE- NOV. 1969

GSFC-10127

Varying the density of the atoms in the cavity changes the Q of the atoms. When the cavity is mistuned, the density variation causes a frequency variation proportional to the degree of cavity mistuning.

B69-10453

MODULAR PACKAGING TECHNIQUE FOR COMBINING INTEGRATED CIRCUITS AND DISCRETE COMPONENTS

LACCHIA, J. P. /ELECTRO-OPTICAL SYSTEMS, INC./ DATE- SEP. 1969

GSFC-10369

Technique for packaging electronic modules interconnects integrated circuits and discrete components by means of beryllium-copper strips in a molded diallylphthalate tray. Simple girder-like construction provides ease of assembly, high rigidity, excellent vibration resistance, and good heat dissipation characteristics.

B69-10460

OPTIMIZING SOLAR-CELL GRID GEOMETRY

CROSSLEY, A. P. /RCA/ DATE- OCT. 1969

HQ-10417

Trade-off analysis and mathematical expressions calculate optimum grid geometry in terms of various cell parameters. Determination of the grid geometry provides proper balance between grid resistance and cell output to optimize the energy conversion process.

B69-10461

SYNCHRONOUS CHARGE-CONSTRAINED ELECTROQUASISTATIC GENERATOR

MELCHER, J. R. /MIT/ DATE- SEP. 1969

HQ-10231

Electroquasistatic generator depends on electroquasistatic interactions to provide synchronous operation. The generator employs a moving insulating belt, with an ac electric potential source to establish positively and negatively charged regions on the belt. The field effect of the charges on the belt creates an ac output voltage.

B69-10465

TECHNIQUE FOR PINPOINTING SUBMICRON PARTICLES IN THE ELECTRON MICROSCOPE

MILLER, E. L. /MC DONNELL DOUGLAS/ PHILLIPS, A. DATE- SEP. 1969

HQ-10043

Series of electron micrographs at successively lower magnifications can localize the substrate area sufficiently for a particle to be picked up by the beam of the electron microprobe. This approach could be modified to apply to fractographic studies, particularly of oxidation products stripped from fractures.

B69-10470

PREPARATION OF SUPERCONDUCTING THIN FILMS OF TRANSITION-METAL INTERSTITIAL COMPOUNDS

GAVALER, J. R. /WESTINGHOUSE ELEC. CORP./ DATE- OCT. 1969

HQ-10445

Sputtering technique forms transition-metal interstitial compounds into superconducting thin films having transition temperatures similar to those of the bulk materials. Since the magnetic-field and current-carrying properties of the films exceed those of the bulk materials, they may have applications other than in tunneling devices.

B69-10472

ELECTRONIC ANALOG EQUALIZATION FOR VIBRATIONAL TESTING

TRUBERT, M. R. P. DATE- DEC. 1969

NPO-10544

Method of real time equalization involving use of an analog computer achieves effective qualification testing by realistically simulating the effects of the vibrational forces which will actually be experienced in powered flight.

B69-10474

BREAKAWAY ELECTRICAL CONNECTOR

KATZIN, L. DATE- SEP. 1969

NPO-11140

One-shot, breakaway multiwire cable connector is fabricated by using a number of small-diameter interconnecting wires, each of which, differing incrementally in length, is welded to neighboring pin and cable terminations. This design

eliminates frictional binding and provides highly reliable cable interconnections until the connector is disengaged.

B69-10476
MAGNETIC FIELD MAPPER
MASTERS, R. M. STENGER, F. J. DATE- SEP. 1969
LEWIS-10782

Magnetic field mapper locates imperfections in cadmium sulphide solar cells by detecting and displaying the variations of the normal component of the magnetic field resulting from current density variations. It can also inspect for nonuniformities in other electrically conductive materials.

B69-10477
DEVICE FOR OBTAINING SEPARATION OF OXYGEN
GLUECKERT, A. J. /GEN. AM. TRANSPORTATION/
REMUS, G. A. DATE- SEP. 1969
LANGLEY-11007

Permeation membrane of a magnesium-nickel alloy of silver has the ability to permeate oxygen at high temperatures for an extended period of operation without failure. The measured rates of oxygen permeation in a tubular configuration of this alloy are higher than any previous rates published.

B69-10479
LITERAL READOUT OF IDENTIFICATION SIGNALS IN MORSE CODE
MEISSNER, C. W., JR. DATE- OCT. 1969
LANGLEY-10222

Instrument, designed for mounting in aircraft instrument panels, decodes identification signals received in Morse from VOR or ILS transmitters as they are received and displays the literal equivalent. Without elaboration it cannot decode numbers.

B69-10480
AN UNCONVENTIONAL MAGNETICALLY-COUPLED MULTIVIBRATOR
MOORE, E. T. /DUKE UNIV./ YU, Y. DATE- SEP. 1969
HQ-10226

Multivibrator circuit provides a low-frequency sine wave output without using a low-frequency power transformer or filter components. This circuit, utilizing two transistors and a magnetic core, represents a reduction in complexity, size, and weight over similar units.

B69-10481
IMPROVED PULSE SHAPE DISCRIMINATOR FOR FAST NEUTRON-GAMMA RAY DETECTION SYSTEM
LOCKWOOD, J. A. /NEW HAMPSHIRE UNIV./ ST. ONGE, R. DATE- SEP. 1969
HQ-10151

Discriminator in nuclear particle detection system distinguishes nuclear particle type and energy among many different nuclear particles. Discriminator incorporates passive, linear circuit elements so that it will operate over a wide dynamic range.

B69-10484
ADJUSTABLE THERMAL **TREE**
APPEL, B. H. /N. AM. ROCKWELL CORP./ HAWKINS, B. H. DATE- SEP. 1969
MSC-15556

Tree mounts 10 thermocouples on extensible arms to provide a reliable heat profile of conditions within heat treating devices, such as ovens and autoclaves, and within environmental test chambers.

B69-10487
PHASE-LOCKED-LOOP PHASE MODULATOR WITH HIGH MODULATION INDEX, LOW DISTORTION
BADSTIBNER, C. G. /RCA/ DATE- OCT. 1969
MSC-12247

Phase-locked-loop phase modulator has the capability of generating a 6.8 MHz carrier at modulation indexes as high as 2, with a distortion of the demodulated signal of less than 5 percent. These characteristics are obtained

without the use of multipliers.

B69-10490
FUSE PROTECTS CIRCUIT FROM VOLTAGE AND CURRENT OVERLOADS
CASEY, L. O. DATE- OCT. 1969
MSC-12135

Low-melting resistor connected in series with the load protects the circuit against current overloads. It protects test subjects and patients being monitored by electronic instrumentation from inadvertent overloads of current, and sensitive electronic equipment against high-voltage damage.

B69-10494
EPITAXIAL CRYSTALLINE GROWTH UPON COLD SUBSTRATES
LEBDUSKA, R. L. /PHYSICS TECHNOL. LAB., INC./
DATE- OCT. 1969
MSC-11196

By sputtering a material with a high-energy ion-beam bombardment, the molecules of the target can be dislodged and ejected for subsequent deposition on a cold substrate of the desired crystallographic type and orientation.

B69-10497
STEREO TV ENHANCEMENT STUDY
SPON- INNOVATOR NOT GIVEN /KOLLSMAN INSTRUMENT CORP./ DATE- SEP. 1969
M-FS-14805

Setting up an artificial situation using photographs of lunar-type terrain on a dual TV-type projection system determines the effectiveness of stereo TV presentations in allowing an operator to remotely control an extra-terrestrial vehicle.

B69-10498
FOLDED STICK MODULE
KATZIN, L. DATE- OCT. 1969
NPO-10854

Integrated circuit modules can be compactly assembled into short-run complex electronic assemblies by mounting them on a Stick module. This module provides a method of high-density packaging for industrial operations that require the fabrication of compact circuitry configurations.

B69-10502
ROTARY ANTENNA ATTENUATOR
DICKINSON, R. M. HARDY, J. C. DATE- OCT. 1969
NPO-10648

Radio frequency attenuator, having negligible insertion loss at minimum attenuation, can be used for making precise antenna gain measurements. It is small in size compared to a rotary-vane attenuator.

B69-10503
SIMPLIFIED, RELIABLE CIRCUIT SORTS BINARY NUMBERS IN ORDER OF MAGNITUDE
ANDERSON, T. O. DATE- OCT. 1969
NPO-10112

Circuit includes a single-word input/output register and a multiword serial memory which are circulated in synchronism. It puts out data at a rate compatible with relatively slow-speed electromechanical devices.

B69-10507
RADIOMETRIC TEMPERATURE REFERENCE
MONFORD, L. G., JR. DATE- OCT. 1969
MSC-13276

Radiometric Temperature Reference uses a thermistor as both a heating and sensing element to maintain its resistance at a preselected level to continuously control the power supplying it. The fixed infrared radiation level must be simple, rugged, and capable of high temperature operation.

B69-10512
CONSTANT-FREQUENCY, VARIABLE-DUTY-CYCLE MULTIVIBRATOR
JOHNSON, J. E. /MICHIGAN UNIV./ DATE- OCT. 1969
XGS-10033

01 ELECTRICAL (ELECTRONIC)

Circuit provides a pulse source of constant frequency with a duty cycle that is adjustable by an external input signal. It could serve as a switching mode voltage regulator or as a switching source for control systems.

B69-10513 IMPROVED SYSTEM FOR DOCUMENTING MEASUREMENT DATA

PETERSON, R. H. /N. AM. ROCKWELL CORP./ DATE- OCT. 1969
MSC-18269

New documentation method reduces each system record to the basic system data card, one system recorder card, and a form fill-in type system diagram. All recorder data cards are of identical format, requiring only one line of keypunch data input to prepare recorder listing cards for a system.

B69-10516 RATE OF HEAT EXTRACTION CONTROLLER FOR ENVIRONMENTAL CONTROL

ANNIS, J. F. /WEBB ASSOCIATES/ TROUTMAN, S. J. WEBB, P. DATE- SEP. 1969
HQ-10318

Automatic control device measures a physiological parameter related to heat production and conditions it to control the heat removal capacity of a watercooled environmental control suit.

B69-10523 AN INTERFEROMETER TRACKING RADAR SYSTEM

BRODERICK, R. F. DATE- OCT. 1969
MSC-10956

Fine tuning acquisition and tracking interferometer radar system uses a first antenna array of at least three receiving antennas. Array includes a reference antenna, a coarse tuning antenna, and a fine tuning antenna aligned on a receiving axis. Short range rendezvous system provides increased position accuracy.

B69-10526 COVER PROTECTS CRITICAL ELECTRICAL CONNECTORS AGAINST DAMAGE DURING HANDLING

CAMPOY, A. Z. /N. AM. ROCKWELL CORP./ DATE- OCT. 1969
MSC-15662

Split-half cover eliminates the surface marring and dirt penetration problems previously encountered during handling and cable assembly. Metal retaining ring slips over the two plastic halves to hold them in place.

B69-10533 GAS METAL ARC /GMA/ WELD TORCH PROXIMITY CONTROL

HAWKES, E. D. /N. AM. ROCKWELL CORP./ DATE- NOV. 1969
M-FS-16327

Adjustable transducer probe, which is attached to a welding torch and maintains a preset touch-to-work distance, accurately follows irregular surfaces, is less sensitive to heat and static interference, and has more positive response because of electro-mechanical control.

B69-10537 IMPROVED CAMERA FOR BETTER X-RAY POWDER PHOTOGRAPHS

PARRISH, W. /N. AM. PHILIPS CO./ VAJDA, I. E. DATE- NOV. 1969
HQ-10424

Camera obtains powder-type photographs of single crystals or polycrystalline powder specimens. X-ray diffraction photographs of a powder specimen are characterized by improved resolution and greater intensity. A reasonably good powder pattern of small samples can be produced for identification purposes.

B69-10538 DESIGN FOR A RAPID AUTOMATIC SYNC ACQUISITION SYSTEM

ANDERSON, T. O. GALLO, A. J. DATE- OCT. 1969
NPO-10214

System provides rapid command sync acquisition between widely separated transmitter-receivers.

It is based on a rapid, automatic range-adjustment approach rather than the time-consuming cycle slipping or stepping techniques of conventional phase-locked loops.

B69-10539 CIRCUIT BOARD HOLE COORDINATE LOCATOR CONCEPT

SAMUEL, L. W. /BOEING CO./ DATE- NOV. 1969
M-FS-14737

Fixed light source registers the x and y coordinates of holes in a fixed opaque template. A first surface parabolic mirror and a set of photocells are used to detect the passage of light through the individual holes.

B69-10546 SYNCHRONIZING REDUNDANT POWER OSCILLATORS

JENSON, K. J. /HONEYWELL, INC./ DATE- NOV. 1969
XGS-09377 XGS-09378

Outputs of oscillators are synchronized by summing the power transformer phase voltages, the summed voltages are applied to the frequency determining inductors of the individual voltage-controlled power oscillators. The beat frequency is eliminated when synchronization is achieved.

B69-10548 HIGH VOLTAGE PULSE GENERATOR

PIPPEN, D. L. DATE- OCT. 1969
MSC-12178

Generator has an improved circuit for generating a controllable, high voltage spark having a constant known energy output. It can be used for testing the flash and ignition characteristics of nonmetallic materials in a controlled gas environment.

B69-10550 MULTICHANNEL SPECTROSCOPY GUIDE

RÖTBE, D. E. /CORNELL AERONAUTICAL LAB., INC./ DATE- NOV. 1969
HQ-10441

System makes use of diverging duct walls for conducting the light from entrance slits to the conductors by means of multiple reflectors. This system simultaneously records, photoelectrically, the intensities of several closely spaced narrow wavelengths in the ultraviolet and infrared areas of the spectrum.

B69-10553 USE OF MEDICAL AND DENTAL X-RAY EQUIPMENT FOR NONDESTRUCTIVE TESTING

SPON- INNOVATOR NOT GIVEN /MANNED SPACECRAFT CENTER/ DATE- OCT. 1969
MSC-13389

Industrial X ray equipment is used for nondestructive testing to detect defects in metal joints, electrical terminal blocks, sealed assemblies, and other hardware. Medical and dental X ray equipment is also used for hardware troubleshooting.

B69-10557 ESTIMATION OF SIGNAL-TO-NOISE RATIOS

COUVILLON, L. A., JR. GILCHRIST, C. E. DATE- OCT. 1969
XNP-05254

Statistical method estimates signal-to-noise ratios in an observed random voltage, such as the output of a telemetry receiver. Signals from a distant transmitting source, overlaid by noise signals, are monitored continuously.

B69-10568 ELECTROOPTICAL SCANNING OF FILM

BILLINGSLEY, F. C. VOLKOFF, J. J. DATE- OCT. 1969
NPO-11106

Scan-in scan-out flying spot scanning system recognizes three different levels of transmissivity within a frame. It selectively acts on these levels either to intensify the illumination or to extend the duration of the illuminating spot to any picture element. Thus it improves the ratio of signal to tube noise in the cameras output.

B69-10569

**AUTOMATIC FREQUENCY CONTROL OF
VOLTAGE-CONTROLLED OSCILLATORS**
KOLBLY, R. B. DATE- OCT. 1969
NPO-11064

Optical-capacitive coupling is used for isolation of control voltages, such as the high-voltage level of a klystron control electrode that is not referenced to ground, to serve as error voltages referenced to system ground so that the magnitude and sense of correction may be transferred.

B69-10570

AUTOMATED PLOTTING OF EQUIPOTENTIALS
BUNKER, E. R., JR. DATE- NOV. 1969
NPO-11134

By substitution of resistance paper for normal plotting paper, an x-y plotter can be used to draw automatically the equipotential lines between components represented in planar form on the paper. This technique is used for high voltage electronic components of complex configuration for the prediction of stress in the intervening insulation.

B69-10578

**LOAD CURRENT SENSOR FOR A PULSE WIDTH
MODULATOR POWER REGULATOR**
HRON, R. L. /HONEYWELL, INC./ DATE- DEC. 1969
GSFC-10656

Circuit, using a pulse transformer, enables a sensor to operate for a short portion of the duty cycle. Current drawn from the load is minimized and high impedance is reflected to the load.

B69-10584

**MILLIMETER-WAVE ATMOSPHERIC LOSS PREDICTION
METHOD**
STELZRIED, C. T. DATE- NOV. 1969
NPO-11054

Relationship between atmospheric attenuation and the ground temperature and humidity provides a reference from which changes in temperature and humidity will produce a corresponding atmospheric loss figure. Computer program computes atmospheric loss due to water content, given the measured loss and ground temperature and humidity.

B69-10585

**BALLOON BATTERIES, CHARGED AND HEATED BY
SOLAR ENERGY**
SPON- INNOVATOR NOT GIVEN /HELPER, INC./ DATE-
NOV. 1969
GSFC-10769

Shielded heat-of-fusion material envelope collects and stores solar heat to maintain temperature during the night cycle at 30,000 feet. Spiral-wound fluoroplastic film structure has low density to avoid damage to aircraft in case of impact.

B69-10597

**AUTOMATIC STAR-HORIZON ANGLE MEASUREMENT
SYSTEM**
KORBER, K. KOSO, D. A. NARDELLA, P. C. DATE-
NOV. 1969
MSC-11585

Automatic star horizontal angle measuring aid for general navigational use incorporates an Apollo type sextant. The eyepiece of the sextant is replaced with two light detectors and appropriate circuitry. The device automatically determines the angle between a navigational star and a unique point on the earth's horizon as seen on a spacecraft.

B69-10601

CRYOGENIC PRESSURE TRANSDUCER
HENDRIX, J. M. DATE- NOV. 1969
M-FS-14909

Cryogenic pressure transducer utilizes a diaphragm which is electron beam welded to a fitting. This assembly is then heliarc welded to the main body of the transducer. The transducer requires no damping oil and thus is capable of operating at both cryogenic and high temperatures.

B69-10603

FLEXIBLE HIGH-VOLTAGE SUPPLY FOR

EXPERIMENTAL ELECTRON MICROSCOPE

CHAPMAN, G. L. JUNG, E. A. LEWIS, R. N. VAN
LOON, L. S. WELTER, L. M. DATE- OCT. 1969
ARG-10482

Scanning microscope uses a field-emission tip for the electron source, an electron gun that simultaneously accelerates and focuses electrons from the source, and one auxiliary lens to produce a final probe size at the specimen on the order of angstroms.

B69-10607

**SPRAYED SHIELDING OF PLASTIC-ENCAPSULATED
ELECTRONIC MODULES**
MULLER, A. N. /DOUGLAS AIRCRAFT CO./ DATE- NOV.
1969
M-FS-13570

Metallic coating directly sprayed on electronic modules provides simple and reliable lightweight protection against radio frequency interference. A plasma arc may be used. Aluminum and copper are the most effective metals.

B69-10612

**LIVE-TIMER METHOD OF AUTOMATIC DEAD-TIME
CORRECTION FOR PRECISION COUNTING**
PORGES, K. G. RUDNICK, S. J. DATE- OCT. 1969
ARG-10478

Automatic correction for dead time losses in nuclear counting experiments is implemented by a simple live timer arrangement in which each counting interval is extended for compensation for the dead time during that interval. This method eliminates repetitious manual calculations, source of error, and dependence upon paralysis shifts.

B69-10613

**ANALYSIS OF SECONDARY CELLS WITH
LITHIUM ANODES AND IMMOBILIZED
FUSED-SALT ELECTROLYTES**
CAIRNS, E. J. ROGERS, G. L. SHIMOTAKE, H. DATE-
OCT. 1969
ARG-10452

Secondary cells with liquid lithium anodes, liquid bismuth or tellurium cathodes, and fused lithium halide electrolytes immobilized as rigid pastes operate between 380 and 485 degrees. Applications include power sources in space, military vehicle propulsion and special commercial vehicle propulsion.

B69-10614

**HIGHLY STABLE HIGH-RATE DISCRIMINATOR FOR
NUCLEAR COUNTING**
ENGLISH, J. J. HOWARD, R. H. RUDNICK, S. J.
DATE- OCT. 1969
ARG-10483

Pulse amplitude discriminator is specially designed for nuclear counting applications. At very high rates, the threshold is stable. The output-pulse width and the dead time change negligibly. The unit incorporates a provision for automatic dead-time correction.

B69-10618

**IBM-1620 MONITOR 11-D DISK-STORAGE
SUBROUTINES**
KREJCI, H. F. DATE- OCT. 1969
ARG-10376

Set of subroutines provides the FORTRAN user with protected, permanent, disk storage of data on an IBM 1620 Monitor 11-D system. The program consists of a set of four subroutines and a utility program. It allows block data to be transferred directly between assigned core locations and disk storage.

B69-10621

**MANGANESE-56 COINCIDENCE-COUNTING FACILITY
PRECISELY MEASURES NEUTRON-SOURCE STRENGTH**
DE VOLPI, A. LARSEN, R. N. PORGES, K. G. A.
DATE- OCT. 1969
ARG-90261

Precise measurement of neutron-source strength is provided by a manganese 56 coincidence-counting facility using the manganese-bath technique. This facility combines nuclear instrumentation with coincidence-counting techniques to handle a wide variety of radioisotope-counting

requirements.

B69-10630

STORAGE OF ELECTRIC AND MAGNETIC ENERGY
IN PASSIVE NONRECIPROCAL NETWORKS
SMITH, W. E. DATE- NOV. 1969

ARG-10360

Examination of the relation of stored electric and magnetic energy within a system to the terminal behavior of nonreciprocal passive networks shows both similarities and important differences between wholly reciprocal systems and systems containing nonreciprocal elements.

B69-10631

SELF-DISCHARGE IN BIMETALLIC CELLS
CONTAINING ALKALI METAL

POSTER, M. S. HESSON, J. C. SHIMOTAKE, H. DATE-
NOV. 1969

ARG-10347

Theoretical analysis of thermally regenerative bimetallic cells with alkali metal anodes shows a relation between the current drawn and the rate of discharge under open-circuit conditions. The self-discharge rate of the cell is due to the dissolution and ionization of alkali metal atoms in the fused-salt electrolyte

B69-10639

DATA PROCESSING METHOD FOR A WEAK, MOVING
TELEMETRY SIGNAL

KENDALL, W. B. LEVY, G. S. NIXON, D. L. PANSON,
P. L. DATE- NOV. 1969

NPO-11003

Method of processing data from a spacecraft, where the carrier has a low signal-to-noise ratio and wide unpredictable frequency shifts, consists of analogue recording of the noisy signal along with a high-frequency tone that is used as a clock to trigger a digitizer.

B69-10640

PULSE-HEIGHT ANALYZER WITH DIGITAL READOUT
GOLDSWORTHY, W. W. /LAWRENCE RADIATION LAB./
DATE- NOV. 1969

ARG-10503

Feedback-controlled pulse-amplitude integrator and amplifier is used as an analog-to-digital converter that converts event-liberated charges, emanating from a nuclear-particle detector, directly to numbers rather than to analog-dependent voltages.

B69-10652

NEW TYPE PRESSURE TRANSDUCER FOR SEVERE
THERMAL ENVIRONMENTS

SPON- INNOVATOR NOT GIVEN /BATTELLE MEM. INST./
DATE- NOV. 1969

M-FS-20208

Pressure transducer used in a rocket motor chamber to measure the amplitudes and frequencies of dynamic pressures /exceeding 2000 psi/ occurring during unstable combustion. the transducer utilizes a transpirational cooled porous beryllium plug and pressure transmitting column.

B69-10653

WIND TOWER INFLUENCE STUDY

HATHORN, J. W. /BOEING CO./ DATE- DEC. 1969

M-FS-20239

Set of correction factors is applied to measured mean wind speed and direction so that close approximations of the mean speed and direction of the free stream wind can be obtained from a wind tower. A wind director sensor is employed to determine which sensor is windward of the tower and to engage it for monitoring the wind.

B69-10655

VERSATILE TELEMONITORING SYSTEM
FERGUS, R. W. DATE- NOV. 1969

ARG-10339

Small scale versatile multichannel telemonitoring can be installed economically with considerable expansion capabilities. This system contains a data transmitter, control transmitter, control receiver, display of readout units, a sync generator, and some remote control features.

B69-10665

DESIGN OF PRINTED CIRCUIT COILS

HIGGINS, W. T. /MIT/ DATE- DEC. 1969

HQ-10431

Spiral-like coil is printed with several extra turns which increase the realizable coil inductance. Included are shorting connections which not only short the extra turns, but also short out several turns of the main body. Coil tuning is accomplished by removing the shorts until the desired inductance is obtained.

B69-10666

MONOPOLE MASS SPECTROMETER WITH IMPROVED
SENSITIVITY AND REDUCED BACKGROUND

HERZOG, R. F. /GCA CORP./ DATE- DEC. 1969

HQ-10476

Monopole mass spectrometer is increased by nearly an order of magnitude when a weak external magnetic field is applied so that the ion beam is deflected towards the rod. This magnetic field eliminates background noise at the low end of the mass scale.

B69-10670

DEVICE FOR REFLOWING ELECTRODEPOSITED SOLDER
ON TERMINALS

JOHNSON, T. C. /N. AM. ROCKWELL CORP./ DATE-
DEC. 1969

M-FS-13821

Terminals are reflowed in a hot strata and solidified in a cooler strata, without physical contact with each other, any fixturing, or the container. Terminals are passed through the upper portion of a reflow flask containing hot peanut oil, and then through the lower portion containing oil at ambient temperatures.

B69-10671

CONTROL JET PLACEMENT ON SPACECRAFT

CRAWFORD, E. S. /MIT/ DATE- DEC. 1969

MSC-13365

For efficient operation and configuration design of multijet spacecraft control systems methods of linear programming are used to select combinations of individual jet-burn times which produce the desired impulses. Minimum-fuel and fuel-time solutions are found.

B69-10673

DISCRIMINATION OF FISH OIL AND MINERAL
OIL SLICKS ON SEA WATER

MAC DOWALL, J. /BARRINGER RES., LTD./ DATE- DEC.
1969

HQ-10412

Fish oil and mineral oil slicks on sea water can be discriminated by their different spreading characteristics and by their reflectivities and color variations over a range of wavelengths. Reflectivities of oil and oil films are determined using a dual beam reflectance apparatus.

B69-10676

TECHNIQUE FOR IMPROVING SOLID STATE
MOSAIC IMAGES

SABOE, J. M. /WESTINGHOUSE ELECTRIC CORP./
DATE- DEC. 1969

M-FS-20532

Method identifies and corrects mosaic image faults in solid state visual displays and opto-electronic presentation systems. Composite video signals containing faults due to defective sensing elements are corrected by a memory unit that contains the stored fault pattern and supplies the appropriate fault word to the blanking circuit.

B69-10677

MEASUREMENT TECHNIQUE FOR THE DETERMINATION
OF ANTENNA DIRECTIVITY

LIPIN, R. /SPERRY RAND CORP./ RAINWATER, L.
DATE- DEC. 1969

M-FS-12799

Measurement of great circle patterns requires rotation in azimuth with discrete rotation in elevation. This technique eliminates a set of slip-rings and rotary joints and permits the use of larger models since only continuous azimuth rotation is required.

B69-10678

MODIFICATION TO IMPROVE SELF-ISOLATING
TRANSISTOR ARRAYSFARNSWORTH, D. L. /WESTINGHOUSE ELECTRIC CORP./
DATE- DEC. 1969
M-FS-20499

Fabrication process improves the size ratio and shape factor of the base region of self-isolating transistor arrays. Basic processing steps in the modified method include sub-diffusion, epitaxial layer growth, isolation-diffusions, enhancement diffusions, aluminum interconnect deposition, and testing and packaging.

B69-10687

MICROELECTRONIC DEVICE DATA HANDBOOK

SPON- INNOVATOR NOT GIVEN /ARINC RES. CORP./
DATE- DEC. 1969
ERC-10322

Handbook provides general guidance to the technology of integrated circuits for readers with little or no experience. It does not supply solutions to specific design problems, but is heavily footnoted to the original sources.

B69-10689

REDUCING CONTACT RESISTANCE AT SEMICONDUCTOR
TO METAL OR ALUMINUM TO METAL INTERFACESKELLER, K. R. /RCA/ DATE- DEC. 1969
ERC-10254

Etchant containing chloroplatinous or chloroplatinic acid greatly reduces contact resistance between metallic surfaces. Etching results in a monolayer plating of platinum on the wafer surface, preventing oxide growth.

B69-10690

MINIATURE BACKWARD-DIODE PRESSURE SENSOR
FEATURES STABILITY AND LOW POWER CONSUMPTIONGARFEIN, A. RINDNER, W. DATE- DEC. 1969
ERC-10229

Backward-diode pressure transducer retains the advantages of a tunneling mechanism, requires no shunting resistor, operates at a low voltage level, and consumes little power.

B69-10691

CONDITIONING OF PULSES FROM AEROSOL-PARTICLE
DETECTORSBOWIE, J. E. MARTIN, C. T. DATE- DEC. 1969
ERC-10250

Pulse-conditioner translates pulses generated by aerosol-particle detectors to a form acceptable by commercially available pulse height analyzers designed for nuclear-energy spectroscopy.

B69-10695

PCM SYNCHRONIZATION BY WORD STUFFING

BUTMAN, S. DATE- DEC. 1969
NPO-10688

When a transmitted word, consisting of a number of pulses, is detected and removed from the data stream, the space left by the removal is eliminated by a memory buffer. This eliminates the need for a clock synchronizer thereby removing instability problems.

B69-10697

A STERILIZABLE HIGH-IMPACT ANTENNA

WOO, K. E. DATE- DEC. 1969
NPO-10231

Rectangular cup antenna withstands indirect impacts up to 10,000g and direct impacts up to 250 ft/sec of impact velocity and provides radiation of selected polarization and beam shape. It has high radiating efficiency, and relatively broad bandwidth.

B69-10699

PULSED HIGH-VOLTAGE DC RF SPUTTERING

PRZYBYSZEWSKI, J. S., JR. SHALTENS, R. K. DATE-
DEC. 1969
LEWIS-10920

Sputtering technique uses pulsed high voltage direct current to the object to be plated and a radio frequency sputtered film source. Resultant film has excellent adhesion, and objects can be plated uniformly on all sides.

B69-10713

VACUUM GAGE CALIBRATION SYSTEM FOR 10 TO THE
MINUS 8TH POWER TO 10 TORRHOLANDA, R. DATE- DEC. 1969
LEWIS-11032

Calibration system consists of a gas source, a source pressure gage, source volume, transfer volume and test chamber, plus appropriate piping, valves and vacuum source. It has been modified to cover as broad a range as possible while still providing accuracy and convenience.

B69-10722

DEPOSITION MONITOR AND CONTROL

SALISBURY, S. S. DATE- DEC. 1969
NPO-10706

Two quartz crystal oscillators monitor and control the thickness and the rate of thin film deposition. The outputs of both oscillators, one exposed to mass and heat and the other exposed only to heat, were mixed and the difference frequency was used as the indication of film thickness.

B69-10725

POCKET-SIZED TONE-MODULATED FM TRANSMITTER

COUVILLON, L. A. DATE- DEC. 1969
NPO-11180

Pressure of a button on a crystal-controlled transmitter causes generation of a tone. The tone modulates the FM transmitter which in turn radiates by way of the enclosed loop antenna, through the radio-frequency-transparent wall of the transmitters case to the receiver.

B69-10731

APPLICATION OF CRYPTANALYTIC TECHNIQUES TO

THE ANALYSIS OF NUCLEAR SPACE BATTERIES

EPSTEIN, S. /HAUCHLY ASSOCIATES, INC./ HAUCHLY,
J. WAITE, J. DATE- DEC. 1969
GSFC-10569

By using Bi-gram and Tri-gram tables, a pattern can be formed to determine failure modes and mechanisms. Computer programs provide accurate predictions of cell failure several thousand cycles before actual failure.

B69-10732

CONTROLLED SUBSTRATE COOLING IMPROVES

REPRODUCIBILITY OF VAPOR DEPOSITED

SEMICONDUCTOR COMPOSITES

CLOUGH, R. /RCA/ RICHEN, D. TIETJEN, J. DATE-
DEC. 1969
ERC-10161

Improved substrate holder preferentially provides more uniform substrate cooling and increases the proportion of vapor flowing over the substrate during growth. Nitrogen gas is constricted in the substrate holder to cool the substrate.

B69-10734

A SIMPLE ELECTROMETER FOR MEASURING SMALL

PHOTOELECTRIC CURRENTS

SPON- INNOVATOR NOT GIVEN /AM. MACHINE AND
FOUNDRY CO./ DATE- DEC. 1969
GSFC-10603

Quartz-fiber direct-indicating pocket dosimeter is a small-current integrating electrometer. By attaching the photocathode to the quartz fiber terminal and the photoelectron collector to the barrel of the dosimeter and by charging the device to 150 V, a small-current measuring device can be achieved.

B69-10736

PHOTOMICRONETROLOGY

YOUNG, F. L. /N. AM. ROCKWELL CORP./ DATE- DEC.
1969
M-FS-14556

Photomicrometrology combines microphotography with standard measuring techniques. The negative of a photograph taken through a microscope at a predetermined level of magnification is overlaid on an optical scale of the same magnification. This technique is successful in measurements to 25 microinches.

B69-10741

LATERAL PNP BIPOLAR TRANSISTOR WITH

02 PHYSICAL SCIENCES (ENERGY SOURCES)

AINING FIELD DIFFUSIONS

GALLAGHER, R. C. /WESTERN ELECTRIC CORP./ MC
CANN, D. H. DATE- DEC. 1969
MSC-13072

Fabrication technique produces field aided lateral PNP transistors compatible with micropower switching circuits. The sub-collector diffusion is performed with phosphorus as the dopant and the epitaxy is grown using the higher temperature silicon tetrachloride process.

B69-10742

AN ELECTRICAL CONNECTOR PIN PROTECTOR
MC QUILLLEN, R. B. /N. AM. ROCKWELL CORP./
MITCHELL, G. R. DATE- DEC. 1969
MSC-15660

Spring loaded insert protects electrical connector pins from being bent due to improper mating, or probing the pins with a screwdriver. This device modifies existing electrical connectors using only springs and retaining pins.

B69-10746

OPTICAL FREQUENCY WAVEGUIDE AND ION
TRANSMISSION SYSTEM
CHIAO, R. Y. /MIT/ TOWNES, C. H. DATE- DEC.
1969
HQ-10541

Electromagnetically generated, high-dielectric tube forms a waveguide which retains the electromagnetic energy within the beam, the trapped beam establishes an optical frequency waveguide appropriate for its own conduction with minimum diffraction loss.

B69-10747

BATTERY CHARGE-DISCHARGE CONTROLLER
CICCANTI, A. D. /BOEING CO./ DATE- DEC. 1969
MSC-11836

Charge-discharge controller contains punched-tape programmer capable of programming 305 discrete steps in the battery load. The indicating instrumentation includes meters for ampere-hours, watt-hours, voltage, current, and internal temperature and pressure. It also generates analog signals for recording the displayed data.

B69-10748

SYSTEM CONVERTS SLOW-SCAN TO STANDARD
FAST-SCAN TV SIGNALS
LIPOMA, P. C. /LOCKHEED ELECTRONICS CORP./ TE
POEL, H. E. DATE- DEC. 1969 REAN- SEE ALSO
B67-10676
MSC-90534

Signal conversion system converts slow-scan video signals into standard fast-scan television signals that are required for reproduction of television pictures on American TV sets. This system permits conversion of TV pictures produced in accordance with the standards of one country into the standards of another country.

B69-10750

PULSE-CODE-MODULATION BASELINE CORRECTION
FOR LOW SIGNAL-TO-NOISE RATIOS
STEPHENS, T. J. /TRW SYSTEMS GROUP/ DATE- DEC.
1969
MSC-13268

Time-shared integrate-hold-dump circuits separate the dc level due to the signal /bit information/ from the dc signal due to the baseline error. The system detects the baseline error, filters it, and then algebraically adds enough voltage to a servo loop to reduce the error to zero.

B69-10756

SEISMOGRAPHIC RECORDING OF LARGE ROCKET
ENGINE OPERATION
DALINS, I. MC CARTY, V. DATE- DEC. 1969
M-FS-20545

Recording equipment for rocket engine vibration is adaptable to determining the structural strength of building materials. This seismographic system is portable and is capable of measuring displacements in the direction of three mutually perpendicular axes.

B69-10764

DYNAMIC CALIBRATION OF TURBINE FLOWMETERS

STEVENS, G. H. DATE- DEC. 1969
LEWIS-11014

Turbine flowmeters are calibrated dynamically by means of frequency response tests, provided small perturbations are used. The indicated flow is related to the actual flow by a first order lag function. This lag function is completely defined by the breakpoint frequency which is directly proportional to mean flow rate.

B69-10776

SOLAR ACTIVITY HISTORY MODEL
MC KOWEN, P. /MARTIN MARIETTA CORP./ DATE- DEC.
1969
M-FS-20529

Solar activity model provides information on plages, sunspots, filaments, and flares. The model enables scheduling, which will indicate the time periods when solar experiments can be conducted. Data were collected at various locations throughout the world and recorded on tape for the computer.

B69-10782

EXPLODING BRIDGEWIRE DETONATOR SIMULATOR
SULLIVAN, R. B. TAPLEY, R. C. /DOUGLAS
AIRCRAFT CO., INC./ DATE- DEC. 1969
M-FS-02191

Tests indicate that electric detonator simulators of the exploding bridgewire type will not fire as a result of the application of a direct current power of one watt for 5 minutes. The detonator also will not fire if the protective gap fails and the firing stimulus is inadvertently applied.

B69-10807

INVESTIGATION OF THE DEVELOPMENT OF CRACKS
IN SOLDER JOINTS
MOORE, R. L. /SPERRY RAND CORP./ VINSON, R. J.
DATE- DEC. 1969
M-FS-20444

Study consisted of an analytical approach, in which a mathematical model of existing printed circuit board component mounting techniques was analyzed, and an empirical investigation was performed to determine the extent of damage caused by temperature cycling of the printed circuit boards.

02 PHYSICAL SCIENCES (ENERGY SOURCES)

B63-10260

SOLAR-ANGLE SENSOR HAS NO MOVING PARTS
EXNER, D. W., JR. HEISENHOLDER, G. W. SCHMIDT,
L. F. DATE- MAY 1964
JPL-418

To measure the direction of the sun over a spherical field of view, a cube-shaped solar sensor with a photocell on each side is used. The outputs from the six cells are fed into a computer for determining the position of the sun relative to an orthogonal coordinate system.

B63-10344

COOLING METHOD PROLONGS LIFE OF HOT-WIRE
TRANSDUCER
BALDWIN, L. V. SANDBORN, V. A. DATE- JUN. 1964
LEWIS-41

To cool a hot-wire transducer, the two ends of the wire are supported on thermally and electrically conductive rods, surrounded by a fluid cooling medium. By keeping the supporting rods at a substantially constant temperature, the probe is prevented from overheating.

B63-10346

NEW METHOD USED TO FABRICATE LIGHT-WEIGHT HEAT
EXCHANGER FOR ROCKET MOTOR
BAEHR, E. F. DATE- MAR. 1964
LEWIS-43

A grooved capstrip, to straddle the metal edges of regenerative cooling channels, increases the strength and heat transfer characteristics of lightweight motor cases. This capstrip is so designed as to form a firm joint between the

channels that form the rocket casing wall.

B63-10421
MIRROR DEVICE ALIGNS MACHINE SURFACE
PERPENDICULAR TO SIGHT LINES
KISSLER, H. R. /RCA/ DATE- MAY 1964
WOO-5

A sight alignment device is used to align two machines so that an axis of the first machine is parallel to a flat surface on the second. This sighting device depends on the reflection of a light beam from the surface to be aligned.

B65-10036
IONIZATION VACUUM GAGE STARTS QUICKLY, IS
UNAFFECTED BY SPURIOUS CURRENTS
GARWOOD, D. C. DATE- FEB. 1965
JPL-304

Ionization vacuum gage with a switch-operated starting device and a microammeter begins functioning quickly in a high vacuum. The microammeter is also protected by its circuit design from spurious currents.

B65-10046
WIDE-APERTURE SOLAR ENERGY COLLECTOR IS LIGHT
IN WEIGHT
SPON- INNOVATOR NOT GIVEN /BECKMAN INSTRUMENTS/
DATE- FEB. 1965
JPL-SC-055

By mounting the Fresnel lens in eight steps above three paraboloidal reflector rings of epoxy resin with aluminized surfaces, a light weight, wide-aperture solar energy collector is devised.

B65-10071
SIMPLE OPTICAL SYSTEM USED TO ALIGN
SPECTROGRAPH
EXTON, R. J. DATE- MAR. 1965
LANGLEY-92

Optically fast, portable spectrograph incorporates auxiliary optics in a boresight technique to use the zero order of the grating for visual alignment. This device obtains moderately resolved spectra of a multitude of light sources.

B65-10081
MAGNETIC FIELD TEST COILS ARE TEMPERATURE
COMPENSATED
SPON- INNOVATOR NOT GIVEN /SPECTRA PHYS./ DATE-
APR. 1965
GSPC-294

Magnetic field test coils with auxiliary winding wound opposite to main coil winding eliminates changes in field configurations due to temperature changes. The auxiliary coil is made with aluminum wire.

B65-10082
MULTIPLE ELEMENT SOFT X-RAY SOURCE PRODUCES
WIDE RANGE OF RADIATION
CARUSO, A. J. NEUBERT, W. M. DATE- MAR. 1965
GSFC-286

A rotating mount with target elements positioned independently for direct electron bombardment produces soft X ray radiation with a wide range of characteristics. The device may be used to study solar radiation from a satellite.

B65-10084
MODIFIED CONTOUR PROJECTOR MAKES EXCELLENT
CONTOUR DENSITOMETER
EXTON, R. J. DATE- MAR. 1965
LANGLEY-93

Thin glass beam splitter, densitometer head, and densitometer electronics are incorporated in a standard contour projector. The density contour of small areas of photographic film can be read. This instrument can be used as a research tool in process engineering.

B65-10100
ROTATING FILTERS PERMIT WIDE RANGE OF OPTICAL
PYROMETRY
EXTON, R. J. SIVITER, J. H., JR. STRASS, R. K.
DATE- APR. 1965
LANGLEY-33

Gear-driven dual filter disks of graduated density vary linearly with respect to rotation, allowing

a wide range of photographic pyrometry. This technique is applicable in metallurgy, glass, plastics and refractory research, and crystallography.

B65-10122
MICROWAVE TECHNIQUE MEASURES PLASMA
CHARACTERISTICS
LEONARD, W. F. DATE- APR. 1965
LANGLEY-134

Plasma electron density and temperature distribution are measured by passing a high frequency millimeter wave through plasma. Variations in density and temperature are determined by measuring insertion loss as the plasma travels between the microwave transmitting and receiving antennas.

B65-10129
APPARATUS PERMITS FLEXURE TESTING OF SPECIMENS
AT CRYOGENIC TEMPERATURES
DENABURG, C. R. REECE, O. Y. DATE- MAY 1965
N-F5-257

Cryostat with support structure for test specimen allows flexure fatigue testing of honeycomb composite sandwich structures at cryogenic temperatures. The cryostat consists of a cryogen container enclosing two pairs of yokes which support two rotating end clamps.

B65-10132
SIMPLE CIRCUIT POSITIONS FILM FRAMES IN
PROJECTOR
SILVER, R. H. DATE- MAY 1965
JPL-508

Individual frames on a photographic film strip in a projector are automatically positioned by a simple circuit. The circuit uses a photodiode that senses frame registry position and a relay that stops the film-advance motor to suspend the film at point of registry.

B65-10133
PROBE MEASURES CHARACTERISTICS OF HOT GAS
STREAM
SPON- INNOVATOR NOT GIVEN /PLASMA DYNE CORP./
DATE- MAY 1965
N-F5-240

Shielded, tubular flow calorimeter operated by valve position measures characteristics of a hot gas stream of unknown composition. Measurements of mass flow density and total heat content per unit mass, total heat content per unit mass only, and pitot pressure are made.

B65-10157
INTERNAL COOLING INCREASES RANGE OF
IMMERSION-TYPE TEMPERATURE PROBE
LANZO, C. D. DATE- JUN. 1965
LEWIS-171

Temperature probe used in a high temperature, high velocity gas stream consists of cooled outer shell and a cooled platinum sensing tube with iron constantan thermocouples.

B65-10171
FRESNEL ZONE PLATE FORMS IMAGES AT WAVELENGTHS
BELOW 1000 ANGSTROMS
SPON- INNOVATOR NOT GIVEN /SMITHSONIAN INST./
DATE- JUN. 1965
GSFC-231

Fresnel zone plate with openings replacing the usual transparent rings produces images in a vacuum ultraviolet. The plate is made by etching and electrodeposition.

B65-10186
ELECTRONIC MODULES EASILY SEPARATED FROM HEAT
SINK
SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC.
CORP./ DATE- JUN. 1965 REAN- SEE ALSO B63-10033
MSC-142

Metal heat sink and electronic modules bonded to a thermal bridge can be easily cleaved for removal of the modules for replacement or repair. A thin film of grease between a fluorocarbon polymer film on the metal heat sink and an adhesive film on the modules acts as the cleavage plane.

02 PHYSICAL SCIENCES (ENERGY SOURCES)

B65-10188

REFRACTORY METAL SHIELDING /INSULATION/
INCREASES OPERATING RANGE OF INDUCTION FURNACE
EBIHARA, E. T. DATE- JUN. 1965
LEWIS-202

Thermal radiation shield contains escaping heat from an induction furnace. The shield consists of a sheet of refractory metal foil and a loosely packed mat of refractory metal fibers in a concentric pattern. This shielding technique can be used for high temperature ovens, high temperature fluid lines, and chemical reaction vessels.

B65-10211

LIGHT RAY MODULATION CONTROLS OPTICAL SYSTEM ALIGNMENT

SPON- INNOVATOR NOT GIVEN /KOLLSMAN INSTR. CORP./
DATE- JUL. 1965
GSFC-171

Light ray modulator maintains focus in optical system subject to severe thermal gradients, vibration and shock. The modulated signals drive a servo system that aligns the system optics.

B65-10224

HEATER DECOMPOSES OIL BACKSTREAMING FROM HIGH-VACUUM PUMPS

SHAPIRO, H. DATE- AUG. 1965
GSFC-356

Heater placed between an oil diffusion pump and a vacuum chamber prevents backstreaming of oil molecules into the work area of the chamber. It breaks the oil molecules into basic constituents that can be pumped away.

B65-10239

ION PUMP PROVIDES INCREASED VACUUM PUMPING SPEED

SPON- INNOVATOR NOT GIVEN /GEOPHYS. CORP. OF AM./
DATE- AUG. 1965
NEO-13

Multiple-cell ion pumps with increased vacuum pumping speed are used for producing ultrahigh vacuums in vacuum tubes and mass spectrometers. The pump has eight cathode-anode magnetron cells arranged in a cylinder which increase the surface area of the cathode.

B65-10240

INSULATION ACCELERATES RATE OF COOLING WITH CRYOGENIC FLUID

ALLEN, L. D. DATE- AUG. 1965
MSC-161

Thermal insulating material increases the rate of heat transfer from the interior of a chamber to a liquid nitrogen-filled metal jacket. A thin film of the material is bonded to the surface of the metal wall facing the liquid nitrogen.

B65-10252

DISTANT OBJECTS DETECTED VISUALLY WITH OPTICAL FILTERS

SPON- INNOVATOR NOT GIVEN /LANGLEY/ DATE- AUG. 1965
LANGLEY-166

Fluorescent coating aids visual daylight detection and identification of distant objects. An object appears as a blinking light when the area is alternately scanned with transmitting and obscuring filters. This method can be effective in search and rescue operations.

B65-10253

OIL-DAMPED MERCURY POOL MAKES PRECISE OPTICAL ALIGNMENT TOOL

THEKAKARA, M. P. DATE- AUG. 1965
GSFC-353

Mercury pool with a cover layer of high viscosity oil provides a reference reflector for precise alignment of optical instruments. The cover layer effectively damps any ripples in the mercury from support structure vibrations.

B65-10272

INFRARED SHIELD FACILITATES OPTICAL PYROMETER MEASUREMENTS

EICHENBRENNER, F. F. ILLG, W. DATE- SEP. 1965
LANGLEY-133

Water-cooled shield facilitates optical pyrometer high temperature measurements of small sheet metal specimens subjected to tensile stress in fatigue tests. The shield excludes direct or reflected radiation from one face of the specimen and permits viewing of the infrared radiation only.

B65-10280

ELECTRON BOMBARDMENT IMPROVES VACUUM CHAMBER EFFICIENCY

PRZYBYSZESKI, J. SWIKER, M. A. WATSON, J.
DATE- SEP. 1965
LEWIS-160

Bombardment of vacuum chamber walls by an electron gun within the chamber achieves greater efficiency with less cost. The ultimate vacuum reached using the gun is greater than the system design level.

B65-10283

ELECTRON-BEAM DEFLECTION CONTROLLED BY DIGITAL SIGNALS

CRESSEY, J. R. DATE- SEP. 1965
GSFC-385

Electron-beam deflection in electronic image converters is controlled by a tapped magnetic deflection yoke and a series of current generators. The generators supply equal current to each tap through digitally controlled switches, thereby increasing the inherent accuracy of the system.

B65-10291

SPIRALED CHANNELS IMPROVE HEAT TRANSFER BETWEEN FLUIDS

HIGA, W. WIEBE, E. R. DATE- OCT. 1965
JPL-694

Spiral flow channels increase heat transfer between two fluids in a countercurrent heat exchanger of given volume. The heat exchanger is constructed by connecting a spiraled bellows-shaped ducting between two concentric cylindrical tubes.

B65-10292

INTERFEROMETER CONSTRUCTION ASSURES PARALLELISM OF CRITICAL COMPONENTS

CONNES, P. DATE- OCT. 1965
JPL-704

Interferometer with rigidly mounted components assures parallelism of critical components. The interferometer is constructed for effective operation even if the total instrument is subjected to mechanical stress.

B65-10295

UNIQUE CONSTRUCTION MAKES INTERFEROMETER INSENSITIVE TO MECHANICAL STRESSES

BEER, R. DATE- OCT. 1965
JPL-725

Michelson-type interferometer with a cat-eye reflector operates effectively even in the presence of random mechanical stresses. A cubical beamsplitter with dichroic surfaces permits operation in infrared or visible light.

B65-10296

COAXIAL CAPACITOR USED TO DETERMINE FLUID DENSITY

ATKISSON, E. A. DATE- OCT. 1965
LEWIS-232

Sensing device measures directly the density of compressible fluid existing simultaneously in both liquid and gaseous phases. The device is comprised of a capacitor connected as one leg of a bridge circuit, a power source, and an indicator calibrated to indicate density as a direct measurement.

B65-10297

SUPERCONDUCTOR SHIELDS TEST CHAMBER FROM AMBIENT MAGNETIC FIELDS

HILDEBRANDT, A. F. DATE- OCT. 1965
JPL-627

Shielding a test chamber for magnetic components enables it to maintain a constant, low magnetic field. The chamber is shielded from ambient magnetic fields by a lead foil cylinder maintained in a superconducting state by liquid helium.

B65-10330

WEDGE IMMERSSED THERMISTOR BOLOMETER MEASURES INFRARED RADIATION

DREYFUS, M. G. /BARNES ENG. CO./ DATE- NOV. 1965
GSFC-443

Wedge immersed-thermistor bolometer measures infrared radiation in the atmosphere. The thermistor flakes are immersed by optical contact on a wedge-shaped germanium lens whose narrow dimension is clamped between two complementary wedge-shaped germanium blocks bonded with a suitable adhesive.

B65-10331

CLOSED FLUID SYSTEM WITHOUT MOVING PARTS CONTROLS TEMPERATURE

STENGER, P. J. DATE- NOV. 1965
LEWIS-222

Closed fluid system maintains a constant temperature in an insulated region without the use of any moving parts. Within the system, the energy for thermodynamic cycling of two-phase heat transfer fluid and a hydraulic fluid is entirely supplied by the heat generated in the thermally insulated region.

B65-10356

SEGMENTED ELECTRODE INCREASES OPERATING PRESSURE OF MHD ACCELERATOR

SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ DATE- NOV. 1965
LANGLEY-95

Circumferentially segmented-ring electrode replaces the solid-ring electrode in a basic magnetohydrodynamic (MHD) accelerator. This produces diffuse discharges at pressures as high as 100 atmospheres.

B65-10368

VACUUM CHAMBER PROVIDES IMPROVED INSULATION AND SUPPORT FOR CRYOSTAT

SPON- INNOVATOR NOT GIVEN /GE/ DATE- DEC. 1965
M-FS-415

Taut wires in an evacuated cylinder minimize heat transfer through the walls and junctions of a liquid-helium-filled cryostat by suspending the cryostat.

B65-10373

MODIFIED PROCEDURE SPEEDS CAMERA COPY LAYOUT FOR OFFSET PRINTING

SMITH, L. F. DATE- DEC. 1965
GSFC-424

Projecting a grid pattern on a steel layout board facilitates the alignment of camera copy for photo-offset reproduction. Small flat bar magnets fasten the copy to the board.

B65-10395

OPTICAL OUTPUT ENHANCES FLOWMETER ACCURACY

WOLPIN, E. G. /N. AM. AVIATION/ DATE- DEC. 1965
M-FS-482

Magnetic flowmeter with a direct-coupled optical output increases accuracy and operates independently of other system inputs. The design includes simple external adjustment and signal amplitude control.

B66-10004

COPPER FOIL PROVIDES UNIFORM HEAT SINK PATH

PHILLIPS, I. E., JR. SCHREIBANS, F. A. /N. AM. AVIATION/ DATE- JAN. 1966
MSC-262

Thermal path prevents voids and discontinuities which make heat sinks in electronic equipment inefficient. The thermal path combines the high thermal conductivity of copper with the resiliency of silicone rubber.

B66-10008

AUTOMATIC FLUID SEPARATOR SUPPLIES OWN DRIVING POWER

DECKER, M. S. MAJNERI, L. A. SPULGIS, I. S. /MIDLAND-ROSS CORP./ DATE- JAN. 1966
WOO-085

Centrifugal separator suspended in the fuel tank of a space vehicle selects and vents gas vapor at zero gravity. Escaping vapor is used to drive an expander turbine that is magnetically coupled to

the separator.

B66-10010

OPTICAL PROJECTORS SIMULATE HUMAN EYES TO ESTABLISH OPERATOR'S FIELD OF VIEW

BEAM, R. A. /N. AM. AVIATION/ DATE- JAN. 1966
WOO-250

Device projects visual pattern limits of the field of view of an operator as his eyes are directed at a given point on a control panel. The device, which consists of two projectors, provides instant evaluation of visual ability at a point on a panel.

B66-10016

SINGLE PROJECTOR ACCOMMODATES SLIDES OF DIFFERENT SIZE AND FORMAT

GATES, G. H. DATE- JAN. 1966
GSFC-439

Projector with two adjustable external units accommodates slides of different size and format. One external unit is the holder for different size slides and includes mounting means for appropriate condensing lens and heat filters. The other unit is a turret lens assembly. The machine is easily adaptable to rear-screen and front-screen projection over various distances.

B66-10017

PTFE-ALUMINUM FILMS SERVE AS NEUTRAL DENSITY FILTERS

BURKS, H. D. DATE- JAN. 1966
LANGLEY-189

Polytetrafluoroethylene (PTFE) films coated with aluminum films act as neutral density filters in the wavelength range 0.3 to 2.1 microns. These filters are effective in the calibration of photometric systems.

B66-10045

COMPLEMENTARY SYSTEM VAPORIZES SUBCOOLED LIQUID, IMPROVES TRANSFORMER EFFICIENCY

KETAILY, E. C. /N. AM. AVIATION/ DATE- FEB. 1966
M-FS-550

Complementary system converts subcooled liquid hydrogen or nitrogen to gas. The inherent induction heat losses of an electrical transformer are used in the vaporizing process. Transformer efficiency is improved in the process.

B66-10058

CALORIMETER ACCURATELY MEASURES THERMAL RADIATION ENERGY

ANDERSON, W. W., JR. MILLER, H. B. SWEET, G. E. DATE- FEB. 1966
LANGLEY-173

Calorimeter accurately measures steady-state and transient, low-level thermal radiation energy. The calorimeter uses a compensating shield between the sensor and the calorimeter mount to intercept sensor heat losses and to provide a reference for determining a correction factor.

B66-10060

THIN CARBON FILM SERVES AS UV BANDPASS FILTER

SPON- INNOVATOR NOT GIVEN /GEOPHYS. CORP. OF AM./ DATE- FEB. 1966
ERC-8

Thin carbon film deposited on a 70 percent transparent screen provides a filter for narrow-band detectors in the extreme ultraviolet. The filter also suppresses scattered light and light of unwanted orders in vacuum spectrographs.

B66-10072

BEAM SPLITTER USED IN DUAL FILMING TECHNIQUE

ZELDIN, S. /N. AM. AVIATION/ DATE- FEB. 1966
M-FS-501

Tubular tee is intersected at its junction by a reflecting/transmitting mirror angled to provide two images of an object for simultaneous photographing from two positions. This method is used when space and focal conditions are limited.

B66-10075

SPECIMEN HOLDER DESIGN IMPROVES ACCURACY OF X-RAY POWDER ANALYSIS

MACK, M. /N. AM. PHILLIPS CORP./ DATE- FEB. 1966
JPL-SC-165

02 PHYSICAL SCIENCES (ENERGY SOURCES)

Specimen holder for X ray diffraction analysis presents the specimen to the incident X rays in a curvature. This permits the use of an X ray beam having a larger divergence angle, the beam intensity is increased, and the statistical accuracy of analysis is improved.

B66-10079

HIGH-PRESSURE, LOW TEMPERATURE ELECTRICAL CONNECTOR MAKES NO-LEAK SEAL

WEAKLEY, J. F. /N. AM. AVIATION/ DATE- MAR. 1966
MSC-276

Flow control of cryogenic liquids is achieved through use of an electrical feed-through connector with a solenoid-type valve. To prevent gas leakage, the connector is designed and structured so that extremely high pressure and low temperatures contribute to its sealing properties.

B66-10086

SCREEN OF CYLINDRICAL LENSES PRODUCES STEREOSCOPIC TELEVISION PICTURES

WORK, C. L. /SPACO, INC./ DATE- MAR. 1966
M-FS-273

Stereoscopic television pictures are produced by placing a colorless, transparent screen of adjacent parallel cylindrical lenses before a raster from two synchronized TV cameras. Alternate frames from alternate cameras are displayed. The viewers sensory perception fuses the two images into one three-dimensional picture.

B66-10095

ULTRAVIOLET PHOTOGRAPHIC PYROMETER USED IN ROCKET EXHAUST ANALYSIS

LEVIN, B. P. /N. AM. AVIATION/ DATE- MAR. 1966
M-FS-499

Ultraviolet photographic pyrometer investigates the role of carbon as a thermal radiator and determines the geometry, location, and progress of afterburning phenomena in the exhaust plume of rocket engines using liquid oxygen/RP-1 as propellant.

B66-10096

INEXPENSIVE INFRARED SOURCE IMPROVED FROM FLASHLIGHT

SPON- INNOVATOR NOT GIVEN /FAIRCHILD HILLER CORP./ DATE- MAR. 1966
M-FS-494

Inexpensive hand-held source of infrared energy is provided by a flashlight bulb coated with a paint which filters out the visible light emitted by the bulb and transmits only infrared radiation. This device can be used for checking infrared sensors and for experimental purposes.

B66-10098

NEW ENERGY STORAGE CONCEPT USES TAPES

GRUBER, A. KAFESJIAN, R. R. /MONSANTO RES. CORP./ DATE- MAR. 1966
LEWIS-239

Energy storage system uses movable permeable tapes with cathode and electrolyte material that is drawn across an anode to produce electric power. The system features long shelf life, high efficiency, and flexible operation.

B66-10108

PLASTIC SCINTILLATOR CONVERTS STANDARD PHOTOMULTIPLIER TO ULTRAVIOLET RANGE

SPON- INNOVATOR NOT GIVEN /GEOPHYS. CORP. OF AM./ DATE- MAR. 1966
ERC-9

Commercially available plastic scintillators are attached to the glass windows of standard photomultiplier tubes for detection of ultraviolet radiation.

B66-10114

HIGHLY SENSITIVE SOLIDS MASS SPECTROMETER USES INERT-GAS ION SOURCE

SPON- INNOVATOR NOT GIVEN /GEOPHYS. CORP. OF AM./ DATE- MAR. 1966
ERC-11

Mass spectrometer provides a recorded analysis of solid material surfaces and bulk. A beam of high-energy inert-gas ions bombards the surface atoms of a sample and converts a percentage into

an ionized vapor. The mass spectrum analyzer separates the vapor ionic constituents by mass-to-charge ratio.

B66-10121

COMPOUND IMPROVES THERMAL INTERFACE BETWEEN THERMOCOUPLE AND SENSED SURFACE

KALLIN, I. N. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- MAR. 1966
NU-0028

Thermocouples and brittle materials are joined without welding by an epoxy resin cement mixer with a conducting material. This mixture does not form thermal barriers at cryogenic temperatures.

B66-10122

NIOBIMUM THIN FILMS ARE SUPERCONDUCTIVE IN STRONG MAGNETIC FIELDS AT LOW TEMPERATURES

CLOUGH, P. J. /NATL. RES. CORP./ FOWLER, P. DATE- MAR. 1966
JPL-SC-174

Niobium film superconductor carries high currents in strong magnetic fields. The thin niobium film is formed on an inert substrate through evaporation in a vacuum environment. Control of temperature and vacuum results in rejection of gaseous impurities so that the film is of a very high purity.

B66-10143

SEXTANT MEASURES SPACECRAFT ALTITUDE WITHOUT GRAVITATIONAL REFERENCE

SPON- INNOVATOR NOT GIVEN /GEONAUTICS, INC./ DATE- APR. 1966
MSC-200

Horizon-sensing sextant measures the altitude of an orbiting spacecraft without gravitational reference by optically measuring the dip angle to the horizon along a line of sight in each of two planes. The sextant scans over a relatively limited field of view.

B66-10153

ARGON PURGE GAS COOLED BY CHILL BOX

SPIRO, L. W. /N. AM. AVIATION/ DATE- APR. 1966
M-FS-560

Cooling argon purge gas by routing it through a shop-fabricated chill box reduces charring of tungsten inert gas torch head components. The argon gas is in a cooled state as it enters the torch and prevents buildup of char caused by the high concentrations of heat in the weld area during welding operations.

B66-10156

CIRCULAR, EXPLOSION-PROOF LAMP PROVIDES UNIFORM ILLUMINATION

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- APR. 1966
MSC-382

Circular explosion-proof fluorescent lamp is fitted around a TV camera lens to provide shadowless illumination with a low radiant heat flux. The lamp is mounted in a transparent acrylic housing sealed with clear silicone rubber.

B66-10157

CRYOGENIC LIQUID TRANSFER SYSTEM REDUCES RESIDUAL BOILOFF

HEGLAND, D. E. DATE- APR. 1966
LEWIS-274

System for transferring cryogenic liquids to a dewar prevents boiloff of residual liquid by venting the boiloff to the atmosphere during the transfer tube cooling period. The system is most useful with liquids having very small heat of vaporization.

B66-10173

OFFSET LENSES AND VERSATILITY TO PHOTOTYPESETTING MACHINE

JAMES, A. M. /DOCUMENTATION, INC./ DATE- APR. 1966
HQ-9

Offset lenses facilitate the composition of inputs of other than straight baseline characters on the Photon phototypesetting machine. A number of lenses in the turret are mounted in an offset

pattern that causes characters projected through them to fall on the photographic paper in the magazine above and below the baseline.

B66-10178

FATIGUE CRACKS DETECTED AND MEASURED WITHOUT TEST INTERRUPTION

FRECHE, J. C. KLIMA, S. J. LESCO, D. J. DATE- MAY 1966

LEWIS-266

Ultrasonic flaw detector records cracks in materials undergoing fatigue tests, without interfering with test progress. The detector contains modified transducers clamped to the specimens, and an oscillograph readout.

B66-10181

ALUMINUM DOPING IMPROVES SILICON SOLAR CELLS

SPON- INNOVATOR NOT GIVEN /LEWIS/ DATE- MAY 1966

REAN- SEE ALSO NASA-TN-D-2711

LEWIS-206

Aluminum doped silicon solar cells with resistivities in the 10- to 20-ohm centimeter range have broad spectral response, high efficiency and long lifetimes in nuclear radiation environments. Production advantages include low material rejection and increased production yields, and close tolerance control.

B66-10183

INSULATION FOR CRYOGENIC TANKS HAS REDUCED THICKNESS AND WEIGHT

DUMIRE, P. E. MIDDLETON, R. L. SCHELL, J. T. STUCKEY, J. M. DATE- MAY 1966 REAN- SEE ALSO NASA-SP-5030

M-FS-326

Dual seal insulation, consisting of an inner layer of sealed-cell Mylar honeycomb core and an outer helium purge channel of fiber glass reinforced phenolic honeycomb core, is used as a thin, lightweight insulation for external surfaces of cryogenic-propellant tanks.

B66-10186

RADIATION USED TO TEMPERATURE COMPENSATE SEMICONDUCTOR STRAIN GAGES

GROSS, C. DATE- MAY 1966

LANGLEY-207

Exposure to high energy electron radiation reduces the temperature coefficients of resistance and gage factor of a range of resistivities of n- and p-type semiconductor silicon strain gages. After irradiation, the gages are heated to a high temperature for a 24-hour period to stabilize their temperature coefficients.

B66-10187

RUBBER-COATED BELLOWS IMPROVES VIBRATION DAMPING IN VACUUM LINES

HEGLAND, D. E. SMITH, R. J. DATE- MAY 1966

LEWIS-273

Compact-vibration damping systems, consisting of rubber-coated metal bellows with a sliding O-ring connector, are used in vacuum lines. The device presents a metallic surface to the vacuum system and combines flexibility with the necessary stiffness. It protects against physical damage, reduces fatigue failure, and provides easy mating of nonparallel lines.

B66-10199

MOUNT ENABLES PRECISION ADJUSTMENT OF OPTICAL-INSTRUMENTATION MIRROR

SPON- INNOVATOR NOT GIVEN /MIT/ DATE- MAY 1966

MSC-184

Mirror mount assembly allows the plane of a mirror to be adjusted through small angles about two orthogonal axes. The assembly, which has a mirror mount with two independently adjustable flexure joints, allows independent precise adjustment of the mirror mount with respect to each axis.

B66-10231

SOLAR CELL SUBMODULE DESIGN FACILITATES ASSEMBLY OF LIGHTWEIGHT ARRAYS

YASUI, R. K. DATE- MAY 1966

JPL-728

Solar cell submodules with bus bars that leave

tabs along one end of the submodule and wires with raised portions along the other end are assembled by interlocking the tabs and wires of adjacent submodules. This structural design is lightweight and reliable and requires no metallic substructure.

B66-10257

FREON PROVIDES HEAT TRANSFER FOR SOLID CO₂

CALIBRATION STANDARD

SPON- INNOVATOR NOT GIVEN /LEEDS AND NORTHRUP CO./ DATE- JUN. 1966

M-FS-644

Acetone and Freon as liquid heat transfer mediums bring a dry ice bath to, and keep it at, the temperature required when using solid carbon dioxide as a calibration standard. Although acetone gives better results, Freon TF is preferred since acetone reacts violently in the presence of liquid oxygen.

B66-10263

OPTICAL DEVICE ENABLES SMALL DETECTOR TO SEE LARGE FIELD OF VIEW

ARNDT, J. H. /TRW SPACE TECHNOL. LABS./ DATE- JUN. 1966

WOO-253

Optical device images the sun on a mask that transmits it or prevents its transmission to a photodetector behind the mask depending on image position on the mask. The device uses a pinhole as the image former to provide a large field of view and diffraction-limited resolution.

B66-10268

HIGH-SPEED FURNACE USES INFRARED RADIATION FOR CONTROLLED BRAZING

ECKLES, P. N. /AEROJET-GEN. CORP./ DATE- JUN. 1966

NU-0047

Furnace produces controlled heat for brazing and heat treating metals over a wide range of temperatures by using a near-infrared heat source positioned at one focus of an ellipsoidal reflector mounted below a cylindrical quartz chamber. This furnace maintains a pure atmosphere, has rapid heatup and cooldown, and permits visual observation.

B66-10289

ULTRASONIC HAND TOOL ALLOWS CONVENIENT

SCANNING OF SPOT WELDS

MITCHELL, D. K. /BOEING CO./ DATE- JUL. 1966

M-FS-539

Small, portable, electrically powered hand tool, coupled with auxiliary ultrasonic equipment, allows convenient scanning of spot welds for discontinuities.

B66-10290

MODIFIED MCLEOD GAGE RECORDS AUTOMATICALLY

FAETH, P. A. DATE- JUL. 1966

LEWIS-290

Modified McLeod gage records pressure measurements automatically. The measurements can be programmed in advance by means of an automatic timer.

B66-10307

COMMERCIAL FILM PRODUCES POSITIVE X-RAY PHOTO IN TEN SECONDS

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- JUL. 1966

M-FS-521

Type 52 Polaroid Land Film Packet provides a rapid, inexpensive method of producing positive X-ray photographs of various objects.

B66-10316

LEGIBILITY OF ELECTROLUMINESCENT INSTRUMENT PANELS INVESTIGATED

MC LEAN, M. V. MILLER, G. E. /N. AM. AVIATION/ DATE- AUG. 1966

MSC-494 MSC-496 MSC-501 MSC-505

Legibility studies of several EL /electroluminescent/ displays correlate reading time and accuracy with number size, stroke/width ratio, indicia size, pointer width, contrast, ambient illumination, and color background and

02 PHYSICAL SCIENCES (ENERGY SOURCES)

contrast. Human factor criteria established on non-EL displays may not apply to EL displays.

B66-10325

BIMETALLIC DEVICES HELP MAINTAIN CONSTANT SEALING FORCES DOWN TO CRYOGENIC TEMPERATURES
DE BOSKEY, W. R. /MEPAR/ DATE- JUL. 1966
M-FS-800

Tantalum washers compensate for different thermal coefficients of expansion between stainless steel and an aluminum O-ring. The washers have sufficient thickness to maintain a vacuum seal from room to cryogenic temperatures.

B66-10330

ADAPTER ASSEMBLY PREVENTS DAMAGE TO TUBING DURING HIGH PRESSURE TESTS

STINNETT, L. L. /N. AM. AVIATION/ DATE- JUL. 1966
MSC-563

Portable adapter assembly prevents damage to tubing and injury to personnel when pressurizing a system or during high pressure tests. The assembly is capable of withstanding high pressure. It is securely attached to the tubing stub end and may be removed without brazing, cutting or cleaning the tube.

B66-10331

CIRCUIT PROVIDES ACCURATE FOUR-QUADRANT MULTIPLICATION

MC GOWAN, G. F. /MARTIN-MARIETTA CORP./ DATE- JUL. 1966
WOO-272

Solid state circuit provides four-quadrant multiplication at frequencies ranging from dc to 100 cps using pulse-width and -height multiplication techniques. The circuit consumes little power and has an accuracy of approximately one percent.

B66-10348

INEXPENSIVE INSULATION IS EFFECTIVE FOR CRYOGENIC TRANSFER LINES

LINDGREN, A. R. /N. AM. AVIATION/ DATE- AUG. 1966
MSC-618

Matting cover thermally insulates cryogenic-liquid transfer pipelines. The matting consists of layers of commercially available fiber glass tape in which the fibers are randomly oriented in parallel planes.

B66-10372

SPECIAL TREATMENT REDUCES HELIUM PERMEATION OF GLASS IN VACUUM SYSTEMS

BRYANT, P. J. GOSSELIN, C. M. /MIDWEST RES. INST./ DATE- AUG. 1966
BQ-25

Internal surfaces of the glass component of a vacuum system are exposed to cesium in gaseous form to reduce helium permeation. The cesium gas is derived from decomposition of cesium nitrate through heating. Several minutes of exposure of the internal surfaces of the glass vessel are sufficient to complete the treatment.

B66-10388

AUXILIARY TITANIUM SUBLIMATION PUMP PRODUCES ULTRAHIGH /10 TO THE MINUS 11 TORR/ VACUUM

OUTLAW, R. A. DATE- SEP. 1966
LANGLEY-212

Sublimated titanium as a gettering agent in conjunction with a turbine-type pump provides a two-step procedure for obtaining an ultrahigh vacuum of 10 to the minus 11 torr. The pump alone evacuates the chamber to a pressure of 10 to the minus 9 torr. The residual gas is removed by the gettering agent at a pumping speed of 15 liters per second per square inch.

B66-10435

CHEMICAL REGENERATION OF EMITTER SURFACE INCREASES THERMIONIC DIODE LIFE

BREITEISER, R. DATE- OCT. 1966 REAN- SEE ALSO NASA-TN-D-1877
LEWIS-17

Chemical regeneration of sublimated emitter electrode increases the operating efficiency and life of thermionic diodes. A gas which forms

chemical compounds with the sublimated emitter material is introduced into the space between the emitter and the collector. The compounds migrate to the emitter where they decompose and redeposit the emitter material.

B66-10474

GAS PRESSURE FEEDS FILM INTO CAMERA AT HIGH SPEED

KEIGHER, P. J. DATE- NOV. 1966
ARG-97

Blast of gas blows a loop of unexposed film as a wave across a vacuum platen to feed film smoothly into a camera so that 2 successive lengths can be exposed within 50 milliseconds. This technique can be readily applied to multiple aperture cameras as well as to various types of films.

B66-10483

UNIFORM REFLECTIVE FILMS DEPOSITED ON LARGE SURFACES

SPON- INNOVATOR NOT GIVEN /LEWIS/ DATE- NOV. 1966 REAN- SEE ALSO NASA-TN-D-3357
GSPC-507

Specially designed baffle which intercepts varying amounts of the vapor stream from an evaporant source, vacuum deposits films of uniform thickness on large substrates, using a single small area evaporation source. A mirror coated by this method will have a reflectance as high as 82 percent at 1216 angstroms with a variation of only plus/minus 2 percent over the surface.

B66-10499

CRYOGENIC COOLING REDUCES HIGH VOLTAGE ARCING BETWEEN ELECTRODES OPERATING IN A VACUUM

DE GEETER, D. J. DATE- NOV. 1966
ARG-109

Cooling to a temperature of approximately liquid nitrogen or lower, reduces arcing, or high voltage breakdown, between two closely spaced electrodes operating in a vacuum. This cooling technique can be applied to electrodes having other than hemispherical shapes.

B66-10507

PANELS ILLUMINATED BY EDGE-LIGHTED LENS TECHNIQUE

HAAG, G. E. HCRSPALL, R. B. /N. AM. AVIATION/ DATE- NOV. 1966
MSC-871

Electroluminescent lamps used to edge-light a specially ground lens provide nonglare, reduced eye strain panel illumination. There is no noticeable falloff in brightness along the lens edge. Light intensity diminishes toward the lens center. A slight halo, observed along the lens edge, has no detrimental effect.

B66-10508

EXPERIMENTAL INVESTIGATION OF MEGAWATT DC ARC HEATING OF NITROGEN

BOLDMAN, D. R. CAMPBELL, J. P. DATE- DEC. 1966
LEWIS-313

Four types of arc heaters, each with the capability of providing arc power levels in excess of 1 megawatt in nitrogen, were tested over a range of power levels and nitrogen flow rates to determine their value as heaters for hypersonic tunnels. The data derived should be useful in the design of high energy heaters for various industrial processes.

B66-10532

LIGHT-INTENSITY MODULATOR WITHSTANDS HIGH HEAT FLUXES

NAPLES, H. G. STRASS, H. K. DATE- NOV. 1966
MSC-246

Mechanism modulates and controls the intensity of luminous radiation in light beams associated with high-intensity heat flux. This modulator incorporates two fluid-cooled, externally grooved, contracting metal cylinders which when rotated about their longitudinal axes present a circular aperture of varying size depending on the degree of rotation.

B66-10547

HIGH INTENSITY RADIATION HEAT SOURCE IS

CAPABLE OF SUSTAINED OPERATION
 GEIDEMAN, W. A. MULLER, K. /TEXRON ELECTRONICS/
 DATE- NOV. 1966
 ARC-61

Water cooled, high intensity radiation source rated at 125 kw, with an efficiency of 31 to 34 percent is used in the evaluation of ablative materials under simulated conditions of high velocity entry into planetary atmospheres. The source operates repeatedly at maximum power for periods of 10 to 20 minutes.

B66-10554
CALCULATION OF INFRARED SPECTRAL TRANSMITTANCES OF INHOMOGENEOUS GASES
 HUFFAKER, R. M. DATE- DEC. 1966
 M-FS-1563

Calculation of spectral transmittance for a particular inhomogeneous gas path is made by combining known data on gases at constant temperature, pressure, and concentration. The spectral transmittances of the inhomogeneous plume gases is needed to calculate the heat radiated from the exhaust plume to the rocket base of a multiple engine rocket.

B66-10560
LASER MEASURING SYSTEM ACCURATELY LOCATES POINT COORDINATES ON PHOTOGRAPH
 DOEDE, J. H. LINDENMEYER, C. W. VONDEROHE, R. H.
 DATE- DEC. 1966
 ARG-74

Laser activated ultraprecision ranging apparatus interfaced with a computer determines point coordinates on a photograph. A helium-neon gas CW laser provides collimated light for a null balancing optical system. This system has no mechanical connection between the ranging apparatus and the photograph.

B66-10565
MIXER CONDITIONS TEMPERATURE OF LIQUIFIED GAS STREAMS
 TALMOR, E. /N. AM. AVIATION/ DATE- DEC. 1966
 M-FS-1784

Room temperature gaseous hydrogen mixed with liquified hydrogen in a venturi produces a two-phased liquid hydrogen stream at a stable temperature. This technique is useful in laboratory testing where presently, temperature control is maintained by a calibrated heat leak that results in considerable expenditure of cryogenic refrigerants.

B66-10583
NEON ISOTOPES CANCEL ERRORS IN GAS LASER
 MACEK, W. M. OLTHUIS, R. W. SCHNEIDER, J. R.
 /SPERRY GYROSCOPE CO./ DATE- DEC. 1966
 M-FS-1476

Neon isotopes cancel frequency pushing errors arising from unequal gain in the two countercirculating beams of a helium-neon filled discharge tube used in a ring laser.

B66-10596
OPTICAL AUTOMATIC GAIN CHANNEL
 HRUS, G. ZUKOWSKY, W. /PERKIN-ELMER CORP./
 DATE- DEC. 1966
 M-FS-1550

Automatic Gain Control /AGC/ channel automatically compensates for gain changes in the azimuth error channel due to time varying optical sight degrading effects. This system is useful in remote television monitors, automatic navigation systems, and surveying and mapping instrumentation.

B66-10602
EXPOSURE VALVE /EV/ SYSTEM EXPANDED TO INCLUDE FILTER FACTORS AND TRANSMITTANCE
 LINDSEY, W. F. DATE- DEC. 1966
 LANGLEY-190

Application of the exposure value system requires that the system be extended to high brightness level and expanded to include filter factors. A minimum of four photographic factors are involved in the evaluation of an exposure which, when determined from tables of 1-stop interval, could introduce noticeable error.

B66-10615
FEED-THRU FLANGE IS USEFUL IN VACUUM APPLICATIONS TO CRYOGENIC TEMPERATURES
 YAGER, S. P. DATE- DEC. 1966
 JPL-846

Feed-thru flange seals inner and outer walls of high vacuum test chambers. It is used in vacuum applications at both cryogenic and higher than cryogenic temperatures. A damaged flange can still be used for partial vacuum, noncryogenic applications in conjunction with an appropriate rubber seal.

B66-10630
TECHNIQUE FOR MEASURING ABSORPTANCE AND EMITTANCE BY USING CYCLIC INCIDENT RADIATION
 JACK, J. R. DATE- DEC. 1966 REAN- SEE ALSO
 NASA-TN-X-52193
 LEWIS-321

Cyclic radiation technique has been developed for determining absorptance and emittance of metal surfaces. Using this technique both absorptance and emittance can be determined from one set of data, and variable and controlled temperature levels are possible.

B66-10638
TWIN HELIX SYSTEM PRODUCES FAST SCAN IN INFRARED DETECTOR
 VANZETTI, R. /N. AM. AVIATION/ DATE- DEC. 1966
 M-FS-1598

Two rotating wheels in orthogonal relationship with helicoidal reflecting surfaces mounted on their outer rims achieve a linear speed without normal time loss in their return motion. The pitch of the helicoidal surfaces equals the displacement that the mirrors must traverse.

B66-10652
ROCKET ENGINE VIBRATION ACCURATELY MEASURED BY PHOTOGRAPHY
 CRAIG, K. A. /N. AM. AVIATION/ DATE- DEC. 1966
 M-FS-1916

High speed instrumentation camera focused on a partially masked light bulb which is securely mounted to the test fixture permits measurement of engine performance parameters when usual electronic vibration instrumentation is unavailable. Vibration is recorded as a light trace deviating from the light rays photographed in the static hardware condition.

B66-10654
CRYOGENIC FLUID SAMPLING DEVICE PERMITS TESTING UNDER HAZARDOUS CONDITIONS
 MITCHELL, J. A. /N. AM. AVIATION/ DATE- DEC. 1966
 M-FS-1927

Remotely controlled sampling device obtains timed sample of flowing cryogenic liquid propellants in remote or hazardous testing conditions. The device consists of a calibrated container, a dewar, a solenoid valve, a pressure gage, and a manual bleed valve.

B66-10657
SIMPLE TECHNIQUE DETERMINES AC PROPERTIES OF HARD SUPERCONDUCTIVE MATERIALS
 HARPER, C. M. HECHT, R. /RCA/ DATE- DEC. 1966
 M-FS-1818

Critical current density of neodymium-titanium alloy samples is analyzed from magnetization curves to determine the ac properties of hard superconductive materials. A complete family of magnetization curves is obtained, each curve representing performance at a different temperature.

B66-10660
PROCESS PRODUCES ACCURATE REGISTRY BETWEEN CIRCUIT BOARD PRINTS
 SPON- INNOVATOR NOT GIVEN /BENDIX CORP./ DATE- DEC. 1966
 LANGLEY-288

Tapes and quick-mount circles of contrasting colors aid in obtaining precise registry between the two circuits of two-sided printed circuit boards. The tapes and circles are mounted on opposite sides of transparent plastic film to

02 PHYSICAL SCIENCES (ENERGY SOURCES)

define the conductive path and feed-through hole locations.

B66-10682
PRIMARY CELLS UTILIZE HALOGEN-ORGANIC
CHARGE TRANSFER COMPLEX
GUTHMANN, F. HERMANN, A. M. REMBAUM, A. DATE-
DEC. 1966
JPL-926

Electrochemical cells with solid state components employ charge transfer complexes or donor-acceptor complexes in which the donor component is an organic compound and the acceptor component is a halogen. A minor proportion of graphite added to these compositions helps reduce the resistivity.

B66-10693
LASER DOPPLER FLOWMETER MEASURES GAS
VELOCITY
FOREMAN, W. /BROWN ENG. CORP./ HUFFAKER, R. M.
DATE- DEC. 1966
M-FS-1747

Utilizing the large magnitudes of Doppler shifts obtainable from a CW gas laser, local velocity vectors are measured by using the visible light from the laser. This technique is applicable for the measurement of velocity of any moving surface.

B66-10700
PROBLEM OF OSCILLATING CONE IN SUPERSONIC
FLOW IS SOLVED BY SMALL PERTURBATION
TECHNIQUES
PAO, T.-H. /MIT/ DATE- DEC. 1966
M-FS-869

Small perturbation technique solves the problem of an oscillating cone in supersonic flow. The logic of the program is straightforward, as reflected in the actual instructions for solving the problem.

B67-10008
POLAROID FILM HELPS LOCATE OBJECTS IN
INACCESSIBLE AREAS QUICKLY
GRIFFIN, H. G. /N. AM. AVIATION/ MC CLELLAND, G.
W. DATE- JAN. 1967
MSC-960

Polaroid film is used with conventional portable X ray equipment to locate and shoot items or objects in difficult areas. Polaroid film development time is about 20 seconds.

B67-10021
POLARIMETER PROVIDES TRANSIENT RESPONSE
IN NANOSECOND RANGE
JOHNSTON, A. R. DATE- FEB. 1967
JPL-890

Conventional polarimeter with a Senarmont compensator improves transient response and eliminates manual manipulation. A sampled photomultiplier output is fed to a low pass filter, resulting in a signal representing the optical state existing at the instant of sampling. With this technique, an unknown transient-induced retardation can be measured.

B67-10024
PLASMA JET ELECTRODE HAS LONGER OPERATING
LIFE
GRACEY, C. M. /AEROJET GEN. CORP./ DATE- FEB.
1967
NU-0098

Water-cooled, silver-infiltrated tungsten electrode has twice the operating lifetime of the pure tungsten electrode used in plasma jet generators. This electrode reduces the erosion rate, ensures excellent heat transfer, and reduces thermal stresses.

B67-10036
NEUTRON ACTIVATION ANALYSIS TRACES COPPER
ARTIFACTS TO GEOGRAPHICAL POINT OF ORIGIN
CONWAY, M. FIELDS, P. FRIEDMAN, A. KASTNER, M.
METTA, D. MILSTED, J. OLSEN, E. DATE- MAR. 1967
ARG-119

Impurities remaining in the metallic copper are identified and quantified by spectrographic and neutron activation analysis. Determination of the type of ore used for the copper artifact places the geographic point of origin of the

artifact.

B67-10037
CORRELATION ESTABLISHED BETWEEN HEAT TRANSFER
AND ULTRASONIC TRANSMISSION PROPERTIES OF
COPPER BRAZE BONDS
DI NOVI, R. A. DATE- MAR. 1967 REAN- SEE ALSO
ANL-7074
ARG-247

Measuring and correlating the thermal conductivity and ultrasonic transmission of seven hot-brazed-bonded copper plates established a relationship between heat transfer and ultrasonic transmission properties of the bonds. This relationship permits the prediction of heat transfer characteristics from ultrasonic transmission tests.

B67-10054
METHOD ACCURATELY MEASURES MEAN PARTICLE
DIAMETERS OF MONODISPERSE POLYSTYRENE
LATEXES
KUBITSCHKE, H. E. DATE- MAR. 1967
ARG-207

Photomicrographic method determines mean particle diameters of monodisperse polystyrene latexes. Many diameters are measured simultaneously by measuring row lengths of particles in a triangular array at a glass-oil interface. The method provides size standards for electronic particle counters and prevents distortions, softening, and flattening.

B67-10057
MECHANISMS OF SUPERCONDUCTIVITY
INVESTIGATED BY NUCLEAR RADIATION
AUTLER, S. H. COFFEY, H. T. KELLER, E. L.
PATTERSON, A. DATE- MAR. 1967
M-FS-1944

Investigation focused on the behavior of superconducting magnet and its constituent materials during and after exposure to nuclear radiation. The results will indicate the feasibility of their use in diverse applications and various environments.

B67-10068
STUDY MADE OF INTERACTION BETWEEN SOUND
FIELDS AND STRUCTURAL VIBRATIONS
LYON, R. H. SMITH, P. W., JR. /BOLT, BERANEK,
AND NEWMAN/ DATE- APR. 1967
HQ-26

Study analyzes structural vibrations and the interactions between them and sound fields. It outlines a conceptual framework to analyze the vibrations of systems and their interactions, incorporating the results of earlier studies and establishing a unified basis for continuing research.

B67-10071
ELECTRONIC FILTER DISCRIMINATES BETWEEN
TRUE AND FALSE REFLECTIONS
MERCHANT, J. /HONEYWELL INC./ DATE- APR. 1967
HQ-55

Electronic filtering system discriminates between true corneal and false reflections, solving the problem of spurious reflections of the CRT light in newly designed oculometer.

B67-10072
AN IMPROVED SOFT X-RAY PHOTOIONIZATION
DETECTOR
STOBER, A. K. YOUNG, R. M. DATE- APR. 1967
GSPC-540

Photoionization detector with an alumina shell, a beryllium foil window, and a xenon gas fill measures small incident photon fluxes from soft X-rays. It has high spectral selectivity and quantum efficiencies, and a long shelf life. It minimizes electrical leakage and recontamination, and will hold a high vacuum.

B67-10075
STUDY MADE OF FAR INFRARED SPECTRA OF
SILICATE MINERALS
SPON- INNOVATOR NOT GIVEN /ARTHUR D. LITTLE,
INC./ DATE- APR. 1967
M-FS-1811

Study of mineral in the far infrared region of the spectrum examines the problems and feasibility of remote sensing of the composition of the moon or tenuous atmosphere planets. Most of the work described utilized reflection techniques.

B67-10082

FATIGUE ZONES IN METALS IDENTIFIED BY
POLARIZED LIGHT PHOTOGRAPHY

WALSH, F. D. /BORING CO./ DATE- APR. 1967
WOO-286

Polarized light technique clearly defines the fatigue zones in metal for measuring and photographing. White light is passed through a vertical polarizing filter and then is reflected onto the surface of the fracture specimen.

B67-10088

EXPERIMENTAL SCALING STUDY OF FLUID
AMPLIFIER ELEMENTS

ABLER, J. GREER, I. TAFT, C. /CASE INST. OF
TECH./ DATE- APR. 1967
M-FS-1882

Study examines scaling parameters of three fluid amplifier elements - a bistable device, a boundary layer control device, and a vortex device. Variations in performance due to size, fluid, and other conditions are studied. Even with restricted examples the large number of variables impedes the establishment of these scaling laws.

B67-10109

SPECIAL PURPOSE REFLECTOMETER USES MODIFIED
ULBRICHT SPHERE

GORSTEIN, M. /MIT/ DATE- MAY 1967
MSC-1135

Modified Ulbricht sphere measures stray radiation caused by irregularities in the reflective surface of an optical test specimen. The test specimen is positioned between a light source and exit port and all diffusely scattered radiation is measured by a photomultiplier tube in the sphere.

B67-10110

STAR/HORIZON SIMULATOR USED TO TEST SPACE
GUIDANCE SYSTEM

SCHMIDT, W. C. /MIT/ DATE- MAY 1967
MSC-407

Star/horizon simulator is used for alignment and optical plus photoelectric tests of the sextant for the Apollo guidance and navigation system optical unit assembly. The unit is basically a refractive collimator with a two inch objective lens system and a twenty-four inch focal length.

B67-10120

VISUAL ATTITUDE ORIENTATION AND ALIGNMENT
SYSTEM

BEAM, R. A. MORRIS, D. B. /N. AM. AVIATION/
DATE- MAY 1967
MSC-647

Active vehicle optical alignment aid and a passive vehicle three-dimensional alignment target ensure proper orientation and alignment plus control of the closure range and rate between two bodies, one in controlled motion and one at rest.

B67-10126

HIGH-ENERGY-RATE MAGNETOHYDRAULIC METAL
FORMING SYSTEM

SPON- INNOVATOR NOT GIVEN /ADVAN. KINET./ DATE-
MAY 1967
M-FS-2142

In the magneto-hydraulic metal forming system, a sonic shock wave is generated in a liquid medium by a coil energized by an electrical discharge. These waves transfer energy from a metal diaphragm, actuated by a pulsed magnetic field, to a metal workpiece. In the development a study was made of the pressure pulse phenomenon in a liquid medium.

B67-10128

IMPROVED CRYOGENIC REFRIGERATION SYSTEM

HIGA, W. H. DATE- MAY 1967
JPL-731

Two-position shuttle valve simplifies valving arrangement and crank-shaft configuration in gas-balancing and Stirling-cycle refrigeration

systems used to produce temperatures below 173 degrees K. It connects the displacer and regenerator alternately to the supply line or the return line of the compressor, and establishes constant pressure on the drive piston.

B67-10131

NEUTRON DIFFRACTOMETER ALLOWS BOTH MAGNETIC
AND CRYSTALLOGRAPHIC ANALYSES

ATOJI, H. DATE- JUN. 1967 REAN- SEE ALSO
ANL-6920
ARG-191

Automatic double-crystal neutron diffractometer performs both crystal and magnetic structural analyses. This shielded installation has a goniometric turntable and electronic controls, and auxiliary equipment including a goniometer, diffraction electromagnet, two cryogenic dewars, and two diffraction furnaces.

B67-10134

CRYOGENIC SEAL REMAINS LEAKTIGHT DURING
THERMAL DISPLACEMENT

FIELDS, T. H. MARTIN, K. B. PEWITT, E. G. DATE-
MAY 1967
ARG-96

Cryogenic seals protect the surfaces of a plastic member in a low-pressure system subjected to extreme temperature changes. The outer seal is an aluminum expansion ring bonded to the lens outer surface and the inner seal consists of a resin-filled aluminum U-ring bonded to the inner surface.

B67-10164

SOLAR X-RAY SPECTRUM REPRODUCED IN VACUUM

ERDMAN, C. A. KIRCHNER, L. P. /IIT RES. INST./
DATE- JUN. 1967
MSC-228 MSC-1168

Desired low energy X rays are produced by modifying commercial ion tubes and combining them with standard power supplies and control circuitry. These X rays have less deviation from the solar X ray spectrum in energy and intensity.

B67-10216

ELECTRON BEAM WELDER X-RAYS ITS OWN WELDS

RODEN, W. A. /GEN. DYN./CONVAIR DIV./ DATE- JUN.
1967
LEWIS-10111

Beam of an electron beam welder X rays its own welds, enabling rapid weld quality checks to be made without removing the work from the vacuum chamber. A tungsten target produces X rays when hit by the beam. They are directed at the weld specimen and recorded on polaroid film.

B67-10218

X-RAY SOURCE USES INTERCHANGEABLE TARGET

ANODES TO VARY X-RAY WAVELENGTH
SHIELDS, R. A. DATE- JUL. 1967
NPO-10036

Compact laboratory X ray tube generates X rays of various wavelengths by using interchangeable target anodes. The wavelength of the X rays depends on the metal from which the anode is made.

B67-10247

WATER COOLED ANODE INCREASES LIFE OF HIGH

TEMPERATURE ARC LAMP
RIISE, H. N. DATE- NOV. 1967
NPO-10180

Water cooling system increases the life of the anode of a high temperature compact arc lamp. A shaped water passage is provided through the tip or hottest point of the anode so that water will flow through it at a relatively high velocity.

B67-10264

INEXPENSIVE CRYOGENIC INSULATION REPLACES

VACUUM JACKETED LINE
FUCHS, C. E. /WESTINGHOUSE ASTRONUC. LAB./
DATE- JUL. 1967
NUC-10061

Commercially available aluminized Mylar, cork and fiber glass form a multilayered sealed system and provide rugged and economical field installed insulation for cryogenic /liquid nitrogen or

oxygen/ pipe lines in an exposed environment.

B67-10288

LASER SYSTEM GENERATES SINGLE-FREQUENCY LIGHT

TARG, R. /SYLVANIA ELECTRON. SYSTEMS/ DATE- AUG. 1967

M-FS-2556

Program eliminates major sources of noise in the laser output, with minimum sacrifice of total laser output power. Results include the design and development of a CW laser system which features high power single-frequency output in the S-20 photocathode response region.

B67-10295

IMPROVED ULTRASONIC TV IMAGES ACHIEVED BY USE OF LAMB-WAVE ORIENTATION TECHNIQUE
BERGER, H. DATE- AUG. 1967 REAN- SEE ALSO
ANL-7042
ARG-203

Lamb-wave sample orientation technique minimizes the interference from standing waves in continuous wave ultrasonic television imaging techniques used with thin metallic samples. The sample under investigation is oriented such that the wave incident upon it is not normal, but slightly angled.

B67-10296

THERMAL NEUTRON IMAGE INTENSIFIER TUBE PROVIDES BRIGHTLY VISIBLE RADIOGRAPHIC PATTERN

BERGER, H. KRASKA, I. /ARGONNE/ NIKLAS, W. SCHMIDT, A. /THE RAULAND CORP./ DATE- AUG. 1967
ARG-120

Vacuum-type neutron image intensifier tube improves image detection in thermal neutron radiographic inspection. This system converts images to an electron image, and with electron acceleration and demagnification between the input target and output screen, produces a bright image viewed through a closed circuit television system.

B67-10297

FRESNEL DIFFRACTION PLATES ARE SIMPLE AND INEXPENSIVE

HOOVER, R. B. DATE- AUG. 1967
M-FS-12731

Fresnel plate demonstrates diffraction phenomena simply and inexpensively. A large number of identical diffracting apertures are made in random orientation on photographic film. When a small source of light is viewed through the plate, the diffraction pattern typical of the diffracting aperture is readily seen.

B67-10316

RADIATION COUNTING TECHNIQUE ALLOWS DENSITY MEASUREMENT OF METALS IN HIGH-PRESSURE/ HIGH-TEMPERATURE ENVIRONMENT

DILLION, I. G. NELSON, P. A. SWANSON, B. S. DATE- SEP. 1967
ARG-124

Radioactive tracers induced by neutron irradiation provide a gamma ray flux proportional to the density of a metal, allowing density measurement of these metals in extreme high-temperature and high-pressure environments. This concept is applicable to most metals, as well as other substances.

B67-10326

PORTABLE SPECTROMETER MONITORS INERT GAS SHIELD IN WELDING PROCESS

GROVE, E. L. /IIT RES. INST./ DATE- SEP. 1967
M-FS-12144

Portable spectrometer using photosensitive readouts, monitors the amount of oxygen and hydrogen in the inert gas shield of a tungsten-inert gas welding process. A fiber optic bundle transmits the light from the welding arc to the spectrometer.

B67-10337

LOW-ENERGY GAMMA RAY INSPECTION OF BRAZED ALUMINUM JOINTS

BROWN, J. A. /N. AM. AVIATION/ DATE- SEP. 1967
MSC-1189

Americium 241 serves as a suitable radioisotope /gamma ray source/ and exposure probe for radiographic inspection of brazed aluminum joints in areas of limited accessibility. The powdered isotope is contained in a sealed capsule mounted at the end of a spring-loaded pushrod in the probe assembly.

B67-10342

SIMPLIFIED TECHNIQUE DEMONSTRATES MAGNETIC DOMAIN SWITCHING

SPON- INNOVATOR NOT GIVEN /SPERRY RAND CORP./ DATE- OCT. 1967
M-FS-13153

Light from a conventional photographic light source is polarized and projected through thin samples of gadolinium iron garnet and then observed with a conventional polarizing microscope. A distinctive change in color from red to yellow is observed as the magnetic domains are switched.

B67-10352

PRACTICAL NEW METHOD OF MEASURING THERMAL-NEUTRON FLUENCE

SIEBOLD, J. R. /AEROJET-GEN. CORP./ WARMAN, E. A. DATE- OCT. 1967
NUC-10086

Thermoluminescence dosimeter technique measures thermal-neutron fluence by encapsulating lithium fluoride phosphor powder and exposing it to a neutron environment. The capsule is heated in a dosimeter reader, which results in light emission proportional to the neutron fluence.

B67-10371

MEASURING COPLANARITY OF SURFACES

WERNER, M. M. /KOLLSMAN INSTR. CORP./ DATE- OCT. 1967
MSC-12044

Interferometric technique is used to measure the coplanarity and flatness of lapped surfaces on which a high-precision mirror is to be mounted. The measurement of minute height variations of several small discrete surfaces is accomplished simultaneously.

B67-10372

ELECTRON BEAM PARALLEL X-RAY GENERATOR

PAYNE, P. /AM. SCI. AND ENG./ DATE- OCT. 1967
MSC-11022

Broad X ray source produces a highly collimated beam of low energy X rays - a beam with 2 to 5 arc minutes of divergence at energies between 1 and 6 keV in less than 5 feet. The X ray beam is generated by electron bombardment of a target from a large area electron gun.

B67-10388

MODIFIED BLACKBODY DEVICE EMITS HIGH-DENSITY RADIATION

SCHUMACHER, P. E. /N. AM. AVIATION/ DATE- OCT. 1967
M-FS-12744

Modified device provides a versatile, precisely controllable source of blackbody radiation to calibrate radiometers used for spectrometric analysis of large rocket engine plumes.

B67-10391

METHOD PREVENTS SECONDARY RADIATION IN RADIOGRAPHIC INSPECTION

STRUCKUS, A. A. /N. AM. AVIATION/ DATE- OCT. 1967
M-FS-13383

Thin-walled neoprene containers prevent secondary radiation, scatter, and undercut during radiographic inspection. The containers are filled with a mixture of barium sulfate, red lead, and petroleum jelly that achieves the required absorption rate.

B67-10394

EXPERIMENTS TO INVESTIGATE PARTICULATE MATERIALS IN REDUCED GRAVITY FIELDS

BOWDEN, M. /ARTHUR D. LITTLE/ EDEN, R. F. FELSENTHAL, P. GLASER, P. E. WECHSLER, A. E. DATE- OCT. 1967
M-FS-13308

Study investigates agglomeration and macroscopic behavior in reduced gravity fields of particles of known properties by measuring and correlating thermal and acoustical properties of particulate materials. Experiment evaluations provide a basis for a particle behavior theory and measure bulk properties of particulate materials in reduced gravity.

B67-10398

AERIAL-IMAGE ENABLES DIAGRAMS AND ANIMATION
TO BE INSERTED IN MOTION PICTURES

ANDREWS, S. J., JR. TRESSSEL, G. W. DATE- OCT.
1967

ARG-165

Aerial-image unit makes it possible to insert diagrams and animation into live motion pictures, and also lift an element from a confusing background by suppressing general details. The unit includes a combination of two separate lens systems, the camera-projector system and the field lens system.

B67-10413

STUDY OF HYDROGEN SLUSH-HYDROGEN GEL
UTILIZATION

KELLER, C. W. /LOCKHEED MISSILES AND SPACE CO./
DATE- OCT. 1967

M-PS-13068

Study of hydrogen slush-hydrogen gel utilization is presented in two volume publication. The first volume contains the physical and thermal property data for hydrogen used in the study. In the second volume, details of the technical effort are presented including parametric analysis of effects on vehicle systems.

B67-10420

CONCEPT FOR CRYOGENIC LIQUID RECLAMATION
SYSTEM

DADERIAN, S. M. DATE- NOV. 1967

NPO-10322

Cryogenic liquid reclamation system is used as an add-on unit to the nitrogen system of environmental test laboratories to salvage liquid nitrogen presently being treated as waste. The system may be installed indoors or outdoors provided the gas boiled off from the cryogenic liquid is vented to the outside.

B67-10428

ULTRASONICS USED TO MEASURE RESIDUAL STRESS

SPON- INNOVATOR NOT GIVEN /R. W. BENSON AND
ASSOCIATES/ DATE- NOV. 1967

M-PS-12449

Ultrasonic method is used to measure residual stress in metal structures. By using this method, various forms of wave propagation in metals are possible, and more thorough analysis of complex geometric structures may be had.

B67-10430

STUDY MADE OF ACOUSTICAL MONITORING FOR
MECHANICAL CHECKOUT

SAVELLE, C. DATE- NOV. 1967

M-PS-13372

Study demonstrates that sonic signal analysis technique provides a powerful tool for mechanical component checkout. The technique also provides the unique capability of predicting component failures by detecting incipient malfunctions.

B67-10431

CAMERA LENS ADAPTER MAGNIFIES IMAGE

MOFFITT, F. L. DATE- NOV. 1967

M-PS-11955

Polaroid Land camera with an illuminated 7-power magnifier adapted to the lens, photographs weld flaws. The flaws are located by inspection with a 10-power magnifying glass and then photographed with this device, thus providing immediate pictorial data for use in remedial procedures.

B67-10443

CODED PHOTOGRAPHIC PROOF PAPER COULD SERVE
AS CONVENIENT DENSITOMETER

WINSLOW, D. J. DATE- NOV. 1967

M-PS-13374

Standard print-out proofing paper, preprinted with

an identifying code, serves as convenient densitometer. Exposure to light darkens the paper and gives a measure of the density of the resultant photographic image or the total amount of exposure sustained by the paper.

B67-10452

PROPOSED METHOD OF ROTARY DYNAMIC BALANCING

BY LASER

PERKINS, W. E. /N. AM. AVIATION/ DATE- NOV. 1967

M-PS-12422

Laser method, where high energies of monochromatic light can be precisely collimated to perform welding and machining processes, is proposed for rotary dynamic balancing. The unbalance, as detected with the velocity pickup, would trigger the laser system which would emit high energy pulses directed at the heavy side of the component.

B67-10462

FLUID BEHAVIORAL PATTERNS FOUND IN

SUBSCALE GEYSERING STUDY

BURKHALTER, J. E. GLASGOW, V. L. /BOEING CO./

DATE- NOV. 1967

M-PS-13582

Study provides a fundamental understanding of geysering mechanisms necessary for formulating theoretical analyses. An algebraic relationship between average heating rate, reservoir temperature, and geysering period was established and areas for future studies were identified.

B67-10465

STUDY MADE OF TRANSFER OF HEAT ENERGY

THROUGH METAL JOINTS IN VACUUM ENVIRONMENT

ELLIOT, D. H. /DOUGLAS AIRCRAFT CO./ DATE- NOV.

1967

M-PS-12534

Heat energy transfer is concentrated closely around a melted joint and the temperature drop across it decreases rapidly as the bolt and nut are tightened to a minimum torque level. Flat metal surfaces pressed together display a cyclical improvement in heat energy transfer as the interface pressure is increased.

B67-10474

METHOD FOR X-RAY STUDY UNDER EXTREME

TEMPERATURE AND PRESSURE CONDITIONS

PAUS, L. L. /EENDIX CORP./ DATE- DEC. 1967

MSC-11232

Vacuum chamber environmental simulator and X ray camera are used to study the stability of various minerals in extreme environmental conditions. An ion pump creates the desired vacuum. Exact sample positioning is obtained with a bellows sealed linear motion feed-through. Temperature control is by means of fluid conductive heat transfer.

B67-10477

TRAINING COURSE FOR RADIATION SAFETY

TECHNICIANS

LASUK, S. R. MOE, H. J. DATE- DEC. 1967 REAN-

SEE ALSO ANL-6991

ARG-216

Course of instruction includes sections on basic information, natural radioactivity, properties of alpha, beta, gamma, X rays, and neutrons, concepts of radiation units and dose determinations, shielding, biological effects, background radiation, radiation protection standards, and internal dose calculation.

B67-10485

DUAL PHOTOCHEMICAL REPLENISHER SYSTEM

REDUCES CHEMICAL LOSSES

KOLBER, J. M. DATE- DEC. 1967

KSC-67-111

Dual replenisher system reduces chemical losses and maintains optimum solution concentration during long nonprocessing cycles of photo processing machines. Using a single 3-position switch and solenoid control valves, the system provides instantaneous flow control to each processing tank.

B67-10508

GLANCING INCIDENCE TELESCOPE FOR FAR
ULTRAVIOLET AND SOFT X-RAYSNEUPERT, W. M. UNDERWOOD, J. H. DATE- DEC. 1967
GSFC-10052

Glancing-incidence telescope makes observations of distant celestial radiant bodies at wavelengths in the spectral region between 3 and 500 angstroms. The device can be used as a fore-optics system for a laboratory extreme ultraviolet spectrometer, or for the collection or imaging of thermal neutrons.

B67-10516

NOISE STUDY OF SINGLE STAGE COMPRESSOR
ROTOR-STATOR INTERACTIONCOPELAND, W. L. CRIGLER, J. L. DATE- DEC. 1967
LANGLEY-137

Study made of noise radiation from rotor-stator interaction in axial-flow compressors. The collected data were reduced to the form of radiation patterns and frequency spectra. These data show how the radiation patterns are affected by the relative number of rotor blades and stator vanes.

B67-10542

PLASTIC SHOE FACILITATES ULTRASONIC
INSPECTION OF THIN WALL METAL TUBINGLAMBERMEYER, D. J. /AEROJET-GEN. CORP./
PETERSON, R. H. DATE- DEC. 1967
NUC-10010

Plastic shoe aids inspection of thin walled stainless steel welded tubing to locate voids or other material defects in critical component equipment. Incorporated in available ultrasonic inspection equipment, it couples the transducer to the tube at desired incident angles.

B67-10564

MECHANIZED X-RAY INSPECTION SYSTEM
FOR LARGE TANKSOCCHIPINTI, G. C. /BOEING CO./ DATE- DEC. 1967
M-FS-12867 M-FS-12868 M-FS-13065 M-FS-13815

Mechanized X ray equipment provides nondestructive inspection of structural weldments at various positions on very large tanks. It mechanizes the placement of the film, automates the identification process, adheres to safety requirements, and eliminates all the usual time-consuming manual operations in industrial radiography.

B67-10597

NEUTRON DETECTOR SIMULTANEOUSLY MEASURES
FLUENCE AND DOSE EQUIVALENTDVORAK, R. P. DYER, N. C. DATE- DEC. 1967 REAN-
SEE ALSO ANL-7085
ARG-10071

Neutron detector acts as both an area monitoring instrument and a criticality dosimeter by simultaneously measuring dose equivalent and fluence. The fluence is determined by activation of six foils one inch below the surface of the moderator. Dose equivalent is determined from activation of three interlocked foils at the center of the moderator.

B67-10601

ANALYTICAL DRAFTING CURVES PROVIDE EXACT
EQUATIONS FOR PLOTTED DATASTEWART, R. B. DATE- DEC. 1967
LANGLEY-285

Analytical drafting curves provide explicit mathematical expressions for any numerical data that appears in the form of graphical plots. The curves each have a reference coordinate axis system indicated on the curve as well as the mathematical equation from which the curve was generated.

B67-10602

NEW TECHNIQUE FOR DETERMINATION OF
CROSS-POWER SPECTRAL DENSITY WITH DAMPED
OSCILLATORSSIMON, W. E. WALKER, L. A. /MARTIN CO./ DATE-
DEC. 1967
M-FS-14022

New cross-power spectral density computation

technique has been developed, as well as a technique for discrimination between periodic and random signals. This development is applicable to analysis of any stationary random process, and can be used in the aerospace and transportation fields.

B67-10605

LAMB WAVES INCREASE SENSITIVITY IN
NONDESTRUCTIVE TESTINGDI NOVI, R. DATE- DEC. 1967 REAN- SEE ALSO
ANL-6630 ANL-6329
ARG-10009

Lamb waves improve sensitivity and resolution in the detection of small defects in thin plates and small diameter, thin-walled tubing. This improvement over shear waves applies to both longitudinal and transverse flaws in the specimens.

B67-10609

GIMBALED-MIRROR SCANNING SYSTEM CAPABLE
OF SPIRAL PATTERNHAERTSCH, O. C. WILSON, M. W. DATE- DEC. 1967
GSFC-10170

Gimbaled-mirror infrared radiation scanner, with a lightweight torque motor direct coupled to each axis, is capable of scanning in a highly efficient spiral pattern. The scanner is lightweight and can be remotely positioned in previously inaccessible areas because the radiometer head and the gimbaled-mirror scanner can be separated.

B67-10610

HANDBOOK OF CRYOGENIC DATA IN GRAPHIC FORM

LOEB, M. B. /BOEING CO./ DATE- DEC. 1967

KSC-10009

Handbook of Cryogenic Data is written in graphic form and concentrates extensive data on common materials of construction and properties of fluids frequently encountered in designing cryogenic systems. All data are presented in the British system of units.

B67-10613

POLYSTYRENE CRYOSTAT FACILITATES TESTING
TENSILE SPECIMENS UNDER LIQUID NITROGENSHOGAN, R. P. /WESTINGHOUSE ASTRONUCL. LAB./
SKALKA, R. J. DATE- DEC. 1967
NUC-10522

Lightweight cryostat made of expanded polystyrene reduces eccentricity in a tensile system being tested under liquid nitrogen. The cryostat is attached directly to the tensile system by a special seal, reducing misalignment effects due to cryostat weight, and facilitates viewing and loading of the specimens.

B67-10617

TEST SYSTEM ACCURATELY DETERMINES TENSILE
PROPERTIES OF IRRADIATED METALS AT CRYOGENIC
TEMPERATURESLEVINE, P. J. /WESTINGHOUSE ASTRONUCL. LAB./
SKALKA, R. J. VANDERGRIFF, E. F. DATE- DEC. 1967
NUC-10521

Modified testing system determines tensile properties of irradiated brittle-type metals at cryogenic temperatures. The system includes a lightweight cryostat, split-screw grips, a universal joint, and a special temperature control system.

B67-10618

ENVIRONMENTAL CONTROL SYSTEM FOR CRYOGENIC
TESTING OF TENSILE SPECIMENSVANDERGRIFF, E. F. /WESTINGHOUSE ASTRONUCL. LAB./
YATSKO, G. O. DATE- DEC. 1967
NUC-10523

Environmental control system uses a special coil to permit the tensile testing of specimens which may be subjected to temperatures anywhere between liquid nitrogen and room temperature. The test specimen zone is surrounded by the coil which permits the selective flooding of the specimen with warm or cold gas.

B67-10621

JET ENGINE POWERS LARGE, HIGH-TEMPERATURE
WIND TUNNEL

BENHAM, T. F. /N. AM. AVIATION/ MULLIKEN, S. R.
DATE- DEC. 1967
M-FS-13544

Wind tunnel for large component testing uses a jet engine with afterburner to provide high temperatures /1200 degrees to 2000 degrees F/ and controlled high velocity gas. This economical wind tunnel can accommodate parts ten feet by ten feet or larger, and is a useful technique for qualitative information.

B67-10633
DEVELOPMENT OF CURIE POINT SWITCHING FOR THIN FILM, RANDOM ACCESS, MEMORY DEVICE
LEWICKI, G. W. /TCHERNEV, D. I. DATE- DEC. 1967
NPO-10402

Manganese bismuthide films are used in the development of a random access memory device of high packing density and nondestructive readout capability. Memory entry is by Curie point switching using a laser beam. Readout is accomplished by microoptical or micromagnetic scanning.

B67-10636
RONCHI TEST APPLIED TO MEASUREMENT OF SURFACE ROUGHNESS
GALLAY, H. M. /SCHJELDAHL /G.T./ CO./ VIZENOR, R. DATE- DEC. 1967
M-FS-12583

Ronchi test is applied to measure microscopic variations in surface roughness or flatness of metallized test specimens. Light is projected through a diffraction grating onto the test specimen, and the light reflected from the specimen is viewed or photographed through the grating.

B67-10640
REVIEW OF PHYSICS, INSTRUMENTATION AND DOSIMETRY OF RADIOACTIVE ISOTOPES
SINCLAIR, W. K. DATE- DEC. 1967
ARG-10037

General radioactive isotope information, stressing radioactivity, methods of measurement, and dosimetry of radioactive nuclides have been reviewed to serve as a reference for the medical profession. Instability of radionuclides, principal types of emission, and measurement of ionizing radiation are among the topics discussed.

B67-10644
DEVELOPMENT OF DUAL SOLID CRYOGENS FOR HIGH RELIABILITY REFRIGERATION SYSTEM
CAREN, R. P. /LOCKHEED MISSILES AND SPACE CO./ COSTON, R. M. DATE- DEC. 1967
GSFC-10188

High reliability solid cryogen refrigeration system consists of a container initially filled with a solid cryogen which is coupled thermally to an infrared detector by means of a link of high thermal conductivity extending from a heat exchanger within the cryogen container.

B67-10648
ADAPTIVE CONTROL CIRCUIT PREVENTS AMPLIFIER SATURATION
NORDSIECK, A. J. /GEN. MOTORS CORP./ DATE- JAN. 1968
ERC-10026

Adaptive control circuit prevents saturation of push-pull output amplifiers used in low-power, low-torque suspension system. The adaptive control circuit senses how near the output amplifiers are to saturation and sets the B voltage in such a way as to keep them just clear of saturation.

B67-10653
NONRECIPROCAL GAIN CONTROL FOR RING LASER
DUEKER, G. /PERKIN-ELMER CORP./ LEE, P. DATE- DEC. 1967
M-FS-14041

Nonreciprocal gain control is used in a ring laser where the two countercirculating beams may have differing intensities because of the residual Faraday rotation and other secondary nonreciprocal effects.

B67-10671
TELESCOPE MOUNT WITH AZIMUTH-ONLY PRIMARY
WELLS, W. H. DATE- JAN. 1968
NPO-10468

In large aperture telescope primary reflectors, the primary mirror is fixed with respect to the gravity vector to avoid varying gravity deflection problems. The primary reflector does not become distorted in various positions nor in changing positions.

B68-10010
FLOW TUBE USED TO COOL SOLAR-PUMPED LASER
SPON- INNOVATOR NOT GIVEN /RCA/ DATE- JAN. 1968
MSC-11026

A flow tube has been designed and constructed to provide two major functions in the application of a laser beam for transmission of both sound and video. It maintains the YAG laser at the proper operating temperature of 300 degrees K under solar pumping conditions, and it serves as a pump cavity for the laser crystal.

B68-10013
METHOD OF MEASURING THERMAL CONDUCTIVITY OF HIGH PERFORMANCE INSULATION
HYDE, E. H. RUSSELL, L. D. /LOCKHEED MISSILES AND SPACE CO./ DATE- JAN. 1968
M-FS-14088

Method accurately measures the thermal conductivity of high-performance sheet insulation as a discrete function of temperature. It permits measurements to be made at temperature drops of approximately 10 degrees F across the insulation and ensures measurement accuracy by minimizing longitudinal heat losses in the system.

B68-10021
OPTICAL SYSTEM FACILITATES INSPECTION OF PRINTED CIRCUIT BOARDS
CRIDLIN, M. OCONNOR, J. DATE- JAN. 1968
GSFC-07971

Optical comparator method determines the quality and registration of surface features of double-sided printed circuit boards. Color-coded superimposed images of both sides of a printed circuit board are presented to view, clearly showing details and registration of the circuitry.

B68-10060
NEW TECHNIQUE FOR OPTIMAL SMOOTHING OF DATA
FRASER, D. C. /MIT/ DATE- MAY 1968
MSC-11354

Recursive method for the optimal smoothing of data has numerical superiority and is more easily understood in terms of physical reasoning than earlier methods. Using a Kalman filter, the smoothing technique, applied to a nonlinear parameter identification problem, is useful in those situations where linearization about a reference solution is valid.

B68-10071
IMPROVED OPTICAL DIFFRACTOMETER
BILDERBACK, R. R. DATE- MAR. 1968
MSC-12055

Diffractionmeter is designed for diffraction measurements in the visible and near-infrared spectral regions. It provides higher resolution of diffraction patterns, an alternate illumination section for coherent light /from a laser source/, a unique alignment and adjustment arrangement for the optical system, and a very stable mounting.

B68-10077
ELECTRONIC GATING CIRCUIT AND ULTRAVIOLET LASER EXCITATION PERMIT IMPROVED DOSIMETER SENSITIVITY
EGGENBERGER, D. KING, D. LONGNECKER, A. SCHUTT, D. /NOTRE DAME UNIV./ DATE- APR. 1968
ARG-10109

Standard dosimeter reader, modified by adding an electronic gating circuit to trigger the intensity level photomultiplier, increases readout sensitivity of photoluminescent dosimeter systems. The gating circuit is controlled by a second photomultiplier which senses a short ultraviolet pulse from a laser used to excite the dosimeter.

02 PHYSICAL SCIENCES (ENERGY SOURCES)

B68-10081

INFRARED SPECTRORADIOMETER FOR ROCKET

EXHAUST ANALYSIS

HERGET, W. F. /N. AM. ROCKWELL CORP./ DATE- MAY 1968

M-FS-14357

Infrared spectroradiometer measures high-resolution spectral absorption, emission, temperature, and concentration of chemical species in radically symmetric zones of the exhaust plumes of large rocket engines undergoing static firing tests. Measurements are made along predetermined lines of sight through the plume.

B68-10090

ANTI GLARE IMPROVEMENT FOR OPTICAL IMAGING SYSTEMS

DAVIS, E. S. DATE- MAR. 1968

NPO-10337

Baffle configuration provides a more efficient shade against interfering sources of illumination outside the desired field of view of optical imaging systems. It consists of a semi-ellipsoid of revolution about the minor axis with black specular reflecting surface and an aperture defined by the locus of the foci of the generating ellipse.

B68-10098

RECTANGULAR CONFIGURATION IMPROVES SUPERCONDUCTING CABLE

FOSS, M. LAVERICK, C. LOBELL, G. DATE- APR. 1968

ARG-90088

Superconducting cable for a cryogenic electromagnet with improved mechanical and thermal properties consists of a rectangular cross-sectioned combination of superconductor and normal conductor. The conductor cable has superconductors embedded in a metallic coating with high electrical and mechanical conductivity at liquid helium temperatures.

B68-10108

STUDY OF CRYOGENIC CONTAINER THERMODYNAMICS DURING PROPELLANT TRANSFER

BROGAN, J. J. VERNON, R. M. /LOCKHEED MISSILES AND SPACE CO./ DATE- MAY 1968

M-FS-14310

Study of thermodynamic phenomena occurring during transfer of cryogenic liquids from dewar to receiver tank reveals that the basic cause of tank implosion is evaporation rate of droplets entering the tank in the early transfer phase. Analyses of the thermodynamics involved and implosion prevention techniques are included.

B68-10113

ROCKET ENGINE NOZZLE PHOTOGRAPHIC SYSTEM

BAILEY, R. L. TIBBITTS, W. C. DATE- APR. 1968

NPO-10174

Protective enclosure for a camera, located on the exhaust stream of a rocket engine, permits continuous recording of erosion processes of materials used in nozzle throat structures. The system uses a standard camera in a water-cooled, pressurized enclosure having a unique, inert gas-swept viewing duct.

B68-10119

MULTICHIP PACKAGING WITH THERMAL INSULATION

MC INTURFF, R. G. MEND, W. G. /WESTINGHOUSE ELEC. CORP./ DATE- APR. 1968

M-FS-14076

Thermal insulation technique permits low and high power electronic chips to operate in the same package without thermal cross-coupling. An alumina glass shield thermally isolates the low power chip from the high power chip while Kovar substrate acts as a heat sink to remove heat from the high power chip.

B68-10126

OPTICAL INTEGRATING SPHERE OPERATES AT VISIBLE AND INFRARED WAVELENGTHS

AISENBERG, S. /SPACE SCI./ DATE- APR. 1968

M-FS-14248

An optical integrating sphere with a faceted

reflective lining on the inside surface will provide light randomization /mixing of diffusely and specularly reflected light/ with relatively few reflections. The improved sphere has a sufficiently high reflectivity for both visible and infrared radiation.

B68-10128

PHOTOGRAPHIC AND DRAFTING TECHNIQUES SIMPLIFY METHOD OF PRODUCING ENGINEERING DRAWINGS

PROVISOR, H. /N. AM. AVIATION/ DATE- APR. 1968

MSC-716

Combination of photographic and drafting techniques has been developed to simplify the preparation of three dimensional and diometric engineering drawings. Conventional photographs can be converted to line drawings by making copy negatives on high contrast film.

B68-10135

ANTECHAMBER FACILITATES LOADING AND UNLOADING OF VACUUM FURNACE

KRAMER, P. J. MILLS, J. A. ORTH, N. W. QUATINETZ, M. WAGNER, J. G. DATE- APR. 1968

LEWIS-10265

Antechamber facilitates the use of a furnace in which materials are heat treated in a high vacuum or a gas atmosphere. It has a high vacuum pumping system, a means for backfilling with a selected gas, an access door, glove ports, and a motor driven platform.

B68-10136

THE X SQUARE STATISTIC AND GOODNESS OF FIT TEST

ARGENTIERO, P. D. MORRIS, R. A. /MARYLAND UNIV./ TOLSON, R. H. /NASA, LANGLEY RES. CENTER/ DATE- APR. 1968

GSFC-10547

The X square statistic is a useful measure of the discrepancy between the actual distribution of a set of data points and the theoretical distribution of a random variable of which the data points supposedly are values. Thus the X square statistic is frequently used in goodness of fit tests.

B68-10143

DEEP GAMMA RAY PENETRATION IN THICK SHIELDS

ARMSTRONG, T. W. STEVENS, P. N. /TENN. UNIV./ DATE- APR. 1968

M-FS-14388

Appropriate importance function and sampling scheme facilitates the application of the Monte Carlo method to problems involving the deep penetration of radiation.

B68-10154

TOOL RECONSTRUCTS DATA INPUT POINTS

CORRESPONDING TO FIRST ORDER OUTPUT GRAPH

BIGGS, R. E. /N. AM. ROCKWELL CORP./ DATE- MAY 1968

M-FS-18003

Tool aids in graphic determination of input values for any first order lag system of known gain and time constant where the corresponding output function is displayed graphically and can be described by a first order differential equation. This tool permits a rapid reconstruction of input points.

B68-10160

ABSOLUTE LOW-PRESSURE CALIBRATION SYSTEM

ROEBRIG, J. R. /NATL. RES. CORP./ DATE- MAY 1968

M-FS-13085

McLeod gage is used as the primary reference standard in a system used for absolute calibration of vacuum gages in the very low pressure range. The system involves steady-state flow of a gas through a cascade of differentially pumped chambers or stages connected by precisely defined orifices.

B68-10170

LARGE-AMPLITUDE INVISCID FLUID MOTION IN AN ACCELERATING CONTAINER

PERKO, L. M. /LOCKHEED MISSILES AND SPACE CO./ DATE- JUN. 1968

MSC-11560

Study of dynamic behavior of the liquid-vapor interface of an inviscid fluid in an accelerating cylindrical container includes an analytical-numerical method for determining large amplitude motion. The method is based on the expansion of the velocity potential in a series of harmonic functions with time dependent coefficients.

B68-10174

LOW SCATTER LIGHTWEIGHT FISSION SPECTROMETER
CONSTRUCTED FOR BIOLOGICAL RESEARCH
FRIGERIO, N. A. DATE- JUN. 1968
ARG-10094

Low scatter, lightweight fission spectrometer provides a simple, reliable method for determining absolute neutron fluxes in a fixed neutron. It minimizes neutron scatter and energy degradation effects, and has a counting volume large enough to intercept the most energetic fission fragments, yet small enough to be discriminating.

B68-10178

CONCEPT TO COMFORT-CONDITION SUBJECTS
WEARING RESTRICTIVE CLOTHING
TUCKER, E. M. DATE- JUN. 1968
MSC-10964

Heat exchanger maintains a desirable thermal balance in a subject wearing restrictive clothing. A grid of high thermal conductance fibers, in contact with the skin, transfers heat to or from the skin surface by means of a system of ducts, carrying the transfer fluid which is maintained at a controlled temperature.

B68-10179

APPLICATION OF A TRUNCATED NORMAL FAILURE
DISTRIBUTION IN RELIABILITY TESTING
GROVES, C., JR. /N. AM. ROCKWELL CORP./ DATE-
JUN. 1968
M-PS-14328

Statistical truncated normal distribution function is applied as a time-to-failure distribution function in equipment reliability estimations. Age-dependent characteristics of the truncated function provide a basis for formulating a system of high-reliability testing that effectively merges statistical, engineering, and cost considerations.

B68-10181

STUDY OF CONVECTIVE MAGNETOHYDRODYNAMIC
CHANNEL FLOW
SINGER, R. M. DATE- JUN. 1968 REAN- SEE ALSO
ANL-6937
ARG-10102

Study involves the effects of the interactions of electromagnetic, velocity, and temperature fields to aid in the design of a magnetohydrodynamic device. It concerns a theoretical analysis of the convective flow of an electrically conducting gas in a channel composed of conducting walls.

B68-10186

MAGNETIC FORMING STUDIES
FURTH, H. P. HOLT, D. R. JATMUZ, P. J. MEHRA,
R. C. WANIEK, R. W. /ADVANCED KINET./ DATE-
JUN. 1968 REAN- SEE ALSO B65-10342
M-PS-14217

Investigation of the tensile strength dependability on the characteristic time over which a pressure pulse is applied to a metal workpiece shows that the mechanical properties of these materials are functions of the rate at which the material is undergoing strain. These results and techniques are used in magnetomotive metal forming.

B68-10190

PROCEDURE DEVELOPED FOR REPORTING
FAST-NEUTRON EXPOSURE
ROSSIN, A. D. DATE- JUN. 1968 REAN- SEE ALSO
ANL-6826
ARG-10035

Procedure for reporting fast-neutron exposure involves determination of the spectrum shape and absolute magnitude, selection of an energy weighting for the neutrons, and definition of a

unit for reporting exposure. Using this method, comparisons of irradiation data from different reactors will be free from errors resulting from differences between the spectra.

B68-10228

THEORY OF A REFINED EARTH MODEL
KRAUSE, H. G. L. DATE- JUN. 1968
M-PS-14679

Refined equations are derived relating the variations of the earth's gravity and radius as functions of longitude and latitude. They particularly relate the oblateness coefficients of the old harmonics and the difference of the polar radii /respectively, ellipticities and polar gravity accelerations/ in the Northern and Southern Hemispheres.

B68-10234

DESIGN TECHNIQUES - STOCHASTIC CONTROLLERS
WIDNALL, W. S. /MIT/ DATE- JUL. 1968
MSC-11554

Analytic techniques aid in the design of nearly optimal linear time-varying sampled-data stochastic controllers. The techniques also aid in the simplification and automation of program designing for control computers.

B68-10240

PROPERTIES OF OPTICS AT HIGH TEMPERATURE AND
THEIR MEASUREMENT, A STUDY
GATES, D. W. DATE- JUL. 1968
M-PS-14696

Bibliography lists, the sources containing emissivity and absorptivity data on materials at extremely high temperatures. The experimental techniques, equipment and efforts of the experimenters to characterize the materials used and methods to evaluate the errors are given in the sources in this bibliography.

B68-10243

PORTABLE, HIGH INTENSITY ISOTOPIC NEUTRON
SOURCE PROVIDES INCREASED EXPERIMENTAL
ACCURACY
MOHR, W. C. STEWART, D. C. WAHLGREN, M. A.
DATE- JUL. 1968 REAN- SEE ALSO ANL-6917 AND
ANL-6933
ARG-90250

Small portable, high intensity isotopic neutron source combines twelve curium-amerium beryllium sources. This high intensity of neutrons, with a flux which slowly decreases at a known rate, provides for increased experimental accuracy.

B68-10245

IMPROVED RELAY OPTICAL ELEMENT FOR
SPECTRORADIOMETER USING CRYOGENICALLY
COOLED DETECTOR
KRAEMER, A. R. /LOCKHEED MISSILES AND SPACE CO./
DATE- JUL. 1968
MSC-11688

By coating half of one element in the relay optical system of a spectroradiometer with a very high emissivity paint, the effect of the reflected radiation from the back of the filter wheel is eliminated optically. This causes the detector to view a constant level of radiation, regardless of how the reflectivity of the back of the filter wheel changes.

B68-10252

NEW METHOD FOR CRITICAL FAILURE PREDICTION
OF COMPLEX SYSTEMS
COX, C. T. EAGLE, K. H. MALIK, D. P. WOLIN, S.
/BOEING CO./ DATE- JUL. 1968
M-PS-14133

Rigorous analytical technique, called criticality determination methodology /or CD technique/ determines the probability that a given complex system will successfully achieve stated objectives. The CD technique identifies critical elements of the system by a failure mode and effects analysis.

B68-10255

ELECTRO-OPTIC MODULATOR FOR INFRARED LASER
USING GALLIUM ARSENIIDE CRYSTAL
WALSH, T. E. /RCA/ DATE- JUL. 1968

02 PHYSICAL SCIENCES (ENERGY SOURCES)

GSFC-10686

Gallium arsenide electro-optic modulator used for infrared lasers has a mica quarter-wave plate and two calcite polarizers to amplitude or phase modulate an infrared laser light source in the wavelength range from 1 to 3 microns. The large single crystal has uniformly high resistivities, is strain free, and comparable in quality to good optical glass.

B68-10259

FLUORESCENT PARTICLES ENABLE VISUALIZATION OF GAS FLOW

WILSON, A. J. /N. AM. ROCKWELL CORP./ DATE- JUL. 1968 REAN- SEE ALSO B66-10668

M-FS-14583

Fluorescent particles enable visualization of the flow patterns of gases at slow velocities. Through a transparent section in the gas line, a camera views the visible light emitted by the particles carried by the gas stream. Fine definition of the particle tracks are obtained at slow camera shutter speeds.

B68-10260

TECHNIQUE DEVELOPED FOR MEASURING TRANSMITTANCE OF OPTICAL BIREFRINGENT NETWORKS

AMMANN, E. O. YARBOROUGH, J. M. /SYLVANIA PROD./ DATE- AUG. 1968 REAN- SEE ALSO B68-10275

M-FS-14267

The transmission characteristics of synthesized optical single-pass and double-pass birefringent networks is obtained by measuring network transmission as a function of network temperature. This technique is most useful for testing those birefringent networks whose bandwidths and periods are very small.

B68-10265

ACOUSTIC WAVE ANALYSIS

JACKSON, E. D. /N. AM. ROCKWELL CORP./ DATE- JUL. 1968

M-FS-18076

The primary mechanism for generation of acoustic waves in a centrifugal pump, due to the rotor/stator interaction, is an unsteady source at the entrance of the blade row as represented by the unsteady velocity field. The amplitudes of wave generated by pressure loading on the blades and by velocity boundary condition are compared.

B68-10275

SYNTHESIS OF ELECTRO-OPTIC MODULATORS FOR AMPLITUDE MODULATION OF LIGHT

AMMANN, E. O. YARBOROUGH, J. M. /SYLVANIA ELEC. PROD./ DATE- AUG. 1968

M-FS-14268

Electro-optical modulator realizes voltage transfer function in synthesizing birefringent networks. Choice of the voltage transfer function is important, the most satisfactory optimizes the modulator property.

B68-10276

SOLUTION OF DIFFERENTIAL EQUATIONS BY APPLICATION OF TRANSFORMATION GROUPS

DRISKELL, C. N., JR. GALLAHER, L. J. MARTIN, R. H., JR. /GEORGIA INST. OF TECH./ DATE- AUG. 1968

M-FS-14802

Report applies transformation groups to the solution of systems of ordinary differential equations and partial differential equations. Lies theorem finds an integrating factor for appropriate invariance group or groups can be found and can be extended to partial differential equations.

B68-10282

HIGH-SPEED CAMERA SYNCHRONIZATION

ROJEC, E. A. /N. AM. ROCKWELL CORP./ DATE- AUG. 1968

M-FS-18062

Photoelectric sensor enables synchronization of the rotating mirror in a high-speed framing camera with the passage of a very-high-velocity droplet to obtain direct photographic data on droplet breakup. It detects droplet movement across a high intensity light beam and generates a signal

triggering the camera.

B68-10293

ISOTOPICALLY PURE MAGNESIUM ISOTOPE-24 IS PREPARED FROM MAGNESIUM-24 OXIDE

CHELLEW, N. R. SCHILB, J. D. STEUNENBERG, R. K. DATE- AUG. 1968

ARG-10154

Apparatus is used to prepare isotopically pure magnesium isotope-24, suitable for use in neutron scattering and polarization experiments. The apparatus permits thermal reduction of magnesium-24 oxide with aluminum and calcium oxide, and subsequent vaporization of the product metal in vacuum. It uses a resistance-heated furnace tube and cap assembly.

B68-10294

STUDY OF RADIATION EFFECTS ON MAMMALIAN CELLS IN VITRO

SINCLAIR, W. K. DATE- AUG. 1968

ARG-10191

Radiation effect on single cells and cell populations of Chinese hamster lung tissue is studied in vitro. The rate and position as the cell progresses through the generation cycle shows division delay, changes in some biochemical processes in the cell, chromosomal changes, colony size changes, and loss of reproductive capacity.

B68-10298

DETECTION SENSITIVITIES IN 3-8 MEV NEUTRON ACTIVATION

WAHLGREN, M. A. WING, J. DATE- AUG. 1968 REAN- SEE ALSO ANL-7242

ARG-10210

Study of detection sensitivities of 73 radioactive elements using fast unmoderated neutrons includes experiments for irradiation, cooling and counting conditions. The gamma ray emission spectra is used to identify the unknown material.

B68-10304

IMPROVED GAS RING LASER

COCCOLI, J. D. LAWSON, J. R. /MIT/ DATE- AUG. 1968

MSC-11584

Minimizing mode coupling improves sensing resolution of a gas ring laser in a gimballess gyroscope system or inertial rotation sensor. The piezoelectric-driven corner mirrors of the ring laser are oscillated in a direction parallel to their surfaces and the plane of rotation.

B68-10322

MODIFIED SINE BAR DEVICE MEASURES SMALL ANGLES WITH HIGH ACCURACY

THEKAERKARA, M. DATE- AUG. 1968

GSFC-438

Modified sine bar device measures small angles with enough accuracy to calibrate precision optical autocollimators. The sine bar is a massive bar of steel supported by two cylindrical rods at one end and one at the other.

B68-10326

4 PI-RECOIL PROPORTIONAL COUNTER USED AS NEUTRON SPECTROMETER

BENNETT, E. F. DATE- AUG. 1968 REAN- SEE ALSO ANL-6897

ARG-10101

Study considers problems encountered in using 4 pi-recoil counters for neutron spectra measurement. Emphasis is placed on calibration, shape discrimination, variation of W, the average energy loss per ion pair, and the effects of differentiation on the intrinsic counter resolution.

B68-10329

HIGH-SPEED PULSE CAMERA

LAWSON, J. R. /MIT/ DATE- AUG. 1968

MSC-11353

Miniaturized, 16 mm high speed pulse camera takes spectral photometric photographs upon instantaneous command. The design includes a low-friction, low-inertia film transport, a very thin beryllium shutter driven by a low-inertia stepper motor for minimum actuation time after a

pulse command, and a binary encoder.

B68-10339

DYNAMICS OF MOVING BUBBLES IN SINGLE AND BINARY COMPONENT SYSTEMS

CLARK, J. A. NERTE, H., JR. TOKUDA, N. YANG, W. J. /MICHIGAN UNIV./ DATE- SEP. 1968
M-FS-14845

Dynamics of a single bubble moving in a quiescent liquid is analyzed for single and binary component systems. The transport of energy and/or mass at thermodynamic-phase equilibrium governs the dynamics of the bubble at its interface.

B68-10345

INDEPENDENT DOUBLY TRUNCATED GAMMA VARIABLES

LAVENDER, D. E. /GEORGIA UNIV./ DATE- SEP. 1968
M-FS-20143

Density and distribution functions of the sum of independent variables, each having a truncated gamma density function, were derived for use in the measurement of complex physical phenomena.

B68-10346

CONTROLLABILITY OF DISTRIBUTED-PARAMETER SYSTEMS

HERGET, C. J. /CALIF. UNIV./ DATE- SEP. 1968
M-FS-14929

Controllability of distributed-parameter control systems is mathematically studied. A general theory for control systems includes those that cannot be described by ordinary differential equations.

B68-10347

IMPROVEMENT IN RECORDING AND READING HOLOGRAMS

HALLOCK, J. N. DATE- SEP. 1968
ERC-10151

Three-beam technique superimposes a number of patterns in the same plane of a hologram and then uniquely identifies each pattern by a suitable readout process. The developed readout process does not require any movement of parts.

B68-10348

STUDY OF OPTIMUM DISCRETE ESTIMATORS IN MEASUREMENT ANALYSIS

HUNG, J. C. IRWIN, J. D. /TENNESSEE UNIV./ DATE- SEP. 1968
M-FS-14915

Study of statistical techniques for obtaining estimates of true data parameters uses discrete measured quantities containing random error. These techniques develop estimation procedures as an iterative algorithm for digital computation in real time.

B68-10349

LASER-DOPPLER GAS-VELOCITY INSTRUMENT

BOOTH, S. MEISTER, K. ROLFE, E. SILK, J. K. YOUNG, R. M. /RAYTHEON CO./ DATE- SEP. 1968
REAN- SEE ALSO B66-10693
M-FS-20039

Three-D instrument using a laser light source measures both turbulence and mean velocity of subsonic and supersonic gas flows. This instrument is based on the measurement of the Doppler frequency shift of light waves scattered by moving particles in the gas stream.

B68-10363

IMPROVED RADIOGRAPHIC IMAGE AMPLIFIER PANEL

BROWN, R. L., SR. DATE- OCT. 1968
M-FS-14522

Layered image amplifier for radiographic /X ray and gamma ray/ applications, combines very high radiation sensitivity with fast image buildup and erasure capabilities by adding a layer of material that is both photoconductive and light-emitting to basic image amplifier and cascading this assembly with a modified Thorne panel.

B68-10396

EVALUATION OF SUPERCONDUCTING MAGNETS, A STUDY

DI SALVO, F. LUCAS, E. STEKLY, Z. J. J. STRAUSS, E. P. THOME, R. /AVCO EVERETT RES. LAB./ DATE- OCT. 1968

M-FS-14808

Study analytically develops and experimentally verifies the steady state behavior characteristics of composite superconductors. Zero-dimensional, one-dimensional, and three-dimensional analyses were performed.

B68-10406

FIBER GLASS PREVENTS CRACKING OF POLYURETHANE FOAM INSULATION ON CRYOGENIC VESSELS

FORGE, D. A. /MCDONNELL DOUGLAS CORP./ DATE- NOV. 1968
M-FS-20058

Fiber glass material, placed between polyurethane foam insulation and the outer surfaces of cryogenic vessels, retains its resilience at cryogenic temperatures and provides an expansion layer between the metal surfaces and the polyurethane foam, preventing cracking of the latter.

B68-10418

MINIATURIZED KING FURNACE PERMITS

ABSORPTION SPECTROSCOPY OF SMALL SAMPLES
ERCOLI, B. TOMPKINS, F. S. DATE- NOV. 1968
ARG-10177

Miniature King-type furnace, consisting of an inductively heated, small diameter tantalum tube supported in a radiation shield eliminates the disadvantages of the conventional furnace in obtaining absorption spectra of metal vapors.

B68-10426

CERIC AND FERROUS DOSIMETERS SHOW PRECISION FOR 50-5000 RAD RANGE

FRIGERIO, N. A. HENRY, V. D. DATE- NOV. 1968
ARG-10173

Ammonium thiocyanate, added to the usual ferrous sulfate dosimeter solution, yielded a very stable, precise and temperature-independent system eight times as sensitive as the classical Fricke system in the 50 to 5000 rad range. The ceric dosimeters, promising for use in mixed radiation fields, respond nearly independently of LET.

B68-10504

SOLVING NONLINEAR HEAT TRANSFER CONSTANT AREA FIN PROBLEMS

SPON- INNOVATOR NOT GIVEN /MARSHALL/ DATE- NOV. 1968
M-FS-14851

Tables and graphs were compiled for solving nonlinear heat transfer constant area fin problems. The differential equation describing one-dimensional steady-state temperature distribution and heat flow under three modes of heat transfer with heat generation was investigated.

B68-10506

DUAL-PURPOSE CHAMBER-COOLING SYSTEM

FRAZE, R. E. DATE- NOV. 1968
NFO-10467

Inexpensive, portable system was designed for cooling small environmental test chambers with a temperature-controlled gas stream evaporated from a cryogenic liquid. The system reduces the temperature of a chamber to any desired point in a fraction of the time required by previous systems.

B68-10508

COOLANTS WITH SELECTIVE OPTICAL FILTERING CHARACTERISTICS FOR RUBY LASER APPLICATIONS

MC DEVITT, F. R. /AUBURN UNIV./ RASQUIN, J. R. DATE- NOV. 1968
M-FS-20188

Coolant-filtering medium developed consists of a solution of copper sulfate in a 4-1 volumetric mixture of ethanol and methanol. This solution should be a useful addition to ruby laser systems, particularly in large pulse or Q switching applications.

B68-10510

HEAT-LOAD SIMULATOR FOR HEAT SINK DESIGN

DUNLEAVY, A. M. VAUGHN, T. J. /N. AM. ROCKWELL CORP./ DATE- NOV. 1968
MSC-15170

Heat-load simulator is fabricated from 1/4-inch

02 PHYSICAL SCIENCES (ENERGY SOURCES)

aluminum plate with a contact surface equal in dimensions and configuration to those of the electronic installation. The method controls thermal output to simulate actual electronic component thermal output.

B68-10517

HEAT TRANSFER COEFFICIENTS FOR LIQUID

HYDROGEN TURBOPUMPS

BISSEL, W. R. WAGNER, W. R. /N. AM. ROCKWELL
CORP./ DATE- NOV. 1968

M-FS-18345

Empirical equations were derived to establish the appropriate heat transfer coefficients as functions of the temperature drops and heat transfer rates for a wide range of convective and boiling conditions at different locations in a liquid hydrogen turbopump.

B68-10519

HIGH CONDUCTANCE VAPOR THERMAL SWITCH

HYMAN, N. L. DATE- SEP. 1968

GSFC-10109

High conductance vapor thermal switch was produced to maintain heat dissipating component temperatures within acceptable limits. The switch is a self-actuating, automatic device that regulates the rate of heat flow to control.

B68-10521

TELESCOPE DOME CONTROL SYSTEM AUTOMATICALLY

TRACKS SUN

CASHION, K. D. DATE- NOV. 1968

MSC-10966

Automatic control system is designed to rotate a dome so that a telescope, or other instruments, within the dome will continuously view the sun as the earth rotates.

B68-10533

A MASS FLUX PROBE FOR MEASUREMENT IN A

SUPERSONIC STREAM

GLANE, G. E. KRAUSE, L. N. DATE- DEC. 1968

LEWIS-10695

Probe consists essentially of a tube with a supersonic inlet pointed into the gas stream. The mass flow rate through the tube is determined at a flow measuring station.

B68-10546

IMAGING SLITLESS SPECTROMETER FOR X-RAY

ASTRONOMY

GURSKY, H. ZEHNFENNIG, T. /AM. SCI. AND ENG./

DATE- NOV. 1968

M-FS-14309

Imaging slitless spectrometer, a combination of an X ray transmission /or reflection/ grating and image-forming X ray telescope, is capable of obtaining simultaneous spatial and spectral information about celestial X ray sources.

B68-10548

ONE-DIMENSIONAL COULOMB-DAMPED WAVE MOTION

IN PRISMATIC BARS

TOHLIN, D. D., JR. DATE- DEC. 1968

M-FS-14815

Study analyzes wave motions in prismatic bars with Coulomb damping, using Laplace transforms as an aid in solving the partial differential equations. The results are detailed.

B68-10556

ELECTRON BEAM RECRYSTALLIZATION OF AMORPHOUS

SEMICONDUCTOR MATERIALS

EVANS, J. C., JR. DATE- DEC. 1968

LEWIS-10443

Nucleation and growth of crystalline films of silicon, germanium, and cadmium sulfide on substrates of plastic and glass were investigated. Amorphous films of germanium, silicon, and cadmium sulfide on amorphous substrates of glass and plastic were converted to the crystalline condition by electron bombardment.

B68-10560

SHORTENED PROCEDURE FOR OBTAINING

REPRODUCIBLE COPIES OF 35 MM COLOR SLIDES

LEVINE, F. /BOEING CO./ DATE- DEC. 1968

KSC-09957

Technique to reduce the steps required to obtain reproducible copies of 35 mm color slides has been developed. A 35 mm slide is projected directly onto a Xerox plate, eliminating the necessity to produce a film positive of the slide.

B68-10564

REPETITIVELY PULSED, WAVELENGTH-SELECTIVE

CARBON DIOXIDE LASER

HANST, P. L. DATE- NOV. 1968

ERC-10178

Carbon dioxide laser as a simple portable unit generates coherent light pulses at selected infrared wavelengths. The improved laser was designed for the detection of air pollutants but can be applied to optical communications.

B68-10569

ACCURATE DIGITAL TECHNIQUE SIMULATES FLIGHT

CONTROL SYSTEM

HAYS, J. R. /BOEING CO./ DATE- NOV. 1968

M-FS-14787

Fast, accurate technique for simulating the Saturn Flight Control System was devised. The technique is simple to implement and can be readily substituted for slower or less accurate techniques. This technique can be applied to a large class of problems that require a rapid accurate calculation of the response of linear differential equations to a continuous input.

B68-10570

IMPROVED TECHNIQUE FOR DIGITAL SIMULATION

OF BENDING AND SLOSH PHENOMENA

STAUFFER, N. E. /BOEING CO./ DATE- NOV. 1968

M-FS-14788

Mathematical model representation of bending and slosh phenomena in the Saturn vehicle results in linear second order differential equations. Improved technique was developed to provide a real-time digital solution of the equations. The technique may also be applied to nonreal time digital simulations, resulting in savings of digital computer time.

B68-10571

CORRECTION FOR LOSSES IN OPTICAL

BIREFRINGENT NETWORKS, A CONCEPT

AMMAN, E. O. /SYLVANIA ELEC. PROD./ DATE- NOV.

1968 REAN- SEE ALSO B68-10260 AND B68-10275

M-FS-20088

Technique determines the effects of losses upon the performance of a birefringent network and shows how the desired amplitude transmittance of the network may be corrected /or predistorted/, prior to synthesizing the birefringent network, to prevent the effects of crystal losses.

B68-10574

TRAINING MANUAL ON OPTICAL ALIGNMENT

INSTRUMENTS

SPON- INNOVATOR NOT GIVEN /MARSHALL/ DATE- DEC. 1968

M-FS-20292

Training Manual RQA/M5 provides a basic course of instruction in the use of optical instruments for precise dimensional control and alignment of structural elements and assemblies, such as associated with space vehicles, aircraft, ships, and buildings.

B69-10001

SHORTENED PROCESSING TIME TECHNIQUE FOR

COLOR INDUSTRIAL RADIOGRAPHY

LAPINSKI, N. P. DATE- JAN. 1969

ARG-10235

Improved processing method reduces time required to generate a color radiograph. Prior to, or after exposure to penetrating radiation, the emulsion side of the film is flashed to a colored light which produces the hue changes in the processed radiograph. Agitation of the film during processing assures uniformity of results.

B69-10002

ISOTHERMAL DSC CALORIMETER PROVIDES

MEASUREMENTS FOR ALPHA ACTIVE, PYROPHORIC

MATERIALS

SAVAGE, H. DATE- JAN. 1969

ARG-10186

Isothermal drop calorimeter measures the heat content of intensely alpha active and pyrophoric materials in inert atmospheres. It consists of a furnace, calorimeter, and aluminum isothermal jacket contained within an inert-atmosphere glove box, which permits the use of unencapsulated materials without exposing personnel to alpha contamination.

B69-10003

DAUGHTER GROWTH IN FRESHLY SEPARATED

RA-226, AC-227 AND U-232

BASILE, L. J. MACIAS, E. S. MILSTEAD, J.

STEWART, D. C. DATE- JAN. 1969 REAN- SEE ALSO

ANL-7205

ARG-10226

Report provides computer-calculated curves and tables for the daughter buildup of Ra-226, Ac-227 and U-232 chains. Data are presented as a function of time beginning with pure samples of each parent. The information may be of interest to those using decay chains as isotopic alpha sources or neutron sources.

B69-10005

GE-DIODE DETECTOR COMBINED WITH

CRYSTAL-DIFFRACTION SPECTROMETER PERMITS

HIGH-RESOLUTION GAMMA RAY SPECTROSCOPY

NANENSON, A. I. SMITHER, R. K. DATE- JAN. 1969

ARG-10190

Crystal-diffraction spectrometer, combined with a lithium-drifted Ge-diode detector, performs high-resolution gamma ray spectroscopy on the complicated neutron-capture gamma ray spectra. The system is most useful in the 1-3 MeV energy range and improves the signal to background ratio.

B69-10011

NONDISPERSIVE X-RAY EMISSION ANALYSIS FOR

GEOCHEMICAL EXPLORATION

ADLER, I. LAMOTHE, R. SCHMADEBECK, R. TROMBKA,

J. I. /LAB. FOR THEORET. STUDIES/ SCHMADEBECK,

R./MELPAR, INC./ DATE- JAN. 1969

GSFC-10568

Nondispersive X ray emission technique uses lightweight, and rugged X ray fluorescence units. The X ray pulse-height spectra is excited by radioactive isotope sources. The technique is applicable for quantitative and qualitative analyses on complex chemical systems, and satisfies the goals for a lunar geochemical exploration device.

B69-10017

VARIABLE-MESH METHOD OF SOLVING

DIFFERENTIAL EQUATIONS

VAN WYK, R. /N. AM. ROCKWELL CORP./ DATE- FEB.

1969

NPO-10515

Multistep predictor-corrector method for numerical solution of ordinary differential equations retains high local accuracy and convergence properties. In addition, the method was developed in a form conducive to the generation of effective criteria for the selection of subsequent step sizes in step-by-step solution of differential equations.

B69-10020

METHOD OF MAKING CONICAL FIBER OPTICAL

COMPONENTS

BALKWILL, J. T. CAPELLARO, D. F. /OPTICS

TECHNOL./ DATE- FEB. 1969

XNP-09745

Improved method for producing fused-fiber optical components is described. These components have a frusto-conical shape and provide high-quality light transmission with high resolution capabilities. Fiber optical components can be used in precision optical systems, such as in certain camera applications.

B69-10024

BEAM PROFILES MEASURED WITH

THERMOLUMINESCENT DOSIMETERS

LUCKS, H. MARCOWITZ, S. M. WHEELER, R. W. DATE-

FEB. 1969 REAN- SEE ALSO ANL-7196

ARG-10229

Beam profilometer, using thermoluminescent

dosimeters, gives a quantitative and qualitative representation of the focus of an external proton beam of a synchrotron. The total number of particles in the beam, particle distribution, and the shape of the beam are determined.

B69-10028

GAGE MEASURES TOTAL RADIATION, INCLUDING

VACUUM UV, FROM IONIZED HIGH-TEMPERATURE

GASES

WOOD, A. D. /LOCKHEED MISSILES AND SPACE CO./

DATE- FEB. 1969

XNP-09802

Transient-heat transfer gage measures the total radiation intensity from vacuum ultraviolet and ionized high temperature gases. The gage includes a sensitive piezoelectric crystal that is completely isolated from any ionized flow and vacuum ultraviolet irradiation.

B69-10042

INSTABILITIES ENCOUNTERED DURING HEAT

TRANSFER TO A SUPERCRITICAL FLUID

CORNELIUS, A. J. DATE- FEB. 1969 REAN- SEE ALSO

ANL-7032

ARG-10266

Investigation was made of the unstable behavior of a heat-transfer loop operating at a supercritical pressure. Natural convection operation of the loop, with observations on acoustic and slow oscillatory behavior, was emphasized during testing. The basic cause of both types of behavior appeared to originate in the heated boundary layer.

B69-10043

PROPAGATION OF DENSITY DISTURBANCES IN

AIR-WATER FLOW

NASSOS, G. P. DATE- FEB. 1969 REAN- SEE ALSO

ANL-7053

ARG-10260

Study investigated the behavior of density waves propagating vertically in an atmospheric pressure air-water system using a technique based on the correlation between density change and electric resistivity. This information is of interest to industries working with heat transfer systems and fluid power and control systems.

B69-10047

ANALYSIS OF TRANSIENT THERMAL STRESS IN

HEAT-GENERATING PLATES AND HOLLOW CYLINDERS

CAUSED BY SUDDEN ENVIRONMENTAL TEMPERATURE

CHANGES

ROSENBERG, G. S. SCHOEERLE, D. F. VALENTIN, R.

A. DATE- FEB. 1969 REAN- SEE ALSO ANL-7294

ARG-10274

Analysis and solution are presented for transient thermal stresses in a free heat-generating flat plate and a free, hollow-generating cylinder as a result of sudden environmental changes. The technique used and graphical results obtained are of interest to the heat transfer industry.

B69-10057

DEWPOINT TEMPERATURE INVERSIONS ANALYZED

ASHBY, W. C. /SOUTHERN ILLINOIS UNIV./ BOGNER,

M. A. MOSES, H. DATE- MAR. 1969

ARG-10316

Dewpoint temperature inversion, with regard to other simultaneous meteorological conditions, was examined to establish the influence of meteorological variables on the variation of dewpoint temperature with height. This report covers instrumentation and available data, all the climatological features of dewpoint inversions, and specific special cases.

B69-10060

OPTICALLY EXCITING A MAGNETIC MEMORY - A

FEASIBILITY STUDY

GRISHORE, F. L. RHODES, J. E. /GEORGIA INST. OF

TECH./ DATE- MAR. 1969

M-FS-14854

Rare earth iron garnets were used in experiments to determine the feasibility of optically pumping a magnetic material to effect the switching process. It was found that rare earth garnets are limited by an absorption edge, only terbium

Q2 PHYSICAL SCIENCES (ENERGY SOURCES)

and dysprosium offer a possibility of pumping at energies below the conduction band edge.

B69-10075
SELECTIVE VIGNETTING OF TYPE 1 X-RAY
TELESCOPES
MANGUS, J. DATE- MAR. 1969
GSFC-10682

Selective vignetting technique optimizes the performance of a Type 1 X-ray telescope. The image quality of the telescope system is improved by matching the detector to the optimum focal surface and by vignetting rays which formerly contributed to the flare in comatic images.

B69-10077
ROCKET SONDE MEASUREMENTS OF OZONE IN THE
UPPER ATMOSPHERE
HILSENATH, E. DATE- MAR. 1969
GSFC-10580

Rocket sonde measurement of ozone content in the mesosphere and stratosphere is accomplished by an in situ determination of the ozone mixing rates as a function of altitude from approximately 65 km to 20 km. A chemiluminescent detector is used as an ozone sensor.

B69-10078
STUDY OF LATTICE DEFECT VIBRATION
ELLIOTT, R. J. DATE- MAR. 1969 REAN- SEE ALSO
ANL-7237
ARG-10221

Report on the vibrations of defects in crystals relates how defects, well localized in a crystal but interacting strongly with the other atoms, change the properties of a perfect crystal. The methods used to solve defect problems relate the properties of an imperfect lattice to the properties of a perfect lattice.

B69-10080
THE RESPONSE OF MONOENERGETIC GAMMA RAYS
IN FINITE MEDIA ARE INVESTIGATED
SNOW, W. J. DATE- MAR. 1969 REAN- SEE ALSO
ANL-7314
ARG-10295

In a study of the transport of radiation in matter, the response parameters of monoenergetic gamma rays incident on various materials with finite geometries were calculated on a CDC 3600 computer. The report includes results for gamma rays normal to cylindrical germanium and silicon detectors.

B69-10082
AN ULTRASONIC METHOD FOR STUDYING ELASTIC
MODULI AS A FUNCTION OF TEMPERATURE
PETERSON, R. G. DATE- MAR. 1969 REAN- SEE ALSO
ANL-7119
ARG-10187

Ultrasonic method is used to determine the elastic moduli of materials used in components of high-temperature nuclear reactors. An ultrasonic, pulse-echo technique determines the velocity of sound waves propagating in a heated region of rod-shaped specimens. From these velocities, the elastic moduli are calculated.

B69-10089
NUMERICAL INTEGRATION OF ORDINARY
DIFFERENTIAL EQUATIONS OF VARIOUS ORDERS
GEAR, C. W. /ILLINOIS UNIV./ DATE- APR. 1969
REAN- SEE ALSO ANL-7126
ARG-10247

Report describes techniques for the numerical integration of differential equations of various orders. Modified multistep predictor-corrector methods for general initial-value problems are discussed and new methods are introduced.

B69-10091
LIQUID-METAL HEAT TRANSFER IN A COCURRENT-
FLOW, DOUBLE-PIPE HEAT EXCHANGER IS
INVESTIGATED
MERRIAM, R. L. DATE- APR. 1969 REAN- SEE ALSO
ANL-7056
ARG-10261

Analysis of liquid-metal heat transfer in cocurrent-flow, double-pipe heat exchangers shows

that heat-transfer coefficients depend upon the operating conditions of the heat exchanger and that use of the customary design equation to predict heat-exchanger performance leads to significant errors.

B69-10099
ACTIVE FREQUENCY CONTROL SYSTEM FOR
ARGON FM LASER
SPON- INNOVATOR NOT GIVEN /SYLVANIA ELEC.
PRODUCTS/ DATE- JUN. 1969
M-FS-14988

Frequency control system positions mirrors at either end of the laser cavity so the mirror separation is independent of thermal and acoustical fluctuations. A small portion of the laser output is split and directed upon a photodetector /photodiode/.

B69-10102
FAST FRAMING CAMERAS PROVIDE HIGH-SPEED
MULTI-CHANNEL DATA RECORDING
DE VOLPI, A. DATE- APR. 1969
ARG-10252

Fast-framing cameras record data obtained by a multichannel hodoscope which monitors reactor physics experiments. The cameras provide high rates of data acquisition at low equipment cost.

B69-10107
OCULTING-FILTER METHOD FOR OBTAINING
FLASHING-LIGHT VISIBILITY DATA
HARDY, A. C. ZAPP, K. /MIT/ DATE- APR. 1969
MSC-13097

Occluding-filter technique allows several types of flashing-light visibility data necessary for rendezvous and docking maneuvers, to be obtained for studying the perception of flashes at the visual threshold. The indications are that the method can be used to compare sources of radically different spectral composition.

B69-10112
PREDICTION OF FRICTION COEFFICIENTS FOR
GASES
TAYLOR, M. F. DATE- MAY 1969 REAN- SEE ALSO
NASA-TR-R-267
LEWIS-10774

Empirical relations are used for correlating laminar and turbulent friction coefficients for gases, with large variations in the physical properties, flowing through smooth tubes. These relations have been used to correlate friction coefficients for hydrogen, helium, nitrogen, carbon dioxide and air.

B69-10122
FLUORESCENT PHOTOGRAPHY OF SPRAY DROPLETS
USING A LASER LIGHT SOURCE
GROENEWEG, J. /WISCONSIN UNIV./ HIROYASU, H.
SOWLS, R. DATE- MAY 1969
LEWIS-10777

Monochromatic laser emission transformed by a fluorescent process into droplet emission over a wavelength band provides high light intensities for obtaining adequate time resolution to stop droplet action in photographic spray studies. Experiments showed that the Q switched laser-optical harmonic generator combination produced sharp, well-exposed droplet images.

B69-10142
IMPROVED COMBUSTION CHAMBER OPTICAL PROBE
WALKER, J. /LTV AEROSPACE CORP./ DATE- MAY 1969
MSC-10953

Optical inspection probe permits remote inspection of combustion chambers through 360 degrees, and is fully controllable in terms of elevation, focus, and sweep. It eliminates the hazards of physically entering combustion chamber interiors and throats of rocket engines for inspection.

B69-10165
LASER MICROPROBE FACILITY USED IN THE
ELEMENTAL ANALYSIS OF SMALL FEATURE OF A
SAMPLE
BALDWIN, J. M. /IDAHO NUCL. CORP./ DATE- JUN.
1969 REAN- SEE ALSO C1-1121
ARG-10359

Laser microprobe facility is effective in the elemental analysis of small areas of heterogeneous samples. The instrument uses the focused beam of a pulsed laser to evaporate a small volume of material from a relatively massive sample.

B69-10166

ION-RETARDING LENS IMPROVES THE ABUNDANCE SENSITIVITY OF TANDEM MASS SPECTROMETERS

KAISER, K. A. STEVENS, C. M. DATE- JUN. 1969

REAN- SEE ALSO ANL-7393

ARG-10365

Ion-retarding lens which increases the abundance sensitivity of tandem magnetic-analyzer mass spectrometers measures isotopes of low abundance in mass positions adjacent to isotopes of high abundance. The lens increases the abundance sensitivity for isotopes lying farther from high abundance isotopes than the energy cutoff of the lens.

B69-10167

PRIMARY RADICAL YIELDS IN PULSE IRRADIATED ALKALINE AQUEOUS SOLUTION

FIELDEN, E. M. HART, E. J. DATE- JUN. 1969

ARG-10322

Primary radical yields of hydrated electrons, H atoms, and OH radicals are determined by measuring hydrated electron formation following a 4 microsecond pulse of X rays. The pH dependence of free radical yields beyond pH 12 is determined by observation of the hydrated electrons.

B69-10172

DETECTION OF MOLECULAR INFRARED SPECTRA

SWANSON, L. W. /FIELD EMISSION CORP./ DATE- JUN. 1969

HQ-10377

Total Energy Distribution /TED/ measurements of field emitted electrons detect molecular infrared spectra of adsorbed molecules. Tunneling electron gives up energy to excite various modes of adsorbed molecule. These electrons, when energy-analyzed, show up on the collector and exhibit the spectra of various modes excited by tunneling electrons.

B69-10185

PLASMA-HEATING BY INDUCTION

HARRINGTON, K. /HUMPHRIES CORP./ THORPE, M. L. DATE- JUL. 1969

LEWIS-10528

Induction-heated plasma torch operates with an input of 1 Mw of direct current of which 71 percent is transferred to the plasma and the remainder is consumed by electrical losses in the system. Continuous operation of the torch should be possible for as long as 5,000 hours.

B69-10189

A PROTOTYPE HIGH POWER PORTABLE LAMP

SAMHIS, J. C. /MICRODOT, INC./ DATE- JUN. 1969

M-FS-20229

Portable lighting system serves the combined work and photographic needs of manned spacecraft efforts. This system enables the lamps to be momentarily brightened while the camera shutter is opened. The brightness is adequate for black and white or color photography and yet the increased heat load is nil.

B69-10193

RECTANGULAR-BORE, HIGH-GAIN LASER PLASMA TUBE

MOLLO, R. A. /PENNSYLVANIA STATE UNIV./ DATE- JUN. 1969

HQ-10234

Rectangular-bore tube improves population inversion obtained from upper and terminal laser states, resulting in a significant increase in unsaturated gain factor. Radial field produces efficient pumping of upper laser state. Narrow tube dimensions cause increased diffusion flow of neon in metastable states to tube walls.

B69-10194

STUDIES OF CYCLES FOR LIQUID-METAL MAGNETOHYDRODYNAMIC GENERATION OF POWER

LEE, K. PETRICK, M. DATE- JUN. 1969 REAN- SEE

ALSO ANL-6954

ARG-10250

Studies of liquid-metal magnetohydrodynamic power cycles indicate that the overall efficiency of a binary cycle, employing a liquid-metal topping cycle and a bottoming steam cycle, may reach 60 percent. Details of analyses and data on cycles are presented, and the commercial potential of the binary cycle is discussed.

B69-10201

ULTRA-HIGH-FLUX HEAT EXCHANGER

TREBES, D. M. /N. AM. ROCKWELL CORP./ DATE- JUN. 1969

M-FS-18135

Spherical depressions on the wall of the inner tube increase the heat flux in a concentric tube heat exchanger. Regularly spaced patterns of precisely formed depressions on the inner wall alleviate the film-binding phenomenon without significantly degrading the flow characteristics.

B69-10204

SOME NUMERICAL METHODS FOR INTEGRATING SYSTEMS OF FIRST-ORDER ORDINARY DIFFERENTIAL EQUATIONS

CLARK, N. W. DATE- JUL. 1969 REAN- SEE ALSO ANL-7428

ARG-10308

Report on numerical methods of integration includes the extrapolation methods of Bulirsch-Stoer and Neville. A comparison is made with the Runge-Kutta and Adams-Moulton methods, and circumstances are discussed under which the extrapolation method may be preferred.

B69-10210

IMPROVED LIQUID-LEVEL SENSOR FOR CRYOGENICS

HYMAN, L. G. SHEPPARD, J. F. SPINKA, H. DATE- JUL. 1969

ARG-10162

Liquid-level indicator, consisting of a diode heated by a resistor, allows simultaneous use of two or three of the liquids nitrogen, hydrogen, and helium. Operation depends on strong temperature-dependence of the forward resistance of a germanium diode and the difference between liquid and vapor in heat-transfer properties.

B69-10211

ANALYSES OF SILICON DIOXIDE, MAGNESIUM OXIDE, LEAD FLUORIDE, BISMUTH AS LOW-PASS VELOCITY FILTERS FOR NEUTRONS

CONNOR, D. HOLMRYD, S. DATE- JUN. 1969

ARG-10220

Transmission measurement of neutrons by filter materials for low energy neutrons is important for the study of structure and dynamics of condensed matter. Since only thermal neutrons are useful for such experiments, filter materials that transmit thermal neutrons while attenuating fast neutrons and gamma rays are of considerable interest.

B69-10214

MULTICHANNEL ANALYZERS AT HIGH RATES OF INPUT

RUDNICK, S. J. STRAUSS, M. G. DATE- JUL. 1969

ARG-10355

Multichannel analyzer, used with a gating system incorporating pole-zero compensation, pile-up rejection, and baseline-restoration, achieves good resolution at high rates of input. It improves resolution, reduces tailing and rate-contributed continuum, and eliminates spectral shift.

B69-10226

CAMERA MOUNT FOR CLOSE-UP STEREO PHOTOGRAPHS

GLAUDE, P. H. DATE- JUL. 1969

LANGLEY-10442

Camera mount, adaptable to any camera, facilitates obtaining close-up stereo pairs of photographs. The basic mount can be used with any standard camera, or with a stereo camera. The design of the camera adapter can be varied to meet mounting requirements of the particular camera used.

02 PHYSICAL SCIENCES (ENERGY SOURCES)

B69-10234

LIQUID LASER CAVITIES

BJORKLUND, S. /LOCKHEED ELECTRON./ FILIPESCU, N.
/GEO. WASHINGTON UNIV./ KELLERMEYER, G. L. MC
AVOY, N. DATE- JUL. 1969
GSPC-10592

Liquid laser cavities have plenum chambers at the ends of the capillary cell which are terminated in transparent optical flats. By use of these cavities, several new europium chelates and a terbium chelate can provide laser action in solution at room temperature.

B69-10248

DUAL-MODE OPERATION OF A NEUTRON SOURCE, A CONCEPT

GIVENS, W. W. MILLS, W. R., JR. /MOBIL OIL
CORP./ DATE- JUL. 1969
HQ-10106

Pulsed neutron source operates in conjunction with a photomultiplier tube coupled to a gamma ray scintillation crystal. This allows measurements of gamma radiation from both inelastic scattering and thermal neutron capture in a single experiment.

B69-10249

TUNGSTEN THERMAL NEUTRON DOSIMETER

BALL, L. L. RICHARDSON, P. J. SHEIBLEY, D. W.
DATE- AUG. 1969
LEWIS-10880

Tungsten-185 activity, which is produced by neutron activation of tungsten-184, determines thermal neutron flux. Radiochemical separation methods and counting techniques for irradiated tungsten provide accurate determination of the radiation exposure.

B69-10255

CHANNEL-WALL LIMITATIONS IN THE MAGNETOHYDRODYNAMIC INDUCTION GENERATOR

JACKSON, W. D. /MIT/ PIERSON, E. S. DATE- JUL.
1969 REAN- SEE ALSO ANL-7148
ARG-10128

Discussion of magnetohydrodynamic induction generator examines the machine in detail and materials problems influencing its design. The higher upper-temperature limit of the MHD system promises to be more efficient than present turbine systems for generating electricity.

B69-10258

CONCENTRATIONS OF THE NATURALLY OCCURRING

HOLTZMAN, R. B. DATE- JUL. 1969

ARG-10345

Study reveals naturally occurring radionuclides are ubiquitous and contribute a substantial fraction of the natural radiation dose to humans and various biota. Measurements may be useful in ecological and other biological problems such as tracing food chains of animals and study of the metabolism of these elements.

B69-10260

MULTILAYER INFRARED BEAMSPLITTER FILM SYSTEM

BASTIEN, R. C. /PERKIN-ELMER CORP./ HEINRICH, P.
L. DATE- AUG. 1969
XGS-11036

Multilayer infrared beamsplitter film system on a potassium bromide crystal substrate is operational over a wavelength range of 2.5 to 25 microns with nearly equal broadband reflectance and transmittance. It is useful in optical coating, vacuum deposition, radiometry, interferometry, and spectrometry.

B69-10275

A CONCEPT FOR MAGAZINE Bimat PROCESSOR

PARK, C. E. /BOEING CO./ DATE- AUG. 1969
KSC-06786

Concept utilizes existing film magazines to process photographic film as the film is exposed. A standard magazine can be converted to a Bimat processor by adding three stainless steel rollers. All chemicals required for processing and fixing the negative are contained in the Bimat film.

B69-10276

PNEUMATIC ANALOG-TO-PULSE FREQUENCY CONVERTER

DUSTIN, M. O. DATE- AUG. 1969
LEWIS-10345

Pneumatic analog-to-pulse frequency converter circuit has output pulse frequency proportional to the pressure level of the input signal. Converter circuit drives a pneumatic stepping motor and is part of a pneumatic control system for nuclear powered spacecraft.

B69-10286

AUTOMATIC BIRD WATCHER

EISLER, W. J., JR. FRIGERIO, N. A. DATE- AUG.
1969

ARG-10342

Radioactive-nuclide system automatically monitors animals in the field, using radioactive tracers affixed to the animals, Geiger-Muller tube radiation detectors, and event-recorders. Four animals can be monitored simultaneously within a 32-m circle, with each animal as far as 1 m from its associated detector.

B69-10291

IMPROVED FIRST ORDER INTERPOLATOR

ANDREWS, C. A. /IBM CORP./ DATE- AUG. 1969
MSC-11085

Data compression method enables first order interpolator to operate at higher speeds. Method requires same number of additions and subtractions but fewer multiplications than the conventional method.

B69-10301

SEMI-AUTOMATIC INSPECTION OF MICROFILM RECORDS

KLEIN, E. L. /RCA SERVICE CO./ DATE- AUG. 1969
M-PS-20240

Semiautomatic machine inspects microfilm for deficiencies. Advantages of microfilm inspector are uniformity of inspection method, increased speed of inspection, and improved quality through elimination of scratches and finger marks.

B69-10311

MULTIPURPOSE BINOCULAR SCANNING APPARATUS

CHAMBERLAIN, F. R. PARKER, G. L. DATE- AUG. 1969
NPO-11002

Optical gimballing apparatus directs narrow fields of view throughout solid angle approaching 4 pi steradians. Image rotation produced by scanning can be eliminated or altered by gear trains directly linked to the scanning drive assembly. It provides the basis for a binocular scanning capability.

B69-10321

A METHOD FOR PREDICTING INTERFACIAL

FREEZING OF A LIQUID FLOWING OVER A COLD SURFACE

SAVINO, J. M. SIEGEL, R. DATE- AUG. 1969
LEWIS-10813

Instantaneous thickness of a frozen layer is a function of specific heat, heat of fusion, temperatures, the frozen layer thickness at equilibrium, the thermal conductivity, and heat transfer coefficient. The equation can be evaluated on a desk calculator.

B69-10324

LASER ACTION FROM A TERBIUM BETA-KETOENOLATE AT ROOM TEMPERATURE

BJORKLUND, S. /LOCKHEED ELECTRONICS CO./
FILIPESCU, N. /GEO. WASHINGTON UNIV./ HURT, C.
R. KELLERMEYER, G. MC AVOY, N. DATE- SEP. 1969
GSPC-10593

Laser activity is achieved in a solution of terbium tris at room temperature in a liquid solvent of acetonitrile or p-dioxane. After precipitation, the microcrystals of hydrated tris chelate are filtered, washed in distilled water, and dried. They show no signs of deterioration after storage.

B69-10332

RESTRICTED-FLOW JUNCTION BETWEEN LIQUIDS

VANGO, S. P. DATE- SEP. 1969
NPO-10682

allowing a liquid to seep through a long crack in glass provides means for restricting its flow for long periods without attention. The length of the crack prevents the plugging to which capillaries are susceptible.

B69-10336
PREFERRED-ORIENTATION ANALYSIS OF
POLYCRYSTALLINE MATERIALS
DE WYS, E. C. DATE- SEP. 1969
NFO-10604

Automatic device built around a goniometer examines characteristics of polycrystalline materials and determines preferred orientations of crystallites. It is automatically rotatable in each of two planes and has circuit regulated sequential rotation. A fixed X ray source in conjunction with a detector examines the material.

B69-10341
AN IMPROVED ATOMIC HYDROGEN FREQUENCY AND
TIME STANDARD
MC GUNIGAL, T. E. PETERS, H. E. DATE- SEP. 1969
GSFC-10706

Use of a large bulb, long-multipole magnet, automatic tuner and aluminum cavity provides an improved hydrogen maser which is accurate over long periods of time and suitable for tracking station environments.

B69-10344
NEW SHIELD FOR GAMMA-RAY SPECTROMETRY
BRAR, S. S. GUSTAFSON, P. F. NELSON, D. M.
DATE- AUG. 1969
ARG-10388

Gamma ray shield that can be evacuated, refilled with a clean gas, and pressurized for exclusion of airborne radioactive contaminants effectively lowers background noise. Under working conditions, repeated evacuation and filling procedures have not adversely affected the sensitivity and resolution of the crystal detector.

B69-10365
IMPROVED VACUUM DEPOSITION APPARATUS
ERFENBACH, H. DATE- SEP. 1969
NFO-11009

Improved apparatus enables vacuum deposition of thick metal films on the inside surface of a cylinder. The evaporant is deposited to a uniform thickness and distribution on the inside surface of the substrate without imperfections that would otherwise result from droplet formation.

B69-10371
PREDICTION OF THERMAL RADIATION FROM A
ROCKET'S EXHAUST PLUME
LUDWIG, C. B. /GENERAL DYNAMICS CORP./ DATE-
SEP. 1969
M-FS-20414

Data from absorption coefficients and fine-structure parameters measured for water vapor have been incorporated in an analytic program useful in evaluating heating by radiation from the exhaust plume of a large rocket.

B69-10387
DIELECTRIC MATERIALS FOR USE IN THIN-FILM
CAPACITORS
CARR, H. E. /AUBURN UNI./ POSTER, W. D.
FROMHOLD, A. T., JR. HARBURCK, T. A. DATE- SEP.
1969 REAN- SEE ALSO NASA CR-90301
M-FS-20471

Investigation report presents details of dielectric properties of various metals measured at 300 degrees K for thermally evaporated oxides from 300 to 6000 Å in thickness. It is relevant to the medium of integrated circuitry.

B69-10405
IMPROVED METHOD OF OPTICAL DESIGN
HOWELL, B. J. /SPERRY RAND CORP./ DATE- SEP.
1969
GSFC-10743

Optical system designed by third order aberration theory is significantly improved by placing it into a ray deviation design program composed of

two distinct computer programs. Tests were conducted on telescope systems, an ultraviolet relay lens, and a four lens corrector system.

B69-10411
HYDROGEN FLASH LAMPS STUDIED
BENSON, M. J. BERLMAN, I. B. STEINGRAGER, O. J.
DATE- SEP. 1969
ARG-10419

Parameters of gas pressure, type of gas, tube voltage, and electrode gap are tested on the intensity and shape of a radiation pulse from a hydrogen-filled lamp.

B69-10415
NUMERICAL INVERSION OF FINITE TOEPLITZ
MATRICES AND VECTOR TOEPLITZ MATRICES
BAREISS, E. H. DATE- SEP. 1969
ARG-10445

Numerical technique increases the efficiencies of the numerical methods involving Toeplitz matrices by reducing the number of multiplications required by an N-order Toeplitz matrix from N-cubed to N-squared multiplications. Some efficient algorithms are given.

B69-10421
CONCEPT FOR IMPROVED VACUUM PRESSURE
MEASURING DEVICE
MEDVED, D. B. /ELECTRO-OPTICAL SYSTEMS, INC./
DATE- SEP. 1969
M-FS-20172

To measure vacuum pressures in the range of 5 times 10 to the minus 7 to 5 times 10 to the minus 16, a semiconductor resistor composed of sintered zinc oxide is used. Through the effect of surface adsorbed gases on the resistance of the semiconductor material, very low pressures are measured.

B69-10424
ROOT-CUBING AND GENERAL ROOT-POWERING
METHODS FOR FINDING THE ZEROS OF POLYNOMIALS
BAREISS, E. H. DATE- SEP. 1969
ARG-10444

Mathematical analysis technique generalizes a root squaring and root cubing method into a general root powering method. The introduction of partitioned polynomials into this general root powering method simplifies the coding of the polynomial transformations into input data suitable for processing by computer. The method includes analytic functions.

B69-10428
WALL-THICKNESS CHANGES PREDICTED IN
HOLLOW-DRAWN TUBING
FLINN, J. E. MURA, T. /NORTHWESTERN UNIV./
DATE- SEP. 1969
ARG-10425

Hollow-tube drawing or tube sinking theory is based on the concept of continuous distribution of dislocations. Material composition, parameter influence, and die-angle are determining factors in derivation of the theoretical model.

B69-10431
ENERGY-STORAGE OF A PRESCRIBED IMPEDANCE
SMITH, W. E. DATE- SEP. 1969
ARG-10428

General mathematical expression found for energy storage shows that for linear, passive networks there is a minimum possible energy storage corresponding to a prescribed impedance. The electromagnetic energy storage is determined at different excitation frequencies through analysis of the networks terminal and reactance characteristics.

B69-10444
OCULOMETER FOR REMOTE TRACKING OF EYE
MOVEMENT
MASON, K. A. /HONEYWELL, INC./ MERCHANT, J.
DATE- NOV. 1969
ERC-10114

Prototype oculometer which tracks lateral eye position and measures the direction of the eyes optical axis, pupil size, and blink occurrence performs measurements on the subject on a

real-time basis from a remote location.

B69-10446

METHOD FOR PREDICTING PUMP CAVITATION
PERFORMANCE

MOORE, R. RUGGERI, R. DATE- SEP. 1969
LEWIS-10916

Method requires the availability of two sets of appropriate data for each pump to be analyzed. At least one set of the data must provide measurable thermodynamic effects of cavitation.

B69-10447

CROSSED-BEAM TECHNIQUE FOR MEASURING
HORIZONTAL WINDS

HEYBEY, W. H. /AERO-ASTRODYNAMICS LAB./ DATE-
SEP. 1969

M-FS-20160

Three ground-based single-beam detectors determine wind vectors present within a given volume. Winds approximately constant near a selected height, blowing into or out of a 90 degree arc can be calculated with reasonably small error.

B69-10462

METHOD FOR DETERMINING PROPERTIES OF
MICROINSTABILITIES OF A MAGNETIZED PLASMA

CALLEN, J. D. /MIT/ MC CUNE, J. E. DATE- DEC.
1969

HQ-10447

Study comprises a determination of the plasma density at which absolute density becomes predominant by using the dielectric properties at this incipient unstable state. Relationships between wavelength, frequency, and density microinstabilities are used to derive the spatial dielectric function.

B69-10466

PROPOSED ACOUSTO-OPTIC FILTER

HARRIS, S. E. /STANFORD UNIV./ DATE- SEP. 1969
HQ-10440

Narrow band optical filter is electronically tunable over a large wavelength region. The filter utilizes collinear acousto-optic diffraction in an optically anisotropic media.

B69-10467

DAMPING OF THERMOELASTIC STRUCTURES

GILLIS, W. H. DATE- SEP. 1969
M-FS-20002

Report ascertains the effects of thermoelastic damping on the propagation of longitudinal waves in cylindrical rods. Review of results of wave propagation in unbounded elastic solids and in elastic cylinders precedes consideration of thermal modification of elastic properties.

B69-10469

PIEZOELECTRIC LINEAR ACTUATOR

LEHRER, S. /ASTROSYSTEMS INTERNATIONAL INC./
DATE- OCT. 1969

MSC-13194

Actuator exerts linear force that is controllable and reproducible to microinch tolerance. It is constructed for extremely accurate control of a valve but can also be used as a variable Venturi meter, micropositioner, microthruster, and in fluidics and reaction-control systems.

B69-10504

REPORT ON A CRYOGENIC GYROSCOPE

HARDING, J. T. DATE- OCT. 1969
NPO-11200

Report summarizes the principal problems encountered in sphere fabrication, magnetic field losses in superconductors, configurations for the supporting field, damping oscillations, refrigeration, techniques for accelerating the sphere, read-out, and testing the stability of the gyro.

B69-10508

METHOD OF DIRECTING A LASER BEAM WITH VERY
HIGH ACCURACY

ALLEN, L. H. SHUMATE, M. S. WESTPHAL, J. A.
DATE- OCT. 1969

NPO-11087

System will collimate and direct an argon laser

beam with high angular tracking accuracy at objects on the moons surface. It can be adapted to missile and satellite tracking.

B69-10510

ION MASS SPECTROMETER FOR SPECIAL USES

ABRAMSON, R. H. /TRW, INC./ FREDERICKS, R. W.
DATE- OCT. 1969

HQ-10418

Prototype of curved-electrode, Paul-type, quadrupole, electrodynamic mass filter has the mass-resolution and transmission-factor properties expected from both theoretical considerations and results of experiments using linear quadrupole features.

B69-10520

A NEW METHOD FOR THE DETERMINATION OF
PARTICULATE CONTAMINATION LEVELS FOR
SURFACE CLEANLINESS OF FLUID SYSTEMS

SPON- INNOVATOR NOT GIVEN /HAYES INTERN. CORP./
DATE- NOV. 1969

KSC-10267

Levels of contamination in fluid systems can be determined by a definition of a particle by a mathematical model, a method for calculating the tolerance limits of contamination, and an estimation of the probability that the contamination on the surface will migrate with the fluid in the system.

B69-10528

DESIGN AND SPARING TECHNIQUES TO MEET

SPECIFIED PERFORMANCE LIFE

HOLSTEAD, A. J., JR. /GE/ DATE- OCT. 1969
HQ-10200

Specified performance life technique starts with the general description of what is wanted, defines in block diagram the operational needs, and then defines the functional systems required. The technique is similar to a truncated reliability model, but the calculation is simplified by use of a Poisson distribution approach to failure probability.

B69-10529

A NEW METHOD FOR PRODUCING OPTICAL MIRRORS

MARKLE, D. A. /PERKIN-ELMER CORP./ VRABEL, J.
DATE- OCT. 1969

HQ-10227

Pure silicon improves optical mirrors for use in telescopes and high resolution optical systems. Pure silicon is used in both mirror and substrate in environments where large thermal changes occur. It has applicability in astronomical devices.

B69-10541

CRYOGENIC FLUID FLOW INSTABILITIES IN HEAT
EXCHANGERS

FLEMING, R. B. /GE/ STAUB, F. W. DATE- OCT.
1969

M-FS-20438

Analytical and experimental investigation determines the nature of oscillations and instabilities that occur in the flow of two-phase cryogenic fluids at both subcritical and supercritical pressures in heat exchangers. Test results with varying system parameters suggest certain design approaches with regard to heat exchanger geometry.

B69-10554

MINIATURIZED HIGH-RESOLUTION MASS/CHARGE

SPECTROGRAPH /DESIGN STUDY/

TAYLOR, L. H. /ELECTRO-OPTICAL SYSTEMS/
DATE- OCT. 1969

MSC-13279

Use of a double-focusing mass/charge spectrograph weighing less than 25 pounds is feasible for solar wind experiments. Instrument has a parallel-plate energy filter between the ion source and the double focusing units which alleviates the problem of designing an ion source of small energy spread.

B69-10556

MODIFIED CRYOGENIC STORAGE TANK SUBSYSTEM

BURNS, W. J. /BOEING CO./ ROBERTS, R. H. DATE-
OCT. 1969

KSC-10380

Internal spray distribution header is put into a liquid hydrogen vaporizer. When connected to the cryogenic material, it equalizes cooling around the circumference of the inlet header.

B69-10560

A THEORETICAL STUDY OF RADAR BACKSCATTER FROM DISTRIBUTED TARGETS WITH EMPHASIS ON POLARIZATION DEPENDENCE

HUYNEN, J. R. /LOCKHEED MISSILE AND SPACE CO./
DATE- NOV. 1969

M-PS-13775

Mathematical framework for the electromagnetic scattering from random extended targets, such as terrain and sea surface, encompasses both power scattering and signal depolarization. It incorporates specular treatment of electromagnetic scattering as well as the electrical properties represented by surface impedance and polarization dependence.

B69-10562

MOLECULAR RADIATION - ITS APPLICATION IN PHYSICAL MEASUREMENTS AND ANALYSES
SPON- INNOVATOR NOT GIVEN /MARSHALL SPACE FLIGHT CENTER/ DATE- OCT. 1969

M-PS-14816

Specialists Conference held at Marshall Space Flight Center reviewed work in molecular radiation to evaluate research possibilities in this field. Topics included spectral-line studies in the laboratory, application to practical heat transfer calculations of radiative transfer models, and use of measured radiation properties of gases.

B69-10563

WATER-GLYCOL SYSTEM VOLUME CALCULATION
LILEY, B. /N. AM. ROCKWELL CORP./ SCHAEDEL, G.
C. DATE- OCT. 1969

MSC-15193

Two methods calculate the volume of a thermodynamic system. Integral method uses an iterative solution to determine volume based on constants of liquid mass and gas mass. Differential method approximates volume by its initial values plus first-order differential changes in volume as functions of temperature and pressure.

B69-10577

FREQUENCY DOMAIN ANALYSIS AND SYNTHESIS OF LUMPED PARAMETER SYSTEMS USING NONLINEAR LEAST SQUARES TECHNIQUES

HAYS, J. R. /BOEING CO./ DATE- DEC. 1969
M-PS-15033

Lumped parametric system models are simplified and computationally advantageous in the frequency domain of linear systems. Nonlinear least squares computer program finds the least square best estimate for any number of parameters in an arbitrarily complicated model.

B69-10591

A POLAR GRAPHIC METHOD FOR DETERMINING THE ATTITUDE OF ROCKET VEHICLES

MILLER, C. F., JR. DATE- OCT. 1969
GSPC-10860

Graphic method of determining rocket attitudes by plotting data obtained by fluxgate magnetometers and solar aspect sensors utilizes polar coordinates. Polar graph paper is used to represent either the horizon system of altitude and azimuth or the celestial system of declination and right ascensions.

B69-10594

AIRBORNE FRAUNHOFER LINE DISCRIMINATOR

GABRIEL, F. C. /PERKIN-ELMER CORP./ MARKLE, D.
A. DATE- NOV. 1969

MSC-13146

Airborne Fraunhofer Line Discriminator enables prospecting for fluorescent materials, hydrography with fluorescent dyes, and plant studies based on fluorescence of chlorophyll. Optical unit design is the coincidence of Fraunhofer lines in the solar spectrum occurring at the characteristic wavelengths of some fluorescent materials.

B69-10604

EXPERIMENTAL DESIGN FOR RESEARCH ON SHOCK-TURBULENCE INTERACTION

RADCLIFFE, S. W. /WYLE LABS./ DATE- NOV. 1969
M-PS-20031

Report investigates the production of acoustic waves in the interaction of a supersonic shock and a turbulence environment. The five stages of the investigation are apparatus design, development of instrumentation, preliminary experiment, turbulence generator selection, and main experiments.

B69-10620

SELF-SUSTAINED HYDRODYNAMIC OSCILLATIONS IN A NATURAL-CIRCULATION TWO-PHASE-FLOW BOILING LOOP

JAIN, K. C. DATE- DEC. 1969

ARG-10461

Results of an experimental and theoretical study of factors affecting self-sustaining hydrodynamic oscillations in boiling-water loops are reported. Data on flow variables, and the effects of geometry, subcooling and pressure on the development of oscillatory behavior in a natural-circulation two-phase-flow boiling loop are included.

B69-10622

FLOW PROPERTIES OF SUSPENSIONS RICH IN SOLIDS

ARMSTRONG, W. P. /WASHINGTON UNIV./ GAY, E. C.
NELSON, P. A. DATE- OCT. 1969

ARG-10481

Mathematical evaluation of flow properties of fluids carrying high concentrations of solids in suspension relates suspension viscosity to physical properties of the solids and liquids, and provides a means for predicting flow behavior. A technique for calculating a suspensions flow rates is applicable to the design of pipelines.

B69-10633

LASER INTERFEROMETER MICROMETER SYSTEM

LOGUE, S. H. /GEN. DYNAMICS/ DATE- NOV. 1969
M-PS-14747

Laser micrometer measures dimensions of precision gyro and gas bearing parts using the principle of measuring light phase changes rather than a direct fringe count. The system uses light beams to eliminate errors due to deformations and surface irregularities, and three interferometers.

B69-10645

MASS-SPECTROMETRIC STUDY OF THE RHENIUM-OXYGEN SYSTEM

BATTLES, J. E. EDWARDS, R. K. GUNDERSEN, G. E.
DATE- NOV. 1969

ARG-10421

Rhenium, having the second highest melting point among the metals, is used for refractory containers. Thermodynamic values for rhenium oxide is determined by mass spectrometry and x-ray diffraction.

B69-10654

CRYOGENIC FLUX-CONCENTRATOR

BAILEY, B. M. /MIT/ BRECHNA, H. HILL, D. A.
DATE- NOV. 1969

ARG-10494

Flux concentrator has high primary to secondary coupling efficiency enabling it to produce high magnetic fields. The device provides versatility in pulse duration, magnetic field strengths and power sources.

B69-10662

TWO-COLOR HOLOGRAPHY

HEFLINGER, L. O. /TRW SYSTEMS/ DATE- DEC. 1969
HQ-10349

Two holograms, made simultaneously, one with a red light component and one with the harmonic UV component to give two fringes in the UV construction due to shortened wavelength. The reconstruction, obtained with a He-Ne laser, could be photographed separately, giving quality interferograms.

B69-10663

FINE-LINE SENSITIVITY FOR HOLOGRAPHIC INTERFEROGRAMS

HEFLINGER, L. O. /TRW SYSTEMS GROUP/ DATE- NOV. 1969

HQ-10348

Improvement in sensitivity of holography, the technique of lensless interferometry, is obtained by enhancing the higher-order structure in the interferogram. By using the light diffracted into higher orders than the first, phase sensitivity is increased over the first order sensitivity by a factor equal to the order number used.

B69-10674

ELECTRON INTERACTION IN MATTER

DANCE, W. E. /LTV RES. CENTER/ RAINWATER, W. J. RESTER, D. H. DATE- DEC. 1969

M-FS-14886

Data on the scattering of 1-MeV electrons in aluminum for the case of non-normal incidence, electron-bremsstrahlung cross-sections in thin targets, and the production of bremsstrahlung by electron interaction in thick targets, are presented both in tabular and graphic form. These results may interest physicists and radiologists.

B69-10700

LONG RANGE HOLOGRAPHIC CONTOUR MAPPING

CONCEPT

BROOKS, R. E. /TRW SYSTEMS GROUP/ DATE- DEC. 1969

HQ-10350

Plan for generating a two dimensional contour map of a distant object with range contour intervals of a few millimeters to a few inches is accomplished by using a laser light source which has a periodically varying coherence function to form a hologram of the object.

B69-10705

HANDBOOK EXPLAINING THE FUNDAMENTALS OF NUCLEAR AND ATOMIC PHYSICS

HANLEN, D. F. /WESTINGHOUSE ASTRONUCL. LAB./ MORSE, W. J. /AEROJET-GENERAL CORP./ DATE- DEC. 1969

NUC-10330

Indoctrination document presents nuclear, reactor, and atomic physics in an easy, straightforward manner. The entire subject of nuclear physics including atomic structure ionization, isotopes, radioactivity, and reactor dynamics is discussed.

B69-10707

TECHNIQUE FOR PREDICTING THE THERMAL EXPANSION COEFFICIENTS OF CRYOGENIC METALLIC ALLOYS

CLARK, A. F. /INST. FOR BASIC STANDARDS, NBS/ DATE- DEC. 1969

NUC-10554

Series of measurements on the thermal expansion coefficients of several aerospace alloys and standard materials establish relationships between related alloys that would aid in predicting their thermal expansion reliability. Thermal expansion data are also necessary for the reduction of electrical resistivity measurements of those same materials.

B69-10712

NATURAL GAS FLOW THROUGH CRITICAL NOZZLES

JOHNSON, R. C. DATE- NOV. 1969

LEWIS-11031

Empirical method for calculating both the mass flow rate and upstream volume flow rate through critical flow nozzles is determined. Method requires knowledge of the composition of natural gas, and of the upstream pressure and temperature.

B69-10714

FLOW DIRECTION MEASUREMENT WITH FIXED PROBES

DUDZINSKI, T. J. KRAUSE, L. N. DATE- DEC. 1969

LEWIS-11044

Fixed-position probes for determination of flow direction in one and two planes are tested over a wide range of Reynolds numbers and Mach numbers. The work is limited to tests of a single probe design for two dimensional flow and a single

design for three dimensional flow.

B69-10716

CHROMATOGRAPHIC DETECTION AND ANALYSIS OF TRACES OF HYDROCARBONS

FICKEY, E. W. /BENDIX CORP./ MULLINS, H. E. DATE- DEC. 1969

KSC-10388

Special analytical column having in series two separate absorption sections charged with beads of porous polymer and a sample of gas detects traces of hydrocarbons. New method requires only 15 minutes for execution.

B69-10733

GAMMA RADIATION CHARACTERISTICS OF PLUTONIUM DIOXIDE FUEL

GINGO, P. J. DATE- DEC. 1969

NPO-11220

Investigation of plutonium dioxide as an isotopic fuel for Radioisotope Thermoelectric Generators yielded the isotopic composition of production-grade plutonium dioxide fuel, sources of gamma radiation produced by plutonium isotopes, and the gamma flux at the surface.

B69-10767

PULSE-HEIGHT DEFECT DUE TO ELECTRON INTERACTION IN DEAD LAYERS OF GE/LI/ GAMMA-RAY DETECTORS

LARSEN, R. N. STRAUSS, M. G. DATE- DEC. 1969

ARG-10362

Study shows the pulse-height degradation of gamma ray spectra in germanium/lithium detectors to be due to electron interaction in the dead layers that exist in all semiconductor detectors. A pulse shape discrimination technique identifies and eliminates these defective pulses.

B69-10771

LIQUID-METAL-PISTON MHD GENERATOR

PALMER, J. P. /ASSOCIATED UNIVERSITIES, INC./ DATE- DEC. 1969

ARG-10500

Magnetohydrodynamic generator uses a slug or piston of liquid potassium as the working fluid. An expanding vapor of the metal is allowed to reciprocate the liquid-metal-piston through a magnetic field and the expansion energy is converted directly into electrical energy.

B69-10772

SURFACE-RENEWAL MODELS FOR HEAT-TRANSFER BETWEEN WALLS AND FLUIDIZED BEDS

PATEL, R. D. DATE- DEC. 1969

ARG-10372

Two surface-renewed film penetration models describe transient heat-transfer between a wall and a fluidized bed. Methods are presented for estimation of mean residence times of particles at the transporting surface, their age densities and the average transport coefficients.

B69-10779

NUMERICAL SOLUTIONS OF DIFFERENTIAL EQUATIONS

WESSON, J. R. /VANDERBILT UNIV./ DATE- DEC. 1969

M-FS-20537

Various numerical methods for solving differential equations were analyzed and refined in an effort to develop a method which was adaptable to a large class of problems. The prime capabilities of the method included accuracy, numerical stability, and economic use of computer time. In multistep processes the corrector was changed at each step.

B69-10781

AERODYNAMIC FORCES OF FLUTTERING CYLINDRICAL AND/OR PLANAR STRUCTURES

YATES, J. E. /AERONAUTICAL RES. ZEYDEL, E. F. E. ASSOCIATES OF PRINCETON, INC./ DATE- DEC. 1969

M-FS-20497

Complexity of the phenomena of panel flutter instability has resulted in the necessity of developing separate design criteria for a variety of flow conditions and panel configurations. Vehicle panel configurations with low aspect ratios are of interest in low supersonic flow, where boundary layer effects are important.

B69-10783

IMAGE POSITION SENSOR

ROSETT, B. /KOLLSMAN INSTRUMENT CORP./ SEIFERT,

L. I. DATE- DEC. 1969

M-FS-14101

Preliminary design calculations for a proposed fine guidance experiment telescope containing a four-sided pyramidal reflector indicate that 0.01 arc sec pointing, at 0.003 arc sec sensing resolution, could be achieved by viewing a +10.0 magnitude star where the total collected light energy would be applied for fine error detection.

B69-10793

ESTIMATING RELIABILITY BY APPLICATION OF

MATRIX REPRESENTATION

AUSTIN, W. L. /GEN. ELECTRIC CO./ DATE- DEC.

1969

HQ-10246

Technique based upon matrix representation and matrix collapsing calculates the probability of successfully completing manned missions and of returning the spacecrew safely to earth. This technique provides analytic expressions for each subsystem, making it possible to relate changes in subsystem reliability directly to mission success and crew safety.

B69-10810

TRAJECTORY OPTIMIZATION USING REGULARIZED

VARIABLES

LEWALLEN, J. M. SZEBEHELY, V. /TEXAS CENTER FOR

RES./ TAPLEY, B. D. DATE- DEC. 1969

MSC-13370

Regularized equations for a particular optimal trajectory are compared with unregularized equations with respect to computational characteristics, using perturbation type numerical optimization. In the case of the three dimensional, low thrust, Earth-Jupiter rendezvous, the regularized equations yield a significant reduction in computer time.

B69-10823

DETERMINATION OF PERMISSIBLE APPLIED LOAD

STRESS IN STRUCTURAL ELEMENTS

LOY, R. E. /N. AM. ROCKWELL CORP./ POSEVER, F.

C. DATE- DEC. 1969

M-FS-16556

Graphic method is used to select allowable stresses in thermally loaded structures. Equations are used for determining the mode of failure for specific materials in order to plot a range of stress curves. Linear assumption and iterative calculations are eliminated resulting in comparatively high accuracy.

03 MATERIALS (CHEMISTRY)

B63-10004

REFERENCE BLACK BODY IS COMPACT, CONVENIENT TO

USE

DIMEFF, J. NEEL, C. B. DATE- APR. 1964

ARC-3

To replace the classical hollow sphere, a compact reference black body has been constructed from stacked razor blades. Treated with a deposit of black oxide on the surfaces or notches between the upper edges of the blades, the device is useful over a wide range of incident angles.

B63-10207

THERMALLY CONDUCTIVE METAL WOOL-SILICONE

RUBBER MATERIAL CAN BE USED AS SHOCK AND

VIBRATION DAMPER

HOUGH, W. W. DATE- APR. 1964

JPL-321

Bronze wool pads, impregnated with silicon rubber, meet the requirement for a thermally conductive, shock and vibration absorbing material. They serve as spacers in equipment mounting and are resistant to high temperatures.

B63-10234

FILTER FOR HIGH-PRESSURE GASES HAS EASY TAKE-DOWN, ASSEMBLY

MAC GLASHAN, W. F. DATE- FEB. 1964

JPL-373

A small metal filter body, for use in tubing supplying sterilization gases, has an inlet end that can be unscrewed. Inside, the high pressure filter is supported on both sides and sealed by an O ring. Design facilitates assembly and disassembly of parts.

B63-10235

CRYOGENIC FILTER METHOD PRODUCES SUPER-PURE

HELIUM AND HELIUM ISOTOPES

HILDEBRANDT, A. F. DATE- MAR. 1964

JPL-374

Helium is purified when cooled in a low pressure environment until it becomes superfluid. The liquid helium is then filtered through iron oxide particles. Heating, cooling and filtering processes continue until the purified liquid helium is heated to a gas.

B63-10263

FRESNEL CUP REFLECTOR DIRECTS MAXIMUM ENERGY

FROM LIGHT SOURCE

LAUE, E. G. YOUNGBERG, C. L. DATE- MAY 1964

JPL-424

To minimize shielding and overheating, a composite Fresnel cup reflector design directs the maximum energy from a light source. It consists of a uniformly ellipsoidal end surface and an extension comprising a series of confocal ellipsoidal and concentric spherical surfaces.

B63-10311

OIL-SMEARED MODELS AID WIND TUNNEL

MEASUREMENTS

KATZOFF, S. LOVING, D. K. DATE- APR. 1964 REAN-

SEE ALSO NASA-MEMO-3-17-59L

LANGLEY-4

For visualizing flow characteristics in wind tunnel tests, model surfaces are smeared with any common petroleum-base oils. These fluoresce under ultraviolet light and the flow patterns are readily visualized.

B63-10318

QUICK-HARDENING PROBLEMS ARE ELIMINATED WITH

SPRAY GUN MODIFICATION WHICH MIXES RESIN AND

ACCELERATOR LIQUIDS DURING APPLICATION

JOHNSON, O. W. DATE- MAR. 1964 REAN- SEE ALSO U.

S. PATENT NO. 2,930,532

LANGLEY-6A

A modified spray gun, with separate containers for resin and additive components, solves the problems of quick hardening and nozzle clogging. At application, separate atomizers spray the liquids in front of the nozzle face where they blend.

B63-10337

GALLIUM USEFUL BEARING LUBRICANT IN

HIGH-VACUUM ENVIRONMENT

BUCKLEY, D. H. DATE- MAY 1964 REAN- SEE ALSO

U.S. PATENT NO. 3,072,574

LEWIS-12

Solid gallium is used as a lubricant on bearings made of compatible materials. Such lubricants perform well in a high vacuum and under low temperature.

B63-10345

APPARATUS FACILITATES HIGH-TEMPERATURE TENSILE

TESTING IN VACUUM

SIKORA, P. F. DATE- JUN. 1964

LEWIS-42

An apparatus for heating refractory materials to high temperatures during tensile testing includes a water-cooled stainless steel vacuum chamber. This contains a resistance heater consisting of a slit tube of tantalum or tungsten to enclose the tensile test rod.

B63-10351

NEW COBALT ALLOYS HAVE HIGH-TEMPERATURE

STRENGTH AND LONG LIFE IN VACUUM

ENVIRONMENTS

ASHBROOK, R. L. FRECHE, J. C. KILMA, S. J.

DATE- MAR. 1964

LEWIS-47

Cobalt refractory metal alloys combine sheet

formability with high temperature strength and low material loss in vacuum.

B63-10365
LOW-COST INSULATION SYSTEM FOR CRYOSTATS
ELIMINATES NEED FOR A VACUUM
CALVERT, H. F. DATE- MAY 1964
LEWIS-64

In order to eliminate the hazard caused by residual air trapped between the concentric shells of a cryostat, these annular spaces are pressurized with helium gas. This system is more economical than the use of powdered insulation maintained at low vacuums.

B63-10378
LIQUID-LEVEL METER HAS NO MOVING PARTS
ESCUE, W. T. /BENDIX CORP./ DATE- JUN. 1964
M-FS-3

An electro-optical system, without moving parts, reliably indicates liquid levels at cryogenic temperatures. Glass prisms, which act as liquid level probes inside the tank, extend from optically aligned photoelectric assemblies mounted on the outside.

B63-10389
LIGHTWEIGHT MAGNESIUM-LITHIUM ALLOYS SHOW PROMISE
ADAMS, W. T. CATALDO, C. E. DATE- JUN. 1964
M-FS-17

Evaluation tests show that magnesium-lithium alloys are lighter and more ductile than other magnesium alloys. They are being used for packaging, housings, containers, where light weight is more important than strength.

B63-10424
VARIABLE LIGHT SOURCE WITH A MILLION-TO-ONE INTENSITY RATIO
SNOW, W. B. SNOW, W. B. /SPACE TECHNOL. LAB./ DATE- MAY 1964
JPL-W00-008

A wide range, variable intensity light source of constant color characteristics has been developed for testing and calibrating photomultiplier tubes. A light attenuator first diffuses light from a constant source, then permits variable attenuation through a series of chambers and adjustable apertures.

B63-10429
WELDED PRESSURE TRANSDUCER MADE AS SMALL AS 1/8TH-INCH IN DIAMETER
COON, G. W. DATE- MAR. 1964 REAN- SEE ALSO U. S. PATENT NO. 3,027,769
ARC-11

A special spot welding technique is used to make miniature capacitance transducers for placing in a wind tunnel model. Rugged and relatively low in cost, they have a flat response up to one-third of the resonant frequency.

B63-10453
MOLYBDENUM DISULFIDE MIXTURES MAKE EFFECTIVE HIGH-VACUUM LUBRICANTS
SPON- INNOVATOR NOT GIVEN /MIDWEST RES. INST./ DATE- NOV. 1964 REAN- SEE ALSO B63-10337, B63-10562, AND B64-10116
M-FS-54

Five different mixtures of molybdenum disulfide are found to be effective bearing lubricants when tested at very low pressures and high temperatures.

B63-10476
CESIUM IODIDE CRYSTALS FUSED TO VACUUM TUBE FACEPLATES
FLECK, H. G. /ELECTRO-MECHANICAL RES./ DATE- MAY 1964
GSFC-67

A cesium iodide crystal is fused to the lithium fluoride faceplate of a photon scintillator image tube. The conventional silver chloride solder is then used to attach the faceplate to the metal support.

B63-10479
IMPROVED MOLYBDENUM DISULFIDE-SILVER MOTOR

BRUSHES HAVE EXTENDED LIFE
HORTON, J. C. KING, H. M. DATE- MAY 1964
M-FS-64

Motor brushes of proper quantities of molybdenum disulfide and copper or silver are manufactured by sintering techniques. Graphite molds are used. These brushes operate satisfactorily for long periods in normal atmosphere or in a high-vacuum environment.

B63-10481
REFRACTORY CERAMIC HAS WIDE USAGE, LOW FABRICATION COST
SPON- INNOVATOR NOT GIVEN /MARSHALL / DATE- APR. 1964
M-FS-67

Particulate, fused amorphous silica is formed into complex shapes by casting in plaster molds. High temperature firing is not required. This ceramic is resistant to thermal shock and exhibits good strength properties.

B63-10528
VARIABLE-TRANSPARENCY WALL REGULATES TEMPERATURES OF STRUCTURES
OSULLIVAN, W. J., JR. DATE- JUN. 1964
LANGLEY-25

An effective temperature regulating wall consists of one layer /e.g., one of the paraffins/ relatively opaque to thermal radiation in the solid state and transparent to it in the molten state and placed between two transparent layers. A mirror coating is applied to back layer.

B63-10546
TEST DEVICE PREVENTS MOLECULAR BOUNCE-BACK
HARDGROVE, W. F. SHAPIRO, H. DATE- JULY 1964
GSFC-82

A test device, which consists of six pyramidal reflectors joined together, acts as a baffle to impede the free path of the molecule to the test item by interposing a slanted surface which imparts an angular vector to the molecule and bounces it back to the chamber wall.

B63-10557
RAPID HELIUM-AIR ANALYZER CAN MEASURE OTHER BINARY GAS MIXTURES
MELFI, L. T. WOOD, G. M. YEAGER, P. R. DATE- FEB. 1964
LANGLEY-16

Instrument comprised of an ionization pressure gage and a diaphragm pressure gage consisting of strain gages to make a four-arm bridge, and a ratimeter is constructed for analyzing gas mixtures. The ratio of the outputs of the two gages is proportional to the mixture composition.

B63-10562
GATE VALVE WITH CERAMIC-COATED BASE OPERATES AT HIGH TEMPERATURES
BRASS, A. DATE- JUL. 1964
ARC-23

A copper base insert coated with a layer of aluminum oxide ceramic prevents frictional binding between the gate and base surfaces of a gate valve which are subject to rapid sliding action and high temperatures.

B63-10612
METALS PLATED ON FLUOROCARBON POLYMERS
FORD, H. KRASINSKY, J. B. VANGO, S. P. DATE- OCT. 1964
JPL-544

Electroplating lead on fluorocarbon polymer parts is accomplished by etching the parts to be plated with sodium, followed by successive depositions of silver and lead from ultrasonically agitated plating solutions. Metals other than lead may be electroplated on the silvered parts.

B64-10068
MECHANICAL PROPERTIES OF PLASTICS PREDETERMINED BY EMPIRICAL METHOD
LOHR, J. J. PARKER, J. A. DATE- JUL. 1964
ARC-28

To predetermine the mechanical properties of rigid plastics as a function of plasticizer content and composition, a set of equations has been

empirically derived. These relate strain rate, yield stress, temperature, and weight fraction of the plasticizer.

B64-10099

REFRACTORY THERMAL INSULATION FOR SMOOTH METAL SURFACES
SPON- INNOVATOR NOT GIVEN /GOODYEAR AEROSPACE CORP./ DATE- OCT. 1964
M-FS-160

To protect rocket metal surfaces from engine exhaust heat, a refractory thermal insulation mixture, which adheres to smooth metals, has been developed. Insulation protection over a wide temperature range can be controlled by thickness of the applied mixture.

B64-10113

ELASTOMERS BONDED TO METAL SURFACES SEAL ELECTROCHEMICAL CELLS
SHERFEY, J. M. DATE- AUG. 1964
GSFC-168

A leakproof seal secondary cell containing alkaline electrolytes was developed by bonding an alkali-resistant elastomer, such as neoprene, to metal contact surfaces. Test results of several different elastomers strongly indicate the feasibility of this sealing method.

B64-10116

LEAD OXIDE CERAMIC MAKES EXCELLENT HIGH-TEMPERATURE LUBRICANT
JOHNSON, R. L. SLINNEY, H. E. DATE- AUG. 1964
LEWIS-144

A dry lubricant coating in ceramic form consisting of 95 percent lead monoxide and 5 percent silicon dioxide withstood a temperature of 1200 deg F, with a bearing operating at various atmospheric pressures. From this testing, there was no galling or metal transfer of the bearing.

B64-10138

NOVEL SHOCK ABSORBER FEATURES VARYING YIELD STRENGTHS
GEIER, D. J. DATE- JUL. 1964
MSC-63A

A shock absorbent webbing of partially drawn synthetic strands is arranged in sections of varying density related to the varying mass of the human body. This is contoured to protect the body at points of contact, when subjected to large acceleration or deceleration forces.

B64-10142

STRINGENT CLEANING TECHNIQUE ASSURES RELIABLE EPOXY BOND
SPON- INNOVATOR NOT GIVEN /RCA/ DATE- JUN. 1964
GSFC-161

For reliable aluminum bonding to withstand stress, the mating surfaces are carefully cleaned, etched, rinsed and dried. An epoxy and hardener designed for metal-to-metal bonding is then used for a rigid assembly.

B64-10151

PLASTIC FILMS FOR REFLECTIVE SURFACES REPRODUCED FROM MASTERS
SPON- INNOVATOR NOT GIVEN /MINNEAPOLIS HONEYWELL/ DATE- OCT. 1964
GSFC-188

Accurate reproduction in plastic of the surface of the optical master to which a reflective finish may be applied is done by using backing from any suitable material to which cured plastic will adhere tightly. Plastics used for reflectors should be of the thermosetting or catalytically hardened type.

B64-10166

FILLER DEVICE FOR HANDLING HOT CORROSIVE MATERIALS
SPON- INNOVATOR NOT GIVEN /PRATT AND WHITNEY AIRCRAFT/ DATE- OCT. 1964
MSC-85

A bellows-type bag with its own heating element is developed for safe handling and injection of hot corrosive liquids into modules.

B64-10206

SOLDER FLUX LEAVES CORROSION-RESISTANT COATING ON METAL
BAUMAN, A. J. DATE- OCT. 1964
JPL-611

A soldering flux consisting of perfluoro-octanoic acid hydrazine provides a corrosion resistant film on metal surface, particularly copper. It is ineffective for soldering aluminum.

B64-10270

PRESSURE MOLDING OF POWDERED MATERIALS IMPROVED BY RUBBER MOLD INSERT
SPON- INNOVATOR NOT GIVEN /ELECTRO-OPTICAL SYSTEMS CORP./ DATE- NOV. 1964
WOO-100

Pressure molding tungsten microspheres is accomplished by applying hydraulic pressure to a silicone rubber mold insert with several barrel shaped chambers which is placed in a steel die cavity. This technique eliminates castings containing shear fractures.

B64-10282

FINE-MESH SCREEN MADE BY SIMPLIFIED METHOD
SPON- INNOVATOR NOT GIVEN /HUGHES AIRCRAFT CO./ DATE- DEC. 1964
WOO-104

Strong fine-mesh screens are fabricated by a method involving uniform distribution of fine ferromagnetic particles on a nonmagnetic plate. Such screens are commonly used for grids in electron tubes and ion devices.

B64-10319

GAS DIFFUSION CELL REMOVES CARBON DIOXIDE FROM OCCUPIED AIRTIGHT ENCLOSURES
SPON- INNOVATOR NOT GIVEN /IOWA UNIV./ DATE- DEC. 1964
MSC-118

Small, lightweight permeable cell package separates and removes carbon dioxide from respiratory gas mixtures. The cell is regenerative while chemically inert in the presence of carbon dioxide so that only adsorption takes place.

B65-10004

SCREENING TECHNIQUE MAKES RELIABLE BOND AT ROOM TEMPERATURE
SPON- INNOVATOR NOT GIVEN /IBM/ DATE- JAN. 1965
M-FS-227

Stainless-steel screen used to lay room temperature curing epoxy adhesive permits reliable bonding of electronic circuits boards. This technique would be useful with thin-walled structures that warp during conventional bonding operations.

B65-10015

IMPROVED CONDUCTIVE PASTE SECURES BIOMEDICAL ELECTRODES
SPON- INNOVATOR NOT GIVEN /BAYLOR UNIV./ DATE- JAN. 1965 REAN- SEE ALSO B64-10025
MSC-107

Nontoxic paste consisting of a dispersion of graphite or silver granules in a mixture of polyvinylpyrrolidone and diluted glycerol secures biomedical electrodes to human skin. Silver paste has a high electrical conductivity and forms a bond between metal and moist or dry skin.

B65-10016

ADHESIVE FOR VACUUM ENVIRONMENTS RESISTS SHOCK AND VIBRATION
SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ DATE- FEB. 1965
MSC-56

A mixture of a polyamide, an epoxy resin, and fine silica or glass microballoons provides an adhesive which is flexible, resistant to shock and vibration, and has improved heat-transfer characteristics.

B65-10024

FLUID PRESSURE USED TO TEST TURBOPUMP BEARINGS
SPON- INNOVATOR NOT GIVEN /AEROJET-GEN. CORP./ DATE- FEB. 1965
NU-0001

03 MATERIALS (CHEMISTRY)

Testing of turbopump bearings operating in an intense radiation field is accomplished by the use of a fluid bearing tester providing radial and axial loading.

B65-10032
WIRE WINDING INCREASES LIFETIME OF OXIDE COATED CATHODES

KERSLAKE, W. VARGO, D. DATE- FEB. 1965 REAN- SEE ALSO AIAA PAPER-64-683
LEWIS-154

Refractory-metal heater base wound with a thin refractory metal wire increases the longevity of oxide-coated cathodes. The wire-wound unit is impregnated with the required thickness of metal oxide. This cathode is useful in magnetohydrodynamic systems and in electron tubes.

B65-10034
GAGE MEASURES ELECTRICAL CONNECTOR PIN RETENTION FORCE

SPON- INNOVATOR NOT GIVEN /RCA/ DATE- FEB. 1965
JPL-SC-071

The retention force of a female connector pin is measured by observing the action of a calibrated spring in a gage consisting of housing, a plunger terminating in a male subminiature connector pin, and the tension spring.

B65-10043
MOUTHPIECE ADAPTER FOR PIPETTES PROTECTS MOUTH FROM HARMFUL LIQUIDS

MC SMITH, D. G. DATE- FEB. 1965
LANGLEY-47

To prevent the laboratory technicians mouth from contacting harmful liquids, a device with a hermetically sealed elastic bellows is attached to a standard pipette.

B65-10044
FLEXIBLE CURTAIN SHIELDS EQUIPMENT FROM INTENSE HEAT FLUXES

SPON- INNOVATOR NOT GIVEN /ARROWHEAD PROD./ DATE- 1965
M-FS-48

Flexible, high strength curtain made of fiber glass silicone elastomer laminate provides thermal shielding for equipment.

B65-10065
SPHERICAL MODEL PROVIDES VISUAL AID FOR CUBIC CRYSTAL STUDY

BACIGALUPI, R. J. SPARKOWSKI, A. E. DATE- MAR. 1965
LEWIS-108

Transparent sphere of polymethylmethacrylate with major zones and poles of cubic crystals is used to make crystallographic visualizations and to interpret Laue X ray diffraction of single cubic crystals.

B65-10083
DIDYMIUM COMPOUND IMPROVES NICKEL-CADMIUM CELL

SPON- INNOVATOR NOT GIVEN /GE/ DATE- MAR. 1965
GSFC-295

Nickel electrodes impregnated with an additive solution of didymium hydrate and nitric acid mixed with nickel nitrate increases ampere-hour capacity of cells and does not affect the voltage characteristics.

B65-10088
FIBER GLASS PARTS CURED DURING FILAMENT WINDING ELIMINATES OVEN, SAVES TIME

CARMODY, R. J. DATE- APR. 1965
M-FS-14

Resistance wire layer is introduced during winding of the fiber glass filaments with simultaneous heating. Emission of heat from the wire layer cures second fiber glass layer.

B65-10092
LIGHTWEIGHT ALUMINUM CASTING ALLOY IS USEFUL AT CRYOGENIC TEMPERATURES

SPON- INNOVATOR NOT GIVEN /M-P+VE-M LAE./ DATE- APR. 1965
M-FS-267

M-45, a lightweight, high purity aluminum casting

alloy has superior tensile properties for use at cryogenic temperatures.

B65-10095
CARBON-ARC ROD HOLDER HAS LONG LIFE, REDUCES ARC SPLATTER

SPON- INNOVATOR NOT GIVEN /RCA/ DATE- APR. 1965
MSC-144

Carbon-arc rod holder with front end of beryllium oxide, a high electrical resistor and good thermal conductor, prevents nonuniform burning of the positive carbon rod and corrosion of the rod holder.

B65-10106
MINIATURE BEARINGS LUBRICATED BY SONIC DISPERSION METHOD

SPON- INNOVATOR NOT GIVEN /LITTON IND./ DATE- APR. 1965
M-FS-202

Evenly distributing a monomolecular film over the balls and tracks of miniature precision ball bearings by sonic dispersion results in precise lubrication which prevents lubricant bleed out to adjacent components. Varying the lubricant to solvent ratio of the mixture causes varying lubricant coating thicknesses.

B65-10107
CRACK DETECTION METHOD IS SAFE IN PRESENCE OF LIQUID OXYGEN

SPON- INNOVATOR NOT GIVEN /BOEING CO./ DATE- APR. 1965
M-FS-236

Visual flaw detection method for metals utilizes color precipitate. This method can be used safely in the presence of liquid oxygen.

B65-10117
DOUBLE GLOVES REDUCE CONTAMINATION OF DRY BOX ATMOSPHERE

HERBELL, T. P. QUANTINETZ, M. REINHARDT, G. DATE- APR. 1965
LEWIS-211

Pair of encased low permeability hand gloves between which an inert gas circulates reduces dry box contamination. This innovation is applicable to dry boxes using radioactive and alkali metal compounds, submicron powders, and liquid metals.

B65-10136
VAPOR PRESSURE MEASURED WITH INFLATABLE PLASTIC BAG

SPON- INNOVATOR NOT GIVEN /GEOPHYS. CORP. OF AM./ DATE- MAY 1965
GSFC-281

Deflated plastic bag in a vacuum chamber measures initial low vapor pressures of materials. The bag captures the test sample vapors and visual observation of the vapor-inflated bag under increasing external pressures yields pertinent data.

B65-10140
GALVANIC CORROSION REDUCED IN ALUMINUM FABRICATIONS

SPON- INNOVATOR NOT GIVEN /MARSHALL/ DATE- MAY 1965
M-FS-272

Titanium alloy fasteners dipped at zinc chromate primer are installed while wet in protective coated aluminum panels to reduce galvanic corrosion. Moisture tight seals at fastener points are also provided.

B65-10156
INORGANIC PAINT IS DURABLE, FIREPROOF, EASY TO APPLY

SCHUTT, J. B. DATE- JUN. 1965
GSFC-366

Inorganic paint with a water-potassium silicate base is impervious to water. It is also fireproof and adheres to various surfaces exposed to wide temperature fluctuations.

B65-10162
ELECTROLESS NICKEL RESIST USED IN ALKALI ETCHING OF ALUMINUM

SPON- INNOVATOR NOT GIVEN /SCHJELDAHL /G.T./ CO./ DATE- JUN. 1965

GSFC-284

Electroless nickel resist is unaffected by caustic soda applied as a milling or etching agent on aluminum.

B65-10164

IRRADIATION IMPROVES PROPERTIES OF AN AROMATIC POLYESTER

BELL, V. L., JR. DATE- JUN. 1965

LANGLEY-115

Aromatic polyester, PEN-2,6, is improved through cross-linking effected by radiation. Polymer retains properties of high tensile strength and toughness and stability at high temperatures.

B65-10167

REFRACTORY OXIDES EVALUATED FOR HIGH-TEMPERATURE USE

SPON- INNOVATOR NOT GIVEN /LANGLEY/ DATE- JUN. 1965

LANGLEY-121

Partially calcia-stabilized zirconia used for insulation and heat-storage in high temperature /3000 deg to 4000 deg F/ cyclically operated pebble bed air heater.

B65-10172

ALUMINUM ALLOYS PROTECTED AGAINST STRESS-CORROSION CRACKING

SPON- INNOVATOR NOT GIVEN /ALCOA RES. LABS./ DATE- JUN. 1965

M-PS-235

Topcoat of epoxy-polyamide paint is effective protection for aluminum alloys against stress corrosion cracking. The paint can be used on unpainted surfaces.

B65-10173

PEEL RESISTANCE OF ADHESIVE BONDS ACCURATELY MEASURED

SPON- INNOVATOR NOT GIVEN /RCA/ DATE- JUN. 1965

GSFC-320

Strength of adhesive bond between layers of laminated material is tested by peel force to the facing with a tensile testing machine. Testing jig has stainless steel rollers which constrain material to move horizontally while maintaining free end of facing at constant 90 deg angle.

B65-10175

TANTALUM CATHODE IMPROVES ELECTRON-BEAM EVAPORATION OF TANTALUM

SPON- INNOVATOR NOT GIVEN /ELECTRO-OPTICAL SYSTEMS/ DATE- JUN. 1965

JPL-WOO-021

Tantalum cathode is used in assembly for electron beam evaporation of tantalum onto a substrate. The cathode and anode are made of pure tantalum rather than tungsten to prevent contamination of the tantalum film deposited on the substrate.

B65-10179

REUSABLE NEOPRENE JACKET PROTECTS PARTS FOR CHEMICAL MILLING

SPON- INNOVATOR NOT GIVEN /RYAN AERONAUTICAL CO./ DATE- JUN. 1965

WOO-071

Reusable neoprene jacket is used to prepare metal part or panel for chemical milling. Jacket covers back and upper rim of part and is sealed before the masking solution is applied to surface to be milled. This reduces amount of masking material required for milling identical parts and increases production.

B65-10189

TESTING DEVICE SUBJECTS ELASTIC MATERIALS TO BIAXIAL DEFORMATIONS

BECKER, G. W. DATE- JUN. 1965

JPL-616

Testing device stretches elastic materials biaxially over large deformation ranges and varies strain ratios in two perpendicular directions. The device is used in conjunction with a tensile testing machine, which holds the specimen and permits control over the direction and magnitude of the stresses applied.

B65-10190

IR-TRANSMISSION GLASSES FORMED FROM OXIDES OF BISMUTH AND TELLURIUM

ULRICH, D. R. DATE- JUN. 1965

M-PS-279

Bismuth trioxide-tellurium dioxide glasses have improved infrared transmission characteristics.

B65-10214

EMERGENCY SOLAR STILL DESALTS SEAWATER

SPON- INNOVATOR NOT GIVEN /HELPER/ DATE- JUL. 1965

MSC-135

Solar energy apparatus distills seawater into fresh water. The inflatable buoyant still produces two pints of drinking water a day.

B65-10217

THIN TRANSPARENT FILMS FORMED FROM POWDERED GLASS

SPON- INNOVATOR NOT GIVEN /HOFFMAN ELECTRON./ DATE- JUL. 1965

GSFC-352

Glass film less than five mils thick is formed from powdered glass dispersed in an organic liquid, deposited on a substrate, and fused into place. The thin films can be cut and shaped for contact lenses, optical filters and insulating layers.

B65-10220

THORIATED NICKEL BONDED BY SOLID-STATE DIFFUSION METHOD

BALES, T. T. MANNING, R. C., JR. DATE- AUG. 1965

LANGLEY-116

Solid-state diffusion bonding in an inert-gas atmosphere forms high-strength joints between butting or overlapping surfaces of thoriated nickel. This method eliminates inert-phase agglomeration.

B65-10250

COATING METHOD ENABLES LOW-TEMPERATURE BRAZING OF STAINLESS STEEL

SEAMAN, F. D. /WESTINGHOUSE ELEC. CO./ DATE- AUG. 1965

NU-0030

Gold coated stainless steel tubes containing insulated electrical conductors are brazed at a low temperature to a copper coated stainless steel sealing block with a gold-copper eutectic. This produces an effective seal without using flux or damaging the electrical conductors.

B65-10261

BORON CARBIDE WHISKERS PRODUCED BY VAPOR DEPOSITION

SPON- INNOVATOR NOT GIVEN /GE/ DATE- SEP. 1965

HQ-24

Boron carbide whiskers have an excellent combination of properties for use as a reinforcement material. They are produced by vaporizing boron carbide powder and condensing the vapors on a substrate. Certain catalysts promote the growth rate and size of the whiskers.

B65-10270

CERAMIC MATERIALS PURIFIED BY EXPERIMENTAL METHOD

SPON- INNOVATOR NOT GIVEN /IIT RES. INST./ DATE- SEP. 1965

LEWIS-225

Crystalline ceramic materials are purified for use as high-temperature electrical insulators. Any impurities migrate to the cathode when a dc voltage is applied across the material while it is heated in an inert gas atmosphere.

B65-10288

ORGANIC REACTANTS RAPIDLY PRODUCE PLASTIC FOAM

LOOK, G. F. DATE- SEP. 1965 REAN- SEE ALSO B65-10090

LANGLEY-37

Adding trichlorofluoromethane to polyether resin accelerates the reaction between the resin and toluene diisocyanate. This accelerated reaction instantaneously produces a plastic foam of low density and uniform porosity needed to provide buoyancy for flotation recovery of instrument

packages dropped into the sea from spacecraft.

B65-10294

ADHERENT PROTECTIVE COATINGS PLATED ON
MAGNESIUM-LITHIUM ALLOY
SPON- INNOVATOR NOT GIVEN /IBM/ DATE- OCT. 1965
REAN- SEE ALSO B63-10389
M-FS-365

Zinc is plated on a magnesium-lithium alloy by using a modification of the standard zinc-plate immersion bath. Further protection is given the alloy by applying a light plating of copper on the zinc plating. Other metals are plated on the copper by using conventional plating baths.

B65-10302

BURNISHING TECHNIQUE IMPROVES LUBRICATION OF
THREADED FASTENERS
GRUPER, J. L. /LOCKHEED MISSILES AND SPACE CO./
DATE- OCT. 1965
LEWIS-217

Burnishing a molydisulfide coating into the thread surfaces of fasteners eliminates the need for binders and vehicles which ensure coverage and retention of the lubricant during fastening. The coating may be applied by any convenient method.

B65-10303

NICKEL SOLUTION PREPARED FOR PRECISION
ELECTROFORMING
SPON- INNOVATOR NOT GIVEN /ELECTRO-OPTICAL
SYSTEMS/ DATE- OCT. 1965
WOO-070

Lightweight, precision optical reflectors are made by electroforming nickel onto masters. Steps for the plating bath preparation, process control testing, and bath composition adjustments are prescribed to avoid internal stresses and maintain dimensional accuracy of the electrodeposited metal.

B65-10316

REMOVABLE WELL IN REACTION FLASK FACILITATES
CARBON DIOXIDE COLLECTION
SPON- INNOVATOR NOT GIVEN /AMES/ DATE- OCT. 1965
ARC-47

Removable plastic well with a flange that seats on the rim of an Erlenmeyer screwcap flask aids quantitative collection of carbon dioxide liberated in the flask. The well can be removed without danger of cross-contamination. It can collect other gases using appropriate absorbents.

B65-10321

PLATED NICKEL WIRE MESH MAKES SUPERIOR
CATALYST BED
SILL, M. /BELL AEROSYSTEMS CO./ DATE- OCT. 1965
MSC-216

Porous nickel mesh screen catalyst bed produces gas evolution in hydrogen peroxide thrust chambers used for attitude control of space vehicles. The nickel wire mesh disks in the catalyst bed are plated in rugose form with a silver-gold coating.

B65-10335

MAGNETIC FLUID READILY CONTROLLED IN ZERO
GRAVITY ENVIRONMENT
PAPELL, S. S. DATE- NOV. 1965
LEWIS-126

Colloid composed of finely ground iron oxide in a fluid such as heptane, is controlled and directed magnetically in a zero gravity environment. It will not separate on standing for long periods or after exposure to magnetic or centrifugal forces. Because of its low density and low viscosity, it is easily pumped.

B65-10336

ANODIZATION PROCESS PRODUCES OPAQUE,
REFLECTIVE COATINGS ON ALUMINUM
SPON- INNOVATOR NOT GIVEN /LOCKHEED MISSILES AND
AND SPACE CO./ DATE- NOV. 1965
M-FS-348

Opaque, reflective coatings are produced on aluminum articles by an anodizing process wherein the anodizing bath contains an aqueous dispersion of finely divided insoluble inorganic compounds. These particles appear as uniformly distributed occlusions in the anodic deposit on the aluminum.

B65-10337

SPECIAL COATINGS CONTROL TEMPERATURE OF
STRUCTURES
FULK, M. M. MAYER, R. W. /BALL BROTHERS RES.
CORP./ DATE- NOV. 1965
GSFC-444

Special coatings in the form of paints that exhibit controlled ratios of sunlight absorptivity to grey-body emissivity control the temperature of structures in space flight. These finishes exhibit good resistance to ultraviolet radiation and do not discolor.

B65-10341

LIGHTWEIGHT HINGED BELLOWS RESTRAINT HAS
HIGH LOAD CAPACITY
IMUS, E. E. /N. AM. AVIATION/ DATE- NOV. 1965
WOO-151

High angular stresses in fluid-handling ducts are accommodated by a lightweight hinged bellows restraint. This device transmits angular stress to points close to the axis center and spreads it over a rigid configuration.

B65-10344

SOLUBLE UNDERCOATING FACILITATES REMOVAL OF
FOAMED-IN-PLACE INSULATION
DUNCAN, A. C. HILL, C. L., JR. DATE- NOV. 1965
LEWIS-193

Foamed-in-place insulation can be removed and reused by coating the surface with a soluble peel coat before applying the foam mixture. Removal of the insulation is effected by slitting it and pouring a solvent in the slit to dissolve the peel coat. The insulation can then be stripped off intact.

B65-10354

PIGMENTED COATING RESISTS THERMAL SHOCK
HARADA, Y. /IIT RES. INST./ RECHTER, H. L.
DATE- NOV. 1965
JPL-SC-083

Coating pigment composed of zinc oxide and potassium silicate resists the effects of thermal shock and long exposure to direct sunlight.

B65-10357

AIR-CURED CERAMIC COATING INSULATES AGAINST
HIGH HEAT FLUXES
SEITZINGER, V. F. DATE- NOV. 1965
M-FS-150

Reflective insulating ceramic coating protects supporting structures in area adjacent to rocket engines from the intense heat fluxes in the rocket exhaust plumes.

B65-10364

POROUS GLASS MAKES EFFECTIVE SUBSTRATE FOR
OZONE-SENSING REAGENT
SPON- INNOVATOR NOT GIVEN /PARAMETRICS/ DATE-
DEC. 1965
GSFC-388

Porous-glass substrate is used for absorption of a dye used in measuring the concentration of atmospheric ozone at high altitudes. This measurement is based on the chemiluminescence produced in the reaction between ozone and the dye, rhodamine B. The porous glass provides a large interstitial surface area which promotes this reaction.

B65-10366

UNIQUE GEAR DESIGN PROVIDES SELF-LUBRICATION
WINIARSKI, F. J. /SPACE TECHNOL. LAB./ DATE-
DEC. 1965
JPL-SC-079

Composite gear configuration provides a reliable automatic means for replenishing gear mechanism lubricants that dissipate in the harsh environment of space. The center or hub section of the gear consists of a porous, oil impregnated material, and the outer or toothed section has radially drilled passages to cause the oil to gradually flow to the gear teeth surface.

B65-10372

WIRE BUNDLE FORMED INTO GRIDS WITH MINUTE
INTERSTICES
TODD, H. H. /ELECTRO-OPTICAL SYSTEMS/ DATE- DEC.

1965

W00-089

Deforming the ends of a bundle of closely packed parallel wires to restrict the interstices to substantially uniform and minute dimensions produces grids or filters for ion engines. Porous metal structures made by this process are also used as fuel cell electrodes, diffusion membranes, and catalysts.

B65-10374

PLASTIC PLUS STAINLESS-STEEL FIBERS MAKE RESILIENT, IMPERMEABLE MATERIAL

SMIRRA, J. R. /THOMPSON RAMO WOOLDRIDGE/ DATE- DEC. 1965

W00-246

Plastic material combined with stainless-steel fibers and molded under heat and pressure into a desired configuration is both soft enough to deform under a load and resilient enough to return to its original shape when the load is removed.

B65-10384

PROBE SAMPLES COMPONENTS OF ROCKET ENGINE EXHAUST

SCHUMACHER, P. E. /N. AM. AVIATION/ DATE- DEC. 1965

M-FS-485

Water-cooled, cantilevered probe samples the exhaust plume of rocket engines to recover particles for examination. The probe withstands the stresses of a rocket exhaust plume environment for a sufficient period to obtain a useful sample of the exhaust components.

B65-10390

TEST STRIPS DETECT DIFFERENT CO₂ CONCENTRATIONS IN CLOSED COMPARTMENTS

SPON- INNOVATOR NOT GIVEN /MELPAR/ DATE- DEC. 1965

MSC-210

Four different test strips, using crystal violet for one pair of strips and basic fuchsin as a dye for the second pair, give unambiguous colorimetric indications of four different concentrations of carbon dioxide in the atmosphere of a closed compartment. Tetraethylene pentamine is used as a dye decoloring agent.

B65-10397

NEW BRAZING ALLOY ELIMINATES METAL-STRESS CRACKING

HUSCHLER, E., JR. /N. AM. AVIATION/ ROEDER, E. R. DATE- DEC. 1965

W00-249

Silver 15 zinc brazing alloy avoids the liquid-metal stress cracking of base metals when applied to 347, 316, and 410 stainless steels and certain other alloys.

B65-10398

NICKEL/TIN COATING PROTECTS THREADED FASTENERS IN CORROSIVE ENVIRONMENT

CHARLES, J. VEEDER, L. VEEDER, L DATE- DEC. 1965

MSC-253

Threaded fasteners used in corrosive environments are plated with electroless nickel and electroplated, over the nickel, with tin. This provides a corrosion-resistant coating for the fasteners.

B66-10005

FLUORIDE COATINGS MAKE EFFECTIVE LUBRICANTS IN MOLTEN SODIUM ENVIRONMENT

SPON- INNOVATOR NOT GIVEN /LEWIS/ DATE- JAN. 1966

REAN- SEE ALSO NASA-TN-D-2348

LEWIS-229

Coating bearing surfaces with calcium fluoride-barium fluoride film provides effective lubrication against sliding friction in molten sodium and other severe environments at high and low temperatures.

B66-10009

COILED SHEET METAL STRIP OPENS INTO TUBULAR CONFIGURATION

PARK, J. J. DATE- JAN. 1966 REAN- SEE ALSO

B64-10011

GSFC-425

Copper alloy is converted into a spring material that can be rolled into a compact coil which will spontaneously open to form a tube in the long direction of the strip. The copper alloy is passed through a furnace at a prescribed temperature while restraining the strip in the desired tubular configuration.

B66-10024

ALUMINIZED FIBER GLASS INSULATION CONFORMS TO CURVED SURFACES

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- JAN. 1966

M-FS-477

Layers of fiber glass with outer reflective films of vacuum-deposited aluminum or other reflective metal, provide thermal insulation which conforms to curved surfaces. This insulation has good potential for cryogenic systems.

B66-10027

FLEXIBLE PROTECTIVE COATINGS MADE FROM SILICON-NITROGEN MATERIALS

SPON- INNOVATOR NOT GIVEN /SOUTHERN RES. INST./ DATE- JAN. 1966

M-FS-528

Flexible protective coatings formed from either of two polymers endure high temperatures for long periods. One polymer is a byproduct in hexaphenylcyclotrisilazane preparation, the other is obtained by heating bis/methylamino/diphenylsilane.

B66-10029

EPOXY BLANKET PROTECTS MILLED PART DURING EXPLOSIVE FORMING

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- JAN. 1966

M-FS-307

Epoxy blanket protects chemically milled or machined sections of large, complex structural parts during explosive forming. The blanket uniformly covers all exposed surfaces and fills any voids to support and protect the entire part.

B66-10033

ELECTRON BEAM SEALS OUTER SURFACES OF POROUS BODIES

HERZ, W. R. /KULITE TUNGSTEN CO./ KURTZ, A. D. KURTZ, R. A. DATE- FEB. 1966

M-FS-562

Porous tungsten plugs provide even airflow for frictionless bearings used in air bearing supported gyros. The plugs have their outer cylindrical surface sealed by an electron beam process to ensure unidirectional airflow through their exit ends.

B66-10037

PROCESS REDUCES PORE DIAMETERS TO PRODUCE SUPERIOR FILTERS

TODD, H. H. /ELECTRO-OPTICAL SYSTEMS/ DATE- FEB. 1966

W00-093

Porous metal structure with very small pore diameters is produced by heating the structure in oxygen for an oxidized surface layer, cooling it, and heating it in hydrogen to deoxidize the oxidized portion. Such structures are superior catalyst beds and filters.

B66-10043

POLYMER FILM EXHIBITS THERMAL AND RADIATION STABILITY

BELL, V. L., JR. DATE- FEB. 1966

LANGLEY-100

Aromatic/heterocyclic polymers /Pyrrones/ have the ability to absorb large quantities of photolytic, thermal and radiolytic energies while retaining their useful properties. They are prepared from the room temperature reaction of tetraamines and tetraacids.

B66-10044

PROTECTIVE COATING WITHSTANDS HIGH TEMPERATURE IN OXIDIZING ATMOSPHERE

MELLOR, C. H. /FENWAL, INC./ DATE- FEB. 1966

M-FS-529

03 MATERIALS (CHEMISTRY)

Protective coating containing a plasma arc sprayed mixture of hafnium oxide and zirconium diboride will withstand high temperatures in an oxygen rich atmosphere. Used on a homogeneous tungsten thermocouple, it does not flake or crack on subsequent cooling and reheating, and does not degrade the thermocouple response time.

B66-10053

SPRAY-ON TECHNIQUE SIMPLIFIES FABRICATION OF COMPLEX THERMAL INSULATION BLANKET
BOND, W. E. G. RAYMOND, R. /N. AM. AVIATION/
DATE- FEB. 1966
M-PS-497

Spray-on process constructs molds used in forming sections of thermal insulation blankets. The process simplifies the fabrication of blankets by eliminating much of the equipment formerly required and decreasing the time involved.

B66-10070

REFLECTIVE INSULATOR LAYERS SEPARATED BY BONDED SILICA BEADS
ZUVER, N. T., JR. /GRUMMAN AIRCRAFT CORP./ DATE- FEB. 1966
MSC-215

Nonconductive silica beads are bonded to metallic reflecting insulation sheets prior to fabrication of multilayer reflectors. This eliminates the need for separate nonconductive sheets and simplifies the fabrication process.

B66-10081

POLYTETRAFLUOROETHYLENE LUBRICATES BALL BEARINGS IN VACUUM ENVIRONMENT
SPON- INNOVATOR NOT GIVEN /BENDIX CORP./ DATE- MAR. 1966 REAN- SEE ALSO NASA-SP-5014
M-PS-379

Polytetrafluoroethylene /PTFE/ balls are interspersed among steel ball bearings to provide a dry lubricant in a high vacuum environment. The steel balls are lubricated by the film worn off the PTFE balls.

B66-10083

CRYOSTAT MODIFIED TO AID ROTATING BEAM FATIGUE TEST
DURHAM, T. F. /N. AM. AVIATION/ DATE- MAR. 1966
M-PS-435

Modified stainless steel Dewar aids rotating beam fatigue test in a cryogenic environment. The Dewar is modified to receive extended specimen supporting members through specially designed rotary seals. The test set can be fully enclosed and pressurized with an inert gas to make the system explosion proof.

B66-10087

SOLID-FILM LUBRICANT IS EFFECTIVE AT HIGH TEMPERATURES IN VACUUM
SLINEY, H. E. DATE- MAR. 1966 REAN- SEE ALSO B63-10453 AND B63-LEWIS-228

Calcium fluoride with a suitable inorganic binder forms a stable solid-film lubricant when fused to the surface to be lubricated. It is effective in environments at elevated temperatures and gas pressures ranging from atmospheric to high vacuum. It is not stable in reducing atmospheres.

B66-10090

RADIOACTIVE TRACER SYSTEM DETECTS OIL CONTAMINANTS IN FLUID LINES
ROTH, B. /N. AM. AVIATION/ DATE- MAR. 1966
M-PS-512

Radioactive tracer system continuously detects and monitors lubricating oil contamination in high pressure fluid lines.

B66-10104

VAPOR CONDENSATION PROCESS PRODUCES SLURRY OF MAGNESIUM PARTICLES IN LIQUID HYDROCARBONS
PROK, G. M. WALSH, T. J. WITZKE, W. R. DATE- MAR. 1966
LEWIS-263

Vapor condensation apparatus produces a physically stable, homogeneous slurry of finely divided magnesium and liquid hydrocarbons. The magnesium is vaporized and the resultant vapor is cooled

rapidly with a liquid hydrocarbon spray, which also serves as the dispersing medium for the condensed magnesium particles.

B66-10110

ETCHING PROCESS MILLS PH 14-8 MO ALLOY STEEL TO PRECISE TOLERANCES
CHIPMAN, B. L. /N. AM. AVIATION/ MULLAND, P. W.
DATE- MAY 1966
MSC-270

Chemical milling process, which combines an aqua regia etchant with a sulfonate wetting agent, produces finishes on PH 14-8 molybdenum alloy steel to precise tolerances. This process permits precision removal of excess metal from the steel in annealed and/or aged conditions.

B66-10111

STORAGE-STABLE FOAMABLE POLYURETHANE IS ACTIVATED BY HEAT
SPON- INNOVATOR NOT GIVEN /GOODYEAR/ DATE- MAY 1966
LANGLEY-187

Polyurethane foamable mixture remains inert in storage unit activated to produce a rapid foaming reaction. The storage-stable foamable composition is spread as a paste on the surface of an expandable structure and, when heated, yields a rigid open-cell polyurethane foam that is self-bondable to the substrate.

B66-10119

SMALL, HIGH-INTENSITY FLASHER PERMITS CONTINUOUS CLOSE-IN PHOTOGRAPHY
PASCALE, C. /PRINCETON UNIV./ DATE- MAR. 1966
NU-0043

Compact, high-intensity spark-flash unit is used as a light source for continuous rapid photography. The spark-breakdown flash source is enclosed in polymethylmethacrylate and incorporates a parabolic reflector.

B66-10120

OXYGEN-HYDROGEN TORCH IS A SMALL-SCALE STEAM GENERATOR
MASKELL, C. E. /AEROJET-GEN. CORP./ DATE- MAR. 1966
NU-0042

Standard oxygen-hydrogen torch generates steam for corrosion-rate analysis of various metals. The steam is generated through local combustion inside a test chamber under constant temperature and pressure control.

B66-10131

SURFACTANT FOR DYE-PENETRANT INSPECTION IS INSENSITIVE TO LIQUID OXYGEN
SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- MAR. 1966
M-PS-475

LOX insensitive solvent is blended into a mixture of commercially available surfactants to clean metal surfaces which are to be investigated by the dye-penetrant method. The surfactant mixture is applied before and after application of the dye.

B66-10138

BISMUTH ALLOY POTTING SEALS ALUMINUM CONNECTOR IN CRYOGENIC APPLICATION
FLOWER, J. F. /DOUGLAS AIRCRAFT CO./ STAFFORD, R. L. DATE- APR. 1966
WOO-260

Bismuth alloy potting seals feedthrough electrical connector for instrumentation within a pressurized vessel filled with cryogenic liquids. The seal combines the transformation of high-bismuth content alloys with the thermal contraction of an external aluminum tube.

B66-10139

HOT-WIRE DETECTOR FOR CHEMICALLY ACTIVE MATERIALS USED IN GAS CHROMATOGRAPHY
SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- APR. 1966
MSC-269

Hot-filament detector analyzes chemically active materials used in gas chromatography. The detector reacts chemically with the effluent vapors in the gas chromatographic apparatus to

change the electrical resistance of the filament as a function of the affluent composition. Due to the changes produced by chemical action on the filament, the system is often calibrated.

B66-10140
CORROSION OF METAL SAMPLES RAPIDLY MEASURED
MASKELL, C. E. /AEROJET-GEN. CORP./ DATE- APR. 1966
NU-0041

Corrosion of a large number of metal samples that have been exposed to controlled environment is accurately and rapidly measured. Wire samples of the metal are embedded in clear plastic and sectioned for microexamination. Unexposed wire can be included in the matrix as a reference.

B66-10165
GALLIUM ALLOY FILMS INVESTIGATED FOR USE AS BOUNDARY LUBRICANTS
SPON- INNOVATOR NOT GIVEN /LEWIS/ DATE- APR. 1966
REAN- SEE ALSO NASA-TN-D-2721 and B63-10337

Gallium alloyed with other low melting point metals has excellent lubricant properties of fluidity and low vapor pressure for high temperature or vacuum environments. The addition of other soft metals reduces the corrosivity and formation of undesirable alloys normally found with gallium.

B66-10166
DISPENSER LEAK-TESTS AND STERILIZES RUBBER GLOVES
SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- APR. 1966
MSC-285

Portable vacuum-operated apparatus leak-tests and sterilizes rubber gloves. The gloves are fitted to the hands directly from the apparatus without external handling.

B66-10185
IMPROVED ADHESIVE FOR CRYOGENIC APPLICATIONS CURES AT ROOM TEMPERATURE
KLINGER, H. J. SMITH, M. B. /TELECOMPUTING CORP./ DATE- MAY 1966
WOO-132

Adhesive cured at room temperature provides an effective adhesive bond over the range from room temperature down to the temperature of liquid hydrogen. The adhesive consists of one part of 200-mesh powdered nylon filler to two parts of an epoxy-polyamine resin.

B66-10194
SILAZANE POLYMERS SHOW PROMISE FOR HIGH-TEMPERATURE APPLICATION
SPON- INNOVATOR NOT GIVEN /MARSHALL/ DATE- JUN. 1966
REAN- SEE ALSO NASA-SP-5030
M-FS-466

Several silazane intermediate compounds and polymers have been prepared which are potentially useful as high temperature coatings and elastomers. These silazane polymers exhibit stability in a temperature range of 300 to 400 degrees C.

B66-10196
FIBERS OF NEWLY DEVELOPED REFRACTORY CERAMICS PRODUCED BY IMPROVED PROCESS
SPON- INNOVATOR NOT GIVEN /HUGHES AIRCRAFT CO./ DATE- MAY 1966
WOO-169

Rods of refractory ceramic material and glasses having relatively high fusion temperatures and tensile strengths are converted to fiber by subjecting these rods to alternate fusion and gas-jet bursts. The refractory, high tensile strength fibers produced are combined with suitable binder to produce heat-resistant fabrics and rigid structures.

B66-10207
WHITE PRIMER PERMITS A CORROSION-RESISTANT COATING OF MINIMUM WEIGHT
ALBRECHT, R. H. JENSEN, D. P. SCHNAKE, P. /SHERWIN WILLIAMS CO./ DATE- MAY 1966
M-FS-304

White primer for coating 2219 aluminum alloy

supplies a base for a top coating of enamel. A formulation of pigments and vehicle results in a primer with high corrosion resistance and minimum film thickness.

B66-10221
SUBMICRON METAL POWDERS PRODUCED BY BALL MILLING WITH GRINDING AIDS
QUATINETZ, M. SCHAFER, R. J. DATE- MAY 1966
REAN- SEE ALSO NASA-TN-D-879
LEWIS-188

In ball milling metal powders to submicron size, various salts are more effective as grinding aids than conventional surfactants. Absolute ethyl alcohol is used as the grinding liquid.

B66-10222
NICKEL-BASE SUPERALLOYS DEVELOPED FOR HIGH-TEMPERATURE APPLICATIONS
FRECHE, J. C. DATE- MAY 1966
REAN- SEE ALSO NASA-MEMO-4-13-59E, NASA-TN-D-260, NASA-TN-D-1531, AND NASA-TN-D-2495
LEWIS-226

Class of nickel-base superalloys containing varying percentages of alloying elements have good workability and high strength at elevated temperatures /1500 to 2200 degrees F/.

B66-10227
CHROMIUM OXIDE COATINGS IMPROVE THERMAL EMISSIVITY OF ALUMINA
UPSHAW, V. /HUGHES AIRCRAFT CO./ DATE- MAY 1966
WOO-263

Chromium oxide coatings improve thermal radiation characteristics of alumina-coated heater-cathode systems in vacuum tubes. Chromium oxide is applied either as a surface layer or as a doping material. The new coatings eliminate the high temperature migration problems of carbon surface treatments.

B66-10230
ELECTRIC ARC HEATER IS SELF STARTING
BROWN, R. D. DATE- MAY 1966
LANLEY-208

Remote method initiates an electric arc over a large range of gaps between two water-cooled electrodes of an arc-heated wind tunnel without disassembling the arc unit. This type of starting system can be used on both three-phase ac arc heaters and dc arc heaters.

B66-10234
STANDARDS FOR ELECTRON PROBE MICROANALYSIS OF SILICATES PREPARED BY CONVENIENT METHOD
WALTER, L. S. DATE- JUN. 1966
GSFC-469

Standard compositions suitable for electron probe microanalysis of various silicates are prepared by coprecipitation of specified salts with colloidal silica to form a gel which is decomposed into a powdered oxide mixture and compressed into thin pellets. These pellets of predetermined standard are compared with a silicate sample to determine its composition.

B66-10256
DRY FILM LUBRICANT IS EFFECTIVE AT EXTREME LOADS
SPON- INNOVATOR NOT GIVEN /MIDWEST RES. INST./ DATE- JUN. 1966
REAN- SEE ALSO NASA-TM-X-53331
M-FS-628

Dry film lubricant protects low speed sliding surfaces under extreme loading. The lubricant in an inorganic binder is applied to substrates with sufficient hardness to prevent surface deformation in the applicable load range.

B66-10259
SUBSTITUTED SILANE-DIOL POLYMERS HAVE IMPROVED THERMAL STABILITY
BYRD, J. D. CURRY, J. E. DATE- JUN. 1966
M-FS-469

Organosilicon polymers were synthesized to produce improved physical and chemical properties, including high thermal stability. Of the polymers produced, poly/4, 4 prime-bisoxypbi-phenylene/diphenylsilane, formed from bis/anilino/diphenylsilane and p, p

03 MATERIALS (CHEMISTRY)

prime-biphenol, was found to have the most desirable properties.

B66-10273
BORON-DEOXIDIZED COPPER WITHSTANDS BRAZING TEMPERATURES
SCHMIDT, E. R. /N. AM. AVIATION/ DATE- JUN. 1966
M-FS-762

Boron-deoxidized high-conductivity copper is used for fabrication of heat transfer components that are brazed in a hydrogen atmosphere. This copper has high strength and ductility at elevated temperatures and does not exhibit massive intergranular failure.

B66-10281
VAPOR DIFFUSION ELECTRODE IMPROVES FUEL CELL OPERATION
SMITH, J. O. /MONSANTO RES. CORP./ DATE- JUN. 1966
LEWIS-187

Vapor diffusion type fuel cell electrode presents a nonwetting barrier to the liquid feedstocks so they may contact the electrolyte only in the vapor state. Thus, it effects feedstock mixing with the electrolyte at the electrolyte/catalyst interface but prevents feedstock decomposition and catalyst poisoning from liquid mingling.

B66-10288
IMPROVED THERMAL INSULATION MATERIALS MADE OF FOAMED REFRACTORY OXIDES
MOUNTVALA, A. J. NAKAMURA, H. H. RECHTER, H. L. /IIT RES. INST./ DATE- JUN. 1966 REAN- SEE ALSO B65-10357
M-FS-735

Foamed refractory oxides provide lightweight, reflective thermal insulation materials. The materials have a low bulk density and high thermal shock resistance.

B66-10296
APPARATUS ENABLES ACCURATE DETERMINATION OF ALKALI OXIDES IN ALKALI METALS
DUPRAW, W. A. GAHN, R. F. GRAAB, J. W. MAPLE, W. E. ROSENBLUM, L. DATE- JUL. 1966
LEWIS-256

Evacuated apparatus determines the alkali oxide content of an alkali metal by separating the metal from the oxide by amalgamation with mercury. The apparatus prevents oxygen and moisture from inadvertently entering the system during the sampling and analytical procedure.

B66-10298
ULTRASONIC CLEANING RESTORES DEPTH-TYPE FILTERS
SPON- INNOVATOR NOT GIVEN /LITTLE /ARTHUR D./ INC./ DATE- JUL. 1966
M-FS-540

Cleaning process uses a nonionic surfactant and ultrasonic agitation to restore depth-type fibrous filters to maximum effectiveness.

B66-10299
ELECTROLYTIC ETCHING PROCESS PROVIDES EFFECTIVE BONDING SURFACE ON STAINLESS STEEL
SPON- INNOVATOR NOT GIVEN /RCA/ DATE- JUL. 1966
GSFC-484

Electrolytic etching process prepares surfaces of a stainless steel shell for reliable, high strength adhesive bonding to dielectric materials. The process uses a 25 percent aqueous solution of phosphoric acid.

B66-10305
SIMPLE, NONDESTRUCTIVE TEST IDENTIFIES METALS
DODDS, D. J. /N. AM. AVIATION/ DATE- JUL. 1966
MSC-525

Rapid, nondestructive test for identifying metals measures the characteristic potential difference produced by galvanic reaction between a reference electrode and the test metal. A drop of water is used as an electrolyte.

B66-10312
CHEMICAL MILLING SOLUTION PRODUCES SMOOTH SURFACE FINISH ON ALUMINUM
LORENZEN, H. C. /N. AM. AVIATION/ DATE- JUL.

1966
MSC-549
Elementary sulfur mixed into a solution of caustic soda and salts produces an etchant which will chemically mill end-grain surfaces on aluminum plate. This composition results in the least amount of thickness variation and pitting.

B66-10313
SEA DYE MARKER PROVIDES VISIBILITY FOR 20 HOURS
DE LAAT, P. /N. AM. AVIATION/ DATE- JUL. 1966
MSC-714

Sea dye marker block releases a visible slick which lasts at least twelve hours. The dye marker uses a fluorescent dye in a heat cured binder which, when immersed in seawater, releases the dye at a controlled rate.

B66-10322
VALVE SEAT PORES SEALED WITH THERMOSETTING MONOMER
OLMORE, A. B. /N. AM. AVIATION/ DATE- JUL. 1966
M-FS-900

Hard anodic coating provides a smooth wear resistant valve seating surface on a cast aluminum alloy valve body. Vacuum impregnation with a thermosetting monomer, diallyl phthalate, seals the pores on the coating to prevent galvanic corrosion.

B66-10327
INFLATABLE HOLDING FIXTURE PERMITS X-RAYS TO BE TAKEN OF INNER WELD AREAS
HENDRICKSON, D. R. SPENCE, T. M. /N. AM. AVIATION/ DATE- JUL. 1966
M-FS-856

Inflatable rubber gland positions and holds X ray film in positive contact with inner weld areas of manifold torus assemblies for verifying the weld quality. The gland is constructed to conform to the inside diameter of the manifold torus.

B66-10335
SHOCK-OPERATED VALVE WOULD AUTOMATICALLY PROTECT FLUID SYSTEMS
BRANUM, L. W. WELLS, G. H. /N. AM. AVIATION/ DATE- JUL. 1966
M-FS-801

Glandless valve shuts down high-pressure fluid systems when severe shock from an explosion or earthquake occurs. The valve uses a pendulum to support the valve closure plug in the open position. When jarred, the valve body is moved relative to the pendulum and the plug support is displaced, allowing the plug to seat and be held by spring pressure.

B66-10336
CONCEALED HINGE PERMITS FLUSH MOUNTING OF DOORS AND HATCHES
HOLMAN, E. V. /N. AM. AVIATION/ DATE- JUL. 1966
MSC-623

Hinge assembly permits flush mounting of doors and hatches of considerable thickness so that the axis of instant rotation, produced by the hinge, lies outside the panel surface and beyond the perimeter adjacent to the hinge. In operation, motion of the assembly is initially parallel, changing to angular after clearing the panel perimeter.

B66-10337
SEMI-AUTOMATIC DEVICE TESTS COMPONENTS WITH BIAXIAL LEADS
MARSHALL, T. C. /N. AM. AVIATION/ DATE- AUG. 1966 REAN- SEE ALSO B65-10243
MSC-516

Semiautomatic device with a four-terminal network tests quantities of components having biaxial leads. The four-terminal network permits the testing of components in different environments. This device is easily modified for completely automatic operation.

B66-10340
DEVICE REMOVES HYDROGEN GAS FROM ENCLOSED SPACES
CARSON, W. N. /GE/ DATE- JUL. 1966
GSFC-495

Hydrogen-oxidant galvanic cell removes small amounts of hydrogen gas continually released from equipment, such as vented silver-zinc batteries, in enclosed compartments where air venting is not feasible. These cells are used in satellite compartments.

B66-10358

ELECTROCHEMICAL MILLING REMOVES BURRS AND SOLDER FROM TUBING ENDS

HINSHAW, J. O. /N. AM. AVIATION/ DATE- AUG. 1966
M-FS-714

Electrochemical milling removes burrs and solder from the cut ends of stainless steel capillary tubing. An electrolyte consisting primarily of a solution of sulfuric and phosphoric acids is used.

B66-10373

BEARING ALLOYS WITH HEXAGONAL CRYSTAL STRUCTURES PROVIDE IMPROVED FRICTION AND WEAR CHARACTERISTICS

BUCKLEY, D. H. JOHNSON, R. L. DATE- AUG. 1966
REAN- SEE ALSO NASA-TN-D-2523, NASA-TN-D-2524,
NASA-TN-D-2671, NASA-TN-D-3235
LEWIS-320

Bearings of titanium, cobalt, and other hexagonal crystal alloys are used in vacuum and high temperature environments. These temperature-stabilized alloys have reduced friction and wear characteristics and therefore have potential use in aircraft seals, hydraulic equipment, and artificial human joints.

B66-10380

SUBMICRON HOLES IN THIN FILMS INCREASE SAMPLING RANGE OF MASS SPECTROMETERS

WILLENS, R. H. /CONSOLIDATED SYSTEMS/ DATE- AUG. 1966
JPL-SC-097

Gold film is vapor deposited onto a glass slide containing submicron latex spheres which are removed, leaving submicron holes in the film. These thin-film apertures allow accurate mass spectrometer sampling of gas mixtures at pressures on the order of 100 torr.

B66-10387

SELF-SUPPORTED ALUMINUM THIN FILMS PRODUCED BY VACUUM DEPOSITION PROCESS

NEFF, J. E. TIMME, R. W. DATE- SEP. 1966
ARC-58

Self-supported aluminum thin film is produced by vacuum depositing the film on a polyvinyl formal resin film and then removing the resin by radiant heating in the vacuum. The aluminum film can be used as soon as the resin is eliminated.

B66-10395

COMPOSITE GASKETS ARE COMPATIBLE WITH LIQUID OXYGEN, RESIST COMPRESSION SET

GOSNELL, R. B. /WHITTAKER CORP./ SEP. 1966 DATE- SEP. 1966
M-FS-455

Gaskets fabricated by laminating fluorocarbon polymers with fiber glass cloth have a low compression set. Their flexibility is not subject to drastic changes at the temperature of liquid oxygen with which they are used. The fabrication process is controlled so that the fibers are not impregnated with the polymer.

B66-10398

THIN-FILM FERRITES VAPOR DEPOSITED BY ONE-STEP PROCESS IN VACUUM

HACKSKAYLO, M. /HELPA/ SEP. 1966 DATE- SEP. 1966
MSC-259

Thin-film ferrites are formed by vapor deposition of a mixture of powdered ferrites and powdered boron oxide at controlled temperatures in a vacuum chamber. These films are used in memory devices for computers and as thin-film inductors in communications and telemetry systems.

B66-10400

SYSTEM FOR ETCHING THICK ALUMINUM LAYERS

MINIMIZES BRIDGING AND UNDERCUTTING

SPON- INNOVATOR NOT GIVEN /BENDIX CORP./ DATE-

SEP. 1966

M-FS-1366

Four step photoresist process for etching thick aluminum layers for semiconductor device contacts produces uniform contact surfaces, eliminates bridging, minimizes undercutting, and may be used on various materials of any thickness.

B66-10421

COPPER WIRE PLATED WITH NICKEL AND SILVER

RESISTS CORROSION

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- SEP. 1966
M-FS-761

Copper wire for electrical harnesses, when plated with both nickel and silver, resists galvanic corrosion and high temperatures while maintaining electrical properties and solderability.

B66-10445

WELDABLE ALUMINUM ALLOY HAS IMPROVED MECHANICAL PROPERTIES

WESTERLUND, R. W. /ALCOA RES. LABS./ DATE- OCT. 1966
M-FS-295

Weldable aluminum alloy has good resistance to stress-corrosion cracking, shows unchanged strength and formability after storage at room temperature, and can be pre-aged, stretched, and aged. Since toxic fumes of cadmium oxide are evolved when the new alloy is welded, adequate ventilation must be provided.

B66-10448

THERMAL STRESS-RELIEF TREATMENTS FOR 2219

ALUMINUM ALLOY ARE EVALUATED

SPON- INNOVATOR NOT GIVEN /BOEING CO./ DATE- OCT. 1966
M-FS-1213

Evaluation of three thermal stress relief treatments for 2219 aluminum alloy in terms of their effect on residual stress, mechanical properties, and stress corrosion resistance. The treatments are post aging and stress relieving fullscale and subscale parts formed in the aged T81 condition, and aging subscale parts formed in the unaged T31 condition.

B66-10451

REUSABLE CHELATING RESINS CONCENTRATE METAL IONS FROM HIGHLY DILUTE SOLUTIONS

BAUMAN, A. J. WERTAL, H. H. WELKY, N. DATE- OCT. 1966
JPL-758

Column chromatographic method uses new metal chelating resins for recovering heavy-metal ions from highly dilute solutions. The absorbed heavy-metal cations may be removed from the chelating resins by acid or base washes. The resins are reusable after the washes are completed.

B66-10453

THERMOPLASTIC RUBBERLIKE MATERIAL PRODUCED AT LOW COST

HENDEL, F. J. DATE- OCT. 1966
JPL-793

Thermoplastic rubberlike material is prepared by blending a copolymer of ethylene and vinyl acetate with asphalt and a petroleum distillate. This low cost material is easily molded or extruded and is compatible with a variety of fillers.

B66-10454

GAGE OF 6.5 PER CENT SI-FE SHEET IS

CHEMICALLY REDUCED

GOLDMAN, A. PAVLOVIC, D. M. /WESTINGHOUSE ELRC. CORP./ DATE- OCT. 1966
MSC-537

Chemical milling process aids the production of 6.5 percent silicon-iron soft magnetic-alloy sheets to very thin gages. Following conventional rolling to safe gage limits, the material is chemically reduced to the desired gage.

B66-10458

HEAT TREATMENT STABILIZES WELDED ALUMINUM

JIGS AND TOOL STRUCTURES

03 MATERIALS (CHEMISTRY)

MEHNERT, R. S. /N. AM. AVIATION/ DATE- OCT. 1966
MSC-800

Heat treatment processes, applied after welding but before machining, imparts above normal stability to welded aluminum jigs and tool structures. Weight saving will not be realized in these tools if rigidity equal to that of a comparable steel tool is required.

B66-10467

XENON FORMS STABLE COMPOUND WITH FLUORINE
CLAASSEN, H. H. MALM, J. G. SELIG, H. H. DATE-
OCT. 1966
ARG-4

Experiments show that xenon and fluorine combine readily at 400 deg C to form xenon tetrafluoride, which is colorless, crystalline, chemically stable and solid at room temperature. This process can be used for the separation of xenon from mixtures with other noble gases.

B66-10479

ELECTROLESS NICKEL PLATING ON STAINLESS
STEELS AND ALUMINUM
SPON- INNOVATOR NOT GIVEN /GE/ DATE- NOV. 1966
GSFC-533

Procedures for applying an adherent electroless nickel plating on 303 SE, 304, and 17-7 PH stainless steels, and 7075 aluminum alloy was developed. When heat treated, the electroless nickel plating provides a hard surface coating on a high strength, corrosion resistant substrate.

B66-10487

ADHESIVE FOR POLYESTER FILMS CURES AT ROOM
TEMPERATURE, HAS HIGH INITIAL TACK
CHRISTIAN, C. M. FUST, G. W. WELCHEL, C. J.
/THIokol CHEM. CORP./ DATE- NOV. 1966
M-FS-938

Quick room-temperature-cure adhesive bonds polyester-insulated flat electrical cables to metal surfaces and various other substrates. The bond strength of the adhesive may be considerably increased by first applying a commercially available polyamide primer to the polyester film.

B66-10517

COLD TRAP INCREASES SENSITIVITY OF GAS
CHROMATOGRAPHY
GARRARD, G. G. WESLEY, R. D. /N. AM. AVIATION/
DATE- DEC. 1966
M-FS-1617

Cold trap concentrates oxygen and argon to determine trace amounts /as low as 0.1 ppm/ in helium by gas chromatography.

B66-10519

BRAZE ALLOY HOLDS BONDING STRENGTH OVER WIDE
TEMPERATURE RANGE
SPON- INNOVATOR NOT GIVEN /AEROJET-GEN. CORP./
DATE- NOV. 1966
LEWIS-337

Copper-based quaternary alloys of the solid solution type is used for vacuum furnace brazing of large stainless steel components at a maximum temperature of 1975 deg F. The alloy has high bonding strength and good ductility over a temperature range extending from the cryogenic region to approximately 800 deg F.

B66-10527

CRUCIBLE CAST FROM BERYLLIUM OXIDE AND
REFRACTORY CEMENT IS IMPERVIOUS TO FLUX
AND MOLTEN METAL
JASTRZEBSKI, Z. D. DATE- NOV. 1966
ARG-22

Crucible from a mixture of a beryllium oxide aggregate and hydraulic refractory cement, and coated with an impervious refractory oxide will not deteriorate in the presence of fused salt-molten metal mixtures such as uranium-magnesium-zinc-halide salt systems. Vessels cast by this process are used in the flux reduction of oxides of thorium and uranium.

B66-10528

LOWER-COST TUNGSTEN-RHENIUM ALLOYS
KLOPF, W. D. RAFFO, P. L. WITZKE, W. E. DATE-
DEC. 1966

LEWIS-332

Tungsten-rhenium alloys with a substantially more dilute rhenium content have ductilities and other mechanical properties which compare favorably with the tungsten-rhenium alloys having much higher concentrations of the costly rhenium.

B66-10535

PROCESS YIELDS CO-Fe ALLOYS WITH SUPERIOR
HIGH TEMPERATURE MAGNETIC PROPERTIES
BARRANGER, J. E. DATE- NOV. 1966
LEWIS-333

Cobalt-iron alloys containing from 7.0 to 9.3 percent iron prepared from ultrapure cobalt and iron have the highest Curie point of all known magnetically soft materials. Their high permeability, low hysteresis loss, good saturation induction, and square loop characteristics recommend them for use in power transformers and rotating machinery.

B66-10538

TUNGSTEN INSULATED SUSCEPTOR CUP FOR HIGH
TEMPERATURE INDUCTION FURNACE ELIMINATES
CONTAMINATION
GERINGER, H. J. DATE- NOV. 1966
LEWIS-283

METILUR /Materials Experimental Tungsten Induction Laboratory Unit Replacement/ is an improved, unitized design of a susceptor cup and shielding that uses only one type of construction material /tungsten/ which eliminates contamination. Cycling runs can be accomplished with METILUR.

B66-10540

SILVER-BASE TERNARY ALLOY PROVES SUPERIOR
FOR SLIP RING LEAD WIRES
ERNST, R. H. WILLIAMS, D. N. DATE- NOV. 1966
M-FS-1540

Slip ring lead wires composed of ternary alloys of silver, have high electrical conductivity, a tensile strength of at least 30,000 psi, high ductility, and are solderable and weldable. An unexpected advantage of these alloys is their resistance to discoloration on heating in air.

B66-10551

NEW TUNGSTEN ALLOY HAS HIGH STRENGTH
AT ELEVATED TEMPERATURES
SPON- INNOVATOR NOT GIVEN /LEWIS/ DATE- DEC. 1966
REAN- SEE ALSO NASA-TN-D-3248
LEWIS-336

Tungsten-hafnium-carbon alloy has tensile strengths of 88,200 psi at 3000 deg F and 62,500 psi at 3500 deg F. Possible industrial applications for this alloy would include electrical components such as switches and spark plugs, die materials for die casting steels, and heating elements.

B66-10558

TANTALUM ALLOYS RESIST CREEP DEFORMATION AT
ELEVATED TEMPERATURES
BUCKMAN, R. W., JR. /WESTINGHOUSE ELEC. CORP./
DATE- DEC. 1966
LEWIS-350

Dispersion-strengthened tantalum-base alloys possess high strength and good resistance to creep deformation at elevated temperatures in high vacuum environments. They also have ease of fabrication, good weldability, and corrosion resistance to molten alkali metals.

B66-10572

TUNGSTEN FIBER-REINFORCED COPPER COMPOSITES
FORM HIGH STRENGTH ELECTRICAL
CONDUCTORS
MC DANIELS, D. I. SIGNORELLI, R. A. DATE- DEC.
1966 REAN- SEE ALSO NASA-TN-D-3590
LEWIS-338

Tungsten fiber-reinforced copper composites have tensile strength, yield strength, and modulus of elasticity proportional to fiber content. The composites form high strength electrical conductors.

B66-10578

SPRAYABLE BIREFRINGENT COATING ENABLES

STRAIN MEASUREMENTS ON LARGE SURFACES

HUMPHREY, F. T. MC GEE, W. M. /LOCKHEED AIRCRAFT CORP./ DATE- DEC. 1966
M-FS-1484

Birefringent coating for strain measurements on large surfaces contains constituents that can be premixed and sprayed as a single component with conventional paint spray equipment. Elevated temperatures are not required for spraying or curing of the coating material which has long pot life.

B66-10586

GAS CHROMATOGRAPHIC COLUMN ENABLES ANALYSIS OF PROPELLANT HYDRAZINES

WELZ, E. A., JR. /N. AM. AVIATION/ DATE- DEC. 1966

MSC-1161

Stainless steel column is used in gas chromatographic analysis of propellant-grade hydrazine. The column has also been found effective for the separation of other amines and alcohols and nitriles.

B66-10594

USE OF STEEL AND TANTALUM APPARATUS FOR MOLTEN CD-MG-ZN ALLOYS

BENNETT, G. A. BURRIS, L., JR. KYLE, M. L. NELSON, P. A. DATE- DEC. 1966
ARG-199 ARG-200

Steel and tantalum apparatus contains various ternary alloys of cadmium, zinc, and magnesium used in pyrochemical processes for the recovery of uranium-base reactor fuels. These materials exhibit good corrosion resistance at the high temperatures necessary for fuel separation in liquid metal-molten salt solvents.

B66-10609

FILM COATING PERMITS LOW-FORCE SCRIBING

WILLING, E. /N. AM. AVIATION/ DATE- DEC. 1966
MSC-990

Film coating requires low scribing force, is relatively unaffected by aging, and gives off a soft, fine scribe residue containing a proven lubricant.

B66-10616

HEAT-TREATMENT OF METAL PARTS FACILITATED BY SAND EMBEDMENT

BRISCOE, C. C. KELLEY, R. C. /BOEING CO./ DATE- DEC. 1966
M-FS-1543

Embedding metal parts of complex shape in sand contained in a steel box prevents strains and warping during heat treatment. The sand not only provides a simple, inexpensive support for the parts but also ensures more uniform distribution of heat to the parts.

B66-10631

SILVER-PALLADIUM BRAZE ALLOY RECOVERED FROM MASKING MATERIALS

CIERNIAK, R. COLMAN, G. DE CARLO, F. DE CARLO, F. /N. AM. AVIATION/ DATE- DEC. 1966
M-FS-1845

Method for recovering powdered silver-palladium braze alloy from an acrylic spray binder and rubber masking adhesive used in spray brazing is devised. The process involves agitation and dissolution of masking materials and recovery of suspended precious metal particles on a filter.

B66-10639

PROCESS FOR PREPARING DISPERSIONS OF ALKALI METALS

LANDEL, R. F. REMBAUM, A. DATE- DEC. 1966
JPL-734

Finely divided particles of alkali metals are produced by combining alkali metals with certain aromatic compounds in selected solvents to form low-temperature soluble complexes from which the pure alkali metals precipitate quantitatively when the solutions are warmed. All operations must be carried out in an inert gas atmosphere.

B66-10643

COMBUSTION CHAMBER STRUTS CAN BE EFFECTIVELY TRANSPIRATION COOLED

PALMER, G. H. /N. AM. AVIATION/ DATE- DEC. 1966
M-FS-1830

Vapor-deposited sintering technique increases the feasible temperature range of transpiration-cooled structural members in combustion chambers. This technique produces a porous mass of refractory metal wires around a combustion chamber structural member. This mass acts as a transpiration-cooled surface for a thick-walled tube.

B66-10646

PROCESS PRODUCES CHLORINATED AROMATIC ISOCYANATE IN HIGH YIELD

TRISCHLER, F. /WHITTAKER CORP./ DATE- DEC. 1966
M-FS-1658

Tetrachloreterephthaloyl chloride reacts with sodium azide in an atmosphere of nitrogen to form a high yield of tetrachloro-p-phenylene diisocyanate. The chlorinated diisocyanate should have application as an intermediate in the preparation of polyurethane foams. The high halogen content would impart added flame resistance to these foams.

B66-10651

INTERGRANULAR METAL PHASE INCREASES THERMAL SHOCK RESISTANCE OF CERAMIC COATING

CARPENTER, H. W. /N. AM. AVIATION/ DATE- DEC. 1966
M-FS-1862 M-FS-1865

Dispersed copper phase increases the thermal shock resistance of a plasma-arc-sprayed coating of zirconia used as a heat barrier on a metal substrate. A small amount of copper is deposited on the granules of the zirconia powder before arc-spraying the resultant powder composite onto the substrate.

B66-10666

WIRE MATERIAL REDUCES COMPRESSOR BLADE VIBRATION

JOHNSON, R. L. DATE- DEC. 1966
LEWIS-357

Wire material /Inconel/ having high friction and low wear characteristics, reduces vibratory stress and prevents compressor blade failure.

B66-10673

COLD SOLID PROPELLANT MOTOR HAS STOP-RESTART CAPABILITY

HENDEL, F. J. DATE- DEC. 1966
JPL-836

Solid propellant rocket is kept and fired at low temperatures in launch vehicles or spacecraft. The motor is capable of developing a specific impulse comparable to that of liquid propellant motors, is started, stopped, and restarted, and is stored in space without solar radiation causing hot spots on the motor casing.

B66-10681

THIN PLASTIC SHEET ELIMINATES NEED FOR EXPENSIVE PLATING

STREMEL, R. L. /N. AM. AVIATION/ DATE- DEC. 1966
M-FS-1896

Gasket of a commercially available plastic material is interposed between the mating surfaces in axial joints where a hard and a soft metal are in intimate contact under stress conditions. This eliminates the fretting problem and is quicker and less expensive than the plating process.

B66-10684

IMPROVED METHOD OF EDGE COATING FLAT RIBBON WIRE

SPON- INNOVATOR NOT GIVEN /SCHJELDAHL /G. T. / CO./ DATE- DEC. 1966
M-FS-902

Method to coat the edges of flat ribbon wire is devised by using enamel with modified flow properties due to addition of 2 to 4 percent silicon. Conventional coating procedures several edge coatings to minimize oxidation and additional conventional coats are applied after edge coating to build up thickness.

B66-10701

TRACE LEVELS OF METALLIC CORROSION IN WATER

03 MATERIALS (CHEMISTRY)

DETERMINED BY EMISSION SPECTROGRAPHY

SNELL, H. H. /N. AM. AVIATION/ DATE- DEC. 1966
MSC-1193

Emission spectrographic method determines trace amounts of inorganic impurities in potable water. The capability of this innovation should arouse considerable interest among plant biologists, chemists working in organic synthesis, and pathologists.

B66-10705

GLASS FORMULATION HAS HIGH COEFFICIENT OF THERMAL EXPANSION

DAVIS, E. K. SEIDEL, J. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- DEC. 1966 REAN- SEE ALSO B66-10704
NU-0084

Glass formulation has a high coefficient of thermal expansion. The glass makes a good hermetic seal for the end of a stainless steel or copper tube such as a sheath of an instrumentation cable.

B66-10710

RADIOACTIVE METHOD ENABLES DETERMINATION OF SURFACE AREAS RAPIDLY AND ACCURATELY

ROESHER, J. ROLL, J. A. RYMER, G. T. SUNDAY, J. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- DEC. 1966
NU-0088

Radioactive krypton adsorption technique is used to determine the surface area of more than one sample of material simultaneously.

B67-10003

NEW ELECTROLYTE MAY INCREASE LIFE OF POLAROGRAPHIC OXYGEN SENSORS

ALBRIGHT, C. F. /GARRETT CORP./ DATE- JAN. 1967
MSC-1049

Electrolyte increases life on oxygen sensors in a polarograph used for measuring the partial pressure of oxygen in a gas mixture. It consists of a solution of lithium chloride, dimethyl acetamide and water.

B67-10007

COMPOSITES OF POROUS METAL AND SOLID LUBRICANTS INCREASE BEARING LIFE

SLINEY, H. E. DATE- JAN. 1967
LEWIS-307

Self-lubricating composites of porous nickel and nickel-chromium alloy impregnated with a barium fluoride-calcium fluoride eutectic, and a thin film of solid lubricant increase wear life of load bearing surfaces.

B67-10012

CRYSTAL MICROBALANCE MEASURES CONDENSABLE MOLECULAR FLUXES

STEPHENS, J. B. DATE- JAN. 1967
JPL-845

Quartz crystal quantitatively measures molecular fluxes emanating from and condensing on spacecraft surfaces. Vibrating in a thickness shear mode, the crystal is frequency sensitive to changes in mass on its surface and can measure a fractional monolayer of a condensate.

B67-10014

ABRADED CADMIUM-PLATED CABLE CONNECTORS REPAIRED BY CONVERSION COATING

SIMMONS, J. R. /BOEING CO./ DATE- JAN. 1967
M-FS-1424

Conversion coating procedure repairs scratched and abraded cadmium-plated aluminum cable connectors while they are in assembly.

B67-10016

DISPERSION OF BORAX IN PLASTIC IS EXCELLENT FIRE-RETARDANT HEAT INSULATOR

EVANS, R. HUGHES, J. SCHMITZ, F. DATE- JAN. 1967
ARG-5

A mix of borax powder and a chlorinated anhydrous polyester resin yields a plastic composition that is fire-retardant, yields a minimum of toxic gases when heated, and exhibits high thermal insulating properties. This composition can be used as a coating or can be converted into laminated or cast shapes.

B67-10026

BERYLLIUM FLUORIDE FILM PROTECTS BERYLLIUM AGAINST CORROSION

ODONNELL, P. M. O'DONNELL, P. M. DATE- FEB. 1967
LEWIS-363

Film of beryllium fluoride protects beryllium against corrosion and stress corrosion cracking in water containing chloride ion concentrations. The film is formed by exposing the beryllium to fluorine gas at 535 degrees C or higher and makes beryllium suitable for space applications.

B67-10032

FLUID-BED FLUORIDE VOLATILITY PROCESS RECOVERS URANIUM FROM SPENT URANIUM ALLOY FUELS

BARGHUSEN, J. J. CHILENSKAS, A. A. GUNDERSON, G. E. HOLMES, J. T. JONKE, A. A. KINCINAS, J. E. LEVITZ, N. M. POTTS, G. L. RAMASWAMI, D. STETHERS, H. TURNER, K. S. DATE- MAR. 1967

REAN- SEE ALSO ANL-6979, ANL-6829, ANL-6830, ANL-6973, ANL-6992, ANL-6994
ARG-232

Fluid-bed fluoride volatility process recovers uranium from uranium fuels containing either zirconium or aluminum. The uranium is recovered as uranium hexafluoride. The process requires few operations in simple, compact equipment, and eliminates aqueous radioactive wastes.

B67-10033

HYDRATED MULTIVALENT CATIONS ARE NEW CLASS OF MOLTEN SALT MIXTURES

ANGELL, C. A. DATE- MAR. 1967
ARG-211

Electrical conductance and activation energy measurements on mixtures of calcium and potassium nitrate show the hydrated form to be a new class of molten salt. The theoretical glass transition temperature of the hydrate varied in a manner opposite to that of the anhydrous system.

B67-10034

TWO TECHNIQUES ENABLE SAMPLING OF FILTERED AND UNFILTERED MOLTEN METALS

BURRIS, L., JR. PIERCE, R. D. TOBIAS, K. R. WINSCH, I. O. DATE- MAR. 1967 REAN- SEE ALSO ANL-7088
ARG-150

Filtered samples of molten metals are obtained by filtering through a plug of porous material fitted in the end of a sample tube, and unfiltered samples are obtained by using a capillary-tube extension rod with a perforated bucket. With these methods there are no sampling errors or loss of liquid.

B67-10044

IRRADIATED GASES TRANSFERRED WITHOUT CONTAMINATION OR DILUTION

BONN, J. L. KERN, W. DATE- MAR. 1967
LEWIS-278

Vacuum chamber apparatus opens sealed canisters of irradiated gases and transfers the contents without contaminating the surrounding area, and without diluting or polluting the contained gases. The apparatus consists of the chamber, a valved piping manifold, and a special drill and sealed drilling access.

B67-10049

CRYOGENIC FATIGUE DATA DEVELOPED FOR INCONEL 718

SCHMIDT, E. H. /N. AM. AVIATION/ DATE- MAR. 1967
M-FS-702

Data were obtained on the cryogenic fatigue properties of Inconel 718 bar using axial loading and rotating beam fatigue tests. Results also disclosed the fatigue properties of Inconel 718 sheet materials.

B67-10050

ZIRCONIUM ALLOYS WITH SMALL AMOUNTS OF IRON AND COPPER OR NICKEL SHOW IMPROVED CORROSION RESISTANCE IN SUPERHEATED STEAM

GREENBERG, S. YOUNGDAHL, C. A. DATE- MAR. 1967
ARG-226

Heat treating various compositions of zirconium

alloys improve their corrosion resistance to superheated steam at temperatures higher than 500 degrees C. This increases their potential as fuel cladding for superheated-steam nuclear-fueled reactors as well as in autoclaves operating at modest pressures.

B67-10051

STUDY MADE OF CORROSION RESISTANCE OF STAINLESS STEEL AND NICKEL ALLOYS IN NUCLEAR REACTOR SUPERHEATERS

GREENBERG, S. HART, R. K. LEE, R. H. RUTHER, W. E. SCHLUETER, R. R. DATE- MAR. 1967
ARG-230

Experiments performed under conditions found in nuclear reactor superheaters determine the corrosion rate of stainless steel and nickel alloys used in them. Electropolishing was the primary surface treatment before the corrosion test. Corrosion is determined by weight loss of specimens after defilming.

B67-10058

ADDITION OF SOLID OXIDIZER INCREASES LIQUID FUEL SPECIFIC IMPULSE

HENDEL, F. J. DATE- APR. 1967
JPL-861

Adding soluble solid oxidizers to hydrazine and similar fuels makes them useful in low temperature bipropellant systems. These oxidizers improve the low specific impulse, high freezing point, low boiling point, and low density of the fuels.

B67-10062

RECOMMENDED VALUES OF THE THERMOPHYSICAL PROPERTIES OF EIGHT ALLOYS, THEIR MAJOR CONSTITUENTS AND OXIDES

TOULOUKIAN, Y. S. /PURDUE UNIV./ DATE- MAR. 1967
NU-0095

Reference work provides in tabular and graphical form the thermophysical properties of basic alloys, their constituents and oxides. This is useful for personnel who deal with extreme temperature environments.

B67-10069

CONTROLLED FERRITE CONTENT IMPROVES WELDABILITY OF CORROSION-RESISTANT STEEL

MALIN, C. O. /N. AM. AVIATION/ DATE- APR. 1967
M-FS-568

Corrosion-resistant steel that adds restrictions on chemical composition to ensure sufficient ferrite content decreases the tendency of CRES to develop cracks during welding. The equations restricting composition are based on the Schaeffler constitution diagram.

B67-10070

RADIAL FURNACE SHOWS PROMISE FOR GROWING STRAIGHT BORON CARBIDE WHISKERS

FEINGOLD, E. /GE/ DATE- APR. 1967
HQ-50

Radial furnace, with a long graphite vaporization tube, maintains a uniform thermal gradient, favoring the growth of straight boron carbide whiskers. This concept seems to offer potential for both the quality and yield of whiskers.

B67-10078

PURIFICATION TRAIN PRODUCES ULTRAPURE HYDROGEN GAS

WALTER, R. J. /N. AM. AVIATION/ DATE- APR. 1967
M-FS-1913

Three-stage purification train produces ultrapure hydrogen gas at 1000 psi from K-bottles of high-purity hydrogen. The continuous process incorporates deoxidation and dehydration units and a molecular sieve.

B67-10079

ARYLENESILOXANE COPOLYMERS

BREED, L. W. ELLIOTT, R. L. /MIDWEST RES. INST./ DATE- APR. 1967
M-FS-1812

Arylenesiloxane copolymers with regularly ordered structures were discovered during efforts to develop organosilicon polymers. Arylenesilane and siloxane monomers were both synthesized in these experiments.

B67-10083

EFFECTS OF HELIUM AND NITROGEN AS PRESSURANTS IN NITROGEN TETROXIDE TRANSFER
BIZJAK, F. SINKIN, D. J. /N. AM. AVIATION/
DATE- APR. 1967

MSC-924 MSC-925

Study investigates effects of helium and nitrogen as pressurants in nitrogen tetroxide transfer from one vessel to another at a higher elevation. Results may contribute to creation of new environmental systems and improved oxygen solubility in water to promote fish life.

B67-10089

MATERIALS DATA HANDBOOKS PREPARED FOR ALUMINUM ALLOYS 2014, 2219, AND 5456, AND STAINLESS STEEL ALLOY 301

SPON- INNOVATOR NOT GIVEN /SYRACUSE UNIV. RES. INST./ DATE- APR. 1967

M-FS-1959 M-FS-1960 M-FS-1961 M-FS-1962

Materials data handbooks summarize all presently known properties of commercially available structural aluminum alloys 2014, 2219, and 5456 and structural stainless steel alloy 301. The information includes physical and mechanical property data and design data presented in tables, illustrations, and text.

B67-10095

IMPROVED CHLORATE CANDLE PROVIDES CONCENTRATED OXYGEN SOURCE

HAUG, R. D. MYERS, D. A. TANZAR, G. F. /GARRETT CORP./ DATE- MAR. 1967
MSC-1137

Improved chlorate candle is used as a solid, portable source of oxygen in emergency situations. It contains sodium chlorate, iron, barium peroxide, and glass mixed in powdered form. The oxygen evolves from the decomposition of the sodium chlorate when an ignition pellet is electrically initiated.

B67-10100

SYNTHESIS OF VARIOUS HIGHLY HALOGENATED MONOMERS AND POLYMERS

HOLLANDER, J. TRISCHLER, F. D. /WHITTAKER CORP./ DATE- APR. 1967 REAN- SEE ALSO B66-10646
M-FS-2143

Halogenated polyurethane and polycarbonate are synthesized and found to be LOX compatible but dependent upon the type nitrogen bonding.

B67-10102

SIMPLIFIED METHOD INTRODUCES DRIFT FIELDS INTO CELLS

GOLDSTEIN, B. RAPPAPORT, P. WYSOCKI, J. J. /RCA/ DATE- APR. 1967
GSFC-572

Drift fields are simply introduced into solar cells at low temperatures in short periods. This is done after their rectifying junctions and output contacts are applied.

B67-10112

THERMODYNAMIC PROPERTIES RELATED TO EXPANSION OF TWO-COMPONENT GAS

BIZJAK, F. /N. AM. AVIATION/ DATE- APR. 1967
MSC-1133

Theoretical equations were derived from basic thermodynamic equations to relate the thermodynamic properties of a two-component gas mixture to the expansion of the gas during tank ullage blowdown.

B67-10113

NONWOVEN GLASS FIBER MAT REINFORCES POLYURETHANE ADHESIVE

ROSELAND, L. M. /DOUGLAS AIRCRAFT CO./ DATE- MAY 1967
M-FS-2309

Nonwoven glass fiber mat reinforces the adhesive properties of a polyurethane adhesive that fastens hardware to exterior surfaces of aluminum tanks. The mat is embedded in the uncured adhesive. It ensures good control of the bond line and increases the peel strength.

B67-10121

PORTABLE FIXTURE FACILITATES PRESSURE

03 MATERIALS (CHEMISTRY)

TESTING OF INSTRUMENTATION FITTINGS

OLSON, G. A. /BOEING CO./ DATE- MAY 1967
M-FS-2032

Portable fixture facilitates pressure testing to detect possible leaks in instrumentation fittings mounted on tank bulkheads. It uses a vacuum cup which seals a pressure regulator adapter around one side of the fitting to be pressure tested. Leakage is detected with a gas sniffer.

B67-10122

EVALUATION OF HIGH TEMPERATURE STRANDED HOOKUP WIRE

DONNELLY, J. H. MOORE, H. J., JR. DATE- MAY 1967
REAN- SEE ALSO NASA-TM-X-53522
M-FS-2478

Tests are performed on wire and insulation materials to determine selection for electronic space assemblies. Wire characteristics of tensile strength, flexibility, conductivity, and general workability are tested. Knowledge of the advantages and limitations of these materials should prevent overspecification.

B67-10124

SILVER PLATING ENSURES RELIABLE DIFFUSION BONDING OF DISSIMILAR METALS

SPON- INNOVATOR NOT GIVEN /BOEING CO. DATE- MAY 1967
M-FS-1975

Dissimilar metals are reliably joined by diffusion bonding when the surfaces are electroplated with silver. The process involves cleaning and etching, anodization, silver striking, and silver plating with a conventional plating bath. It minimizes the formation of detrimental intermetallic phases and provides greater tolerance of processing parameters.

B67-10132

STATIC ELECTRICITY OF POLYMERS REDUCED BY TREATMENT WITH IODINE

HERMANN, A. M. LANDEL, R. F. REMBAUM, A. DATE- MAY 1967
NPO-10062

Treating organic polymers with iodine improves the electrical conductivity. Diffusion enables products of desired properties to be custom formulated. This eliminates a buildup of static electricity and the need for fillers or bound metal salts.

B67-10133

XENON FLUORIDE SOLUTIONS EFFECTIVE AS FLUORINATING AGENTS

HYMAN, H. H. QUARTERMAN, L. A. SHEPT, I. DATE- MAY 1967
ARG-217

Solutions of xenon fluorides in anhydrous hydrogen fluoride have few disruptive effects and leave a residue consisting of gaseous xenon, which can be recovered and refluorinated. This mild agent can be used with materials which normally must be fluorinated with fluorine alone at high temperatures.

B67-10138

STATUS OF ULTRACHEMICAL ANALYSIS FOR SEMICONDUCTORS

DILTS, R. V. HALL, L. C. /VANDERBILT UNIV./ DATE- MAY 1967
M-FS-2254

Status of ultratrace chemical analyses of materials for semiconductors was studied. This study covered atomic absorption spectroscopy, emission spectroscopy, and activation analyses. It makes recommendations to improve sensitivity, reliability and versatility for ultratrace chemical analysis.

B67-10141

STUDY TO MINIMIZE HYDROGEN EMBRITTLEMENT OF ULTRAHIGH-STRENGTH STEELS

ELSEA, S. T. FLETCHER, E. E. GROENEVELD, T. P. /BATTELLE MEM. INST./ DATE- MAY 1967
M-FS-2455

Hydrogen-stress cracking in high-strength steels is influenced by hydrogen content of the material and its hydrogen absorption tendency.

Non-embrittling cleaning, pickling, and electroplating processes are being studied. Protection from this hydrogen embrittlement is important to the aerospace and aircraft industries.

B67-10147

DEGREASING OF TITANIUM TO MINIMIZE STRESS CORROSION

CARPENTER, S. R. /GEN. DYN./CONVAIR DIV./ DATE- MAY 1967
LEWIS-382

Stress corrosion of titanium and its alloys at elevated temperatures is minimized by replacing trichloroethylene with methanol or methyl ethyl ketone as a degreasing agent. Wearing cotton gloves reduces stress corrosion from perspiration before the metal components are processed.

B67-10148

CRACKS IN GLASS ELECTRICAL CONNECTOR HEADERS REMOVED BY DRY BLASTING WITH FINE ABRASIVE

ECKERT, R. W. /GEN. DYN./CONVAIR DIV./ DATE- MAY 1967
LEWIS-381

Cracking that causes pressure leakage in glass connector headers can be alleviated by manipulating the pin bridgewire connectors. This initiates the surface and meniscus cracks. Dry blasting the header surface with a fine abrasive then removes the cracks.

B67-10149

COATING PROTECTS MAGNESIUM-LITHIUM ALLOYS AGAINST CORROSION

SPON- INNOVATOR NOT GIVEN /AM. MACHINE AND FOUNDRY CO./ DATE- MAY 1967 REAN- SEE ALSO NASA-SP-50-68
M-FS-2446

Coating protects newly developed magnesium-lithium alloys against corrosion. The procedure includes heating the ingots in a salt bath and rolling them to the desired sheet thickness. The black coating, which is tough though thin and ductile, is derived mainly from chromium.

B67-10159

HEAT TREATMENT STUDY OF ALUMINUM CASTING ALLOY M-45

LOVOY, C. V. DATE- JUN. 1967 REAN- SEE ALSO B65-10092
M-FS-2397

Study determines the heat treatment cycle of aluminum casting alloy M-45 which will increase the strength levels of the alloy while maintaining optimum stress corrosion resistance. Evidence indicates that present production castings are overaged too severely to take full advantage of the strength of the alloy.

B67-10163

EFFECTS OF HEAT INPUT RATES ON T-1 AND T-1A STEEL WELDS

DAVIS, R. A. OLSEN, M. G. WORDEN, S. W. DATE- JUN. 1967 REAN- SEE ALSO NASA TM-X-53537
M-FS-2475

Technology of T-1 and T-1A steels is emphasized in investigation of their weld-fabrication. Welding heat input rate, production weldment circumstances, and standards of welding control are considered.

B67-10168

ISOSTATIC COMPRESSION PROCESS CONVERTS POLYAROMATICS INTO STRUCTURAL MATERIAL

INGHAM, J. D. LAWSON, D. D. OSTRUM, G. K. DATE- JUN. 1967
JPL-892

Isostatic compression process compacts certain powdered aromatic polymers into homogeneous materials that can be machined to form useful components, such as bearings. It provides for complete removal of air in the interstitial spaces surrounding the granules of the powdered polymer before the powder is subjected to isostatic compression.

B67-10182

STRESS CALCULATOR SPEEDILY CONVERTS STRAIN DATA

CORNETT, D. W. /BOEING CO./ DATE- JUN. 1967
M-FS-2021

Stress calculator permits speedy conversion of strain data directly into maximum and minimum stresses and also determines stress direction. The calculator has a movable slide with logarithmic and linear scales, and an information and grid board. Its size is flexible for easy manipulation.

B67-10184

NEW CLASS OF COMPOUNDS HAVE VERY LOW VAPOR PRESSURES

ANGELL, C. A. GRUEN, D. M. DATE- JUN. 1967
ARG-115

Magnesium hexahydrate tetrachlorometallates are 50-volume-percent water, have a high melting point and possess a low vapor pressure. These new compounds are relatively noncorrosive, thermally stable, and water soluble but not hygroscopic. They may have potential applications as cooling fluids.

B67-10185

XENON FLUORIDES SHOW POTENTIAL AS FLUORINATING AGENTS

CHERNICK, C. L. SHIEH, T. C. YANG, N. C. DATE- JUN. 1967
ARG-113

Xenon fluorides permit the controlled addition of fluorine across an olefinic double bond. They provide a series of fluorinating agents that permit ready separation from the product at a high purity. The reactions may be carried out in the vapor phase.

B67-10186

ALPHA PARTICLE BACKSCATTERING MEASUREMENTS USED FOR CHEMICAL ANALYSIS OF SURFACES

PATTERSON, J. H. DATE- JUN. 1967
ARG-116

Alpha particle backscattering performs a chemical analysis of surfaces. The apparatus uses a curium source and a semiconductor detector to determine the energy spectrum of the particles. This in turn determines the chemical composition of the surface after calibration to known samples.

B67-10187

OXIDE FILM ON METAL SUBSTRATE REDUCED TO FORM METAL-OXIDE-METAL LAYER STRUCTURE

YOUNGDAHL, C. A. DATE- JUN. 1967
ARG-48

Electrically conductive layer of zirconium on a zirconium-oxide film residing on a zirconium substrate is formed by reducing the oxide in a sodium-calcium solution. The reduced metal remains on the oxide surface as an adherent layer and seems to form a barrier that inhibits further reaction.

B67-10189

IRON SERVES AS DIFFUSION BARRIER IN THERMALLY REGENERATIVE GALVANIC CELL

CROUTHANEL, C. E. DATE- JUN. 1967
ARG-29

Pure iron or iron-coated diaphragm provides a hydrogen diffusion electrode for a thermally regenerative galvanic cell. It allows the gas to diffuse through its interatomic spaces and resists the corrosive action of the cell environment.

B67-10191

SOLUBILITY DATA ARE COMPILED FOR METALS IN LIQUID ZINC

DILLON, I. G. JOHNSON, I. DATE- JUN. 1967 REAN- SEE ALSO ANL-7083

ARG-149

Available data is compiled on the solubilities of various metals in liquid zinc. The temperature dependence of the solubility data is expressed using the empirical straight line relationship existing between the logarithm of the solubility and the reciprocal of the absolute temperature.

B67-10194

SEPARATION TECHNIQUE PROVIDES RAPID QUANTITATIVE DETERMINATION OF CESIUM-137 IN IRRADIATED NUCLEAR FUEL

ELLENBURG, E. J. MC COWN, J. J. /WESTINGHOUSE ASTRONUC. LAB./ DATE- JUN. 1967
NUC-10047

Potassium cobalt ferrocyanide is used to determine cesium-137 activity in irradiated fuel samples. It preferentially removes cesium from an acid solution of the fuel material. The residue is filtered and analyzed with a gamma spectrometer.

B67-10197

NEW CLASS OF THERMOSETTING PLASTICS HAS IMPROVED STRENGTH, THERMAL AND CHEMICAL STABILITY

BURNS, E. A. DUBROW, B. LUBOWITZ, H. R. /TRW SYSTEMS/ DATE- JUN. 1967
LEWIS-10108

New class of thermosetting plastics has high hydrocarbon content, high stiffness, thermal stability, humidity resistance, and workability in the precured state. It is designated cyclized polydiene urethane, and is applicable as matrices to prepare chemically stable ablative materials for rocket nose cones of nozzles.

B67-10208

STUDY MADE OF RANEY NICKEL TECHNOLOGY

LEE, W. B. /MARQUADT CORP./ DATE- JUN. 1967
M-FS-2054

Raney nickel study indicates that its improved storage life is due to gaseous hydrogen and that the mechanism of its ignitions is catalytic and due to chemisorbed hydrogen atoms. It shows that reacted Raney nickel powder can be reactivated and can introduce multiple ignitions in a hydrogen gas stream.

B67-10209

POROUS MANDRELS PROVIDE UNIFORM DEFORMATION IN HYDROSTATIC POWDER METALLURGY

GRIPSHOVER, P. J. HANES, H. D. /BATTELLE MEM. INST./ DATE- JUN. 1967
M-FS-1972

Porous copper mandrels prevent uneven deformation of beryllium machining blanks. The beryllium powder is arranged around these mandrels and hot isostatically pressed to form the blanks. The mandrels are then removed by leaching.

B67-10227

PHOTOSENSITIVE FILLER MINIMIZES INTERNAL STRESSES IN EPOXY RESINS

DILLON, J. N. /IBM/ DATE- JUL. 1967
M-FS-1880

Photosensitive filler is added to curable epoxy resins to minimize stress from internal shrinkage during curing or polymerization. Cinnamic acid resins and cinnamal ketones may be added in the amount of 1 to 3 percent by weight of the resin mixture.

B67-10228

SUBSTITUTING GOLD FOR SILVER IMPROVES ELECTRICAL CONNECTIONS

LOYD, J. R. PICKARD, R. F. /ASTRO-SPACE LABS./ DATE- JUL. 1967
M-FS-2390

In attaching external leads to thin film sensors of platinum ribbon, liquid gold is applied to each end of the ribbon and the leads are soldered to the cured gold. The cured and soldered liquid gold shows no tendency to migrate and retains initial resistance characteristics when exposed to elevated temperatures.

B67-10232

WELDING, BONDING, AND SEALING OF REFRACTORY METALS BY VAPOR DEPOSITION

SPON- INNOVATOR NOT GIVEN /ELECTRO-OPTICAL SYSTEMS/ DATE- JUL. 1967
LEWIS-123

Plating process welds, bonds, and seals refractory metals without weakening or changing the structure of the base metals. A metal halide compound in the vapor phase is decomposed to deposit filler

03 MATERIALS (CHEMISTRY)

metal on the base metal. The resulting bond is a true metal-to-metal bond.

B67-10236

URANIUM ISOTOPES QUANTITATIVELY DETERMINED BY MODIFIED METHOD OF ATOMIC ABSORPTION SPECTROPHOTOMETRY

LEE, G. H. DATE- JUL. 1967

ARG-210

Hollow-cathode discharge tubes determine the quantities of uranium isotopes in a sample by using atomic absorption spectrophotometry. Dissociation of the uranium atoms allows a large number of ground state atoms to be produced, absorbing the incident radiation that is different for the two major isotopes.

B67-10243

ANALYTICAL TECHNIQUE CHARACTERIZES ALL TRACE CONTAMINANTS IN WATER

POSTER, J. N. LYSIJ, I. NELSON, K. H. /N. AM. AVIATION/ DATE- JUL. 1967

MSC-11032

Properly programmed combination of advanced chemical and physical analytical techniques characterize critically all trace contaminants in both the potable and waste water from the Apollo Command Module. This methodology can also be applied to the investigation of the source of water pollution.

B67-10265

ALUMINUM-TITANIUM HYDRIDE-BORON CARBIDE COMPOSITE PROVIDES LIGHTWEIGHT NEUTRON SHIELD MATERIAL

POINDEXTER, A. M. /WESTINGHOUSE ASTRONUCI. LAB./ DATE- AUG. 1967

NUC-10069

Inexpensive lightweight neutron shield material has high strength and ductility and withstands high internal heat generation rates without excessive thermal stress. This composite material combines structural and thermal properties of aluminum, neutron moderating properties of titanium hydride, and neutron absorbing characteristics of boron carbide.

B67-10266

SIMPLIFIED METHOD MEASURES CHANGES IN TENSILE YIELD STRENGTH USING LEAST NUMBER OF SPECIMENS

DIXON, C. E. /AEROJET-GEN. CORP./ DATE- AUG. 1967

NUC-10075

Simplified method determines yield strength due to heat treat, irradiation or mechanical treatment. Each specimen in a group of specimens is tested for yield stress point, subjected to heat treat or irradiation, and retested for new yield stress point which is a measure of change in material.

B67-10282

MATERIALS DATA HANDBOOK, INCONEL ALLOY 718

SESSLER, J. WEISS, V. /SYRACUSE UNIV. RES. INST./ DATE- AUG. 1967

M-FS-2348

Materials data handbook on Inconel alloy 718 includes data on the properties of the alloy at cryogenic, ambient, and elevated temperatures and other pertinent engineering information required for the design and fabrication of components and equipment utilizing this alloy.

B67-10286

LIQUID CRYSTALS DETECT VOIDS IN FIBER GLASS LAMINATES

HOLLAR, W. T. /GEN. DYN./CONVAIR/ DATE- AUG. 1967

LEWIS-10104

Liquid crystal solution nondestructively detects voids or poor bond lines in fiber glass laminates. A thin coating of the solution is applied by spray or brush to the test article surface, and when heated indicates the exact location of defects by differences in color.

B67-10290

TRACE HYDRAZINES IN AQUEOUS SOLUTIONS ACCURATELY DETERMINED BY GAS CHROMATOGRAPHY

WELZ, E. A., JR. /N. AM. AVIATION/ DATE- AUG.

1967 REAN- SEE ALSO NASA B66-10586

MSC-11222

Trace amounts of hydrazines in aqueous solutions can be determined by using polyethyleneimine /PEI/ in conjunction with the gas chromatographic column. The PEI specifically retains water without altering the separability or elution order of the hydrazine and associated constituents.

B67-10299

LIQUID OXYGEN DUCTING CLEANED BY FALLING FILM METHOD

PAUL, H. I. /BOEING CO./ DATE- AUG. 1967

M-FS-11816

Principle of a vertical falling film is used to clean contaminated large diameter and length liquid oxygen /LOX/ cylindrical ducting. The cleaning cycle is performed by flowing trichloroethylene in a falling film down a vertically mounted duct for approximately one hour.

B67-10301

MATERIALS DATA HANDBOOK, ALUMINUM ALLOY 7075

SESSLER, J. WEISS, V. /SYRACUSE UNIV. RES. INST./ DATE- AUG. 1967

M-FS-2349

Materials data handbook on aluminum alloy 7075 includes data on the properties of the alloy at cryogenic, ambient, and elevated temperatures, and other pertinent engineering information required for the design and fabrication of components and equipment utilizing this alloy.

B67-10302

IMPROVED COMPRESSION MOLDING PROCESS

HEIER, W. C. DATE- JUL. 1967

LANGLEY-10027

Modified compression molding process produces plastic molding compounds that are strong, homogeneous, free of residual stresses, and have improved ablative characteristics. The conventional method is modified by applying a vacuum to the mold during the molding cycle, using a volatile sink, and exercising precise control of the mold closure limits.

B67-10312

NEW ELECTRON MICROSCOPE EMPLOYS NEW VIDEO DISPLAY TECHNIQUE

BROOKSHIER, W. K. GILROY, J. DATE- AUG. 1967

ARG-158

Video display system for a scanning electron microscope provides slow scanning rates, a self-generated color gradient technique, and allows leisurely viewing of several hours. It also enables the viewing of areas where selected energy regions contribute relatively few electrons, and the changing of specimen position and magnification without adjustments.

B67-10315

TRITIATED ALUMINA SERVES AS REAGENT FOR SELF-LABELING ANALYSIS

ERENRICH, E. H. KLEIN, P. D. DATE- SEP. 1967

ARG-209

Tritiated alumina, prepared by exchange of the surface hydroxyl groups with tritiated water, is a suitable reagent for exchange-labeling of specific compounds in low concentrations prior to chromatographic analysis. In a chromatographic column, it detects and measures submicrogram quantities of material.

B67-10320

EVAPORANT FEED DEVICE FACILITATES FLASH VAPOR DEPOSITION PROCESS IN VACUUM

HERMANN, W. A. STIRN, R. J. DATE- SEP. 1967

NPO-10232

Mechanism using a helix sequentially feeds prescribed amounts of metal charges into an evaporation boat used for flash vapor deposition of the evaporants onto a substrate in a vacuum chamber. The helix is advanced by external manual controls extending through sealed feed-through devices into the chamber wall.

B67-10322

CHEMICAL MILLING SOLUTION REVEALS STRESS

CORROSION CRACKS IN TITANIUM ALLOY

BRASKI, D. N. DATE- SEP. 1967

LANGLEY-10077

Solution of hydrogen flouride, hydrogen peroxide, and water reveals hot salt stress corrosion cracks in various titanium alloys. After the surface is rinsed in water, dried, and swabbed with the solution, it can be observed by the naked eye or at low magnification.

B67-10324

THERMODYNAMIC PROPERTIES OF SOLID

PALLADIUM-SILVER ALLOYS AND OTHER ALLOYS ARE

INVESTIGATED BY TORSION-EFFUSION TECHNIQUE

MYLES, K. M. DATE- SEP. 1967 REAN- SEE ALSO

ANL-6657

ARG-277

Vapor pressure data obtained by the torsion-effusion method provides the thermodynamic properties of several transition-metal alloy systems. The vapor pressure of silver over solid silver and over palladium-silver alloys was measured and the results were more accurate than those found previously by other techniques.

B67-10340

HIGH-STRENGTH TUNGSTEN ALLOY WITH IMPROVED

DUCTILITY

KLOPP, W. D. RAFFO, P. L. RUBENSTEIN, L. S.

WITZKE, W. R. DATE- AUG. 1967

LEWIS-10257

Alloy combines superior strength at elevated temperatures with improved ductility at lower temperatures relative to unalloyed tungsten. Composed of tungsten, rhenium, hafnium, and carbon, the alloy is prepared by consumable electrode vacuum arc-melting and can be fabricated into rod, plate, and sheet.

B67-10346

THERMODYNAMIC PROPERTIES OF SATURATED LIQUID

PARAHYDROGEN CHARTED FOR IMPORTANT

TEMPERATURE RANGE

MC CARTY, R. D. /NATL. BUR. OF STD./ ECDER, H.

M. DATE- SEP. 1967

NUC-10018

Six entropy diagrams for parahydrogen in or near the saturated liquid state cover the temperature range from 29.16 degrees to 42.48 degrees R with pressures to 100 psia and mixtures of the liquid and vapor phases to 0.003 quality. The diagrams are printed in color, are 19 by 30 inches in size, and are suitable for wall mounting.

B67-10349

EXCELLENT SPRING PROPERTIES DEVELOPED IN TWO

NICKEL ALLOYS FOR USE AT CRYOGENIC

TEMPERATURES

DESSAU, P. P. /AEROJET-GEN. CORP./ REHN, I. M.

DATE- SEP. 1967

NUC-10084

Cold working and aging prepares nickel alloys for coiling into springs with properties acceptable in a cryogenic environment.

B67-10350

SOFT METAL PLATING ENABLES HARD METAL SEAL TO

OPERATE SUCCESSFULLY IN LOW TEMPERATURE,

HIGH PRESSURE ENVIRONMENT

LANVERMEYER, D. J. /AEROJET-GEN. CORP./ DATE-

SEP. 1967

NUC-10083

Soft metal plating of hard metal lip seal enables successful operation of seal in a cryogenic fluid line under high pressure. The seal is coated with a thin film of 24 carat gold on the lip area to provide antigall and seal properties.

B67-10351

METAL FLAME SPRAY COATING PROTECTS ELECTRICAL

CABLES IN EXTREME ENVIRONMENT

BRADY, R. D. FOX, H. A. /AEROJET-GEN. CORP./

BRADY, R. D. /METCO, INC./ DATE- OCT. 1967

NUC-10077

Metal flame spray coating prevents emf measurement error in sheathed instrumentation cables which are externally attached to cylinders

which were cooled on the inside, but exposed to gamma radiation on the outside. The coating provides a thermoelectrode path for radiation induced high temperatures within the cables.

B67-10354

CUT-THROUGH TESTER ACCURATELY MEASURES

INSULATION FAILURE RATES

BAKER, E. U. /DOUGLAS AIRCRAFT/ DATE- OCT. 1967

M-FS-12506

Cut-through tester electronically measures the rate of failure of various wire and cable insulating materials both as to time and the amount of applied pressure. The force /weight/ acting on the penetrator can be applied through a near infinite range.

B67-10365

MAGNESIUM-LITHIUM ALLOYS DEVELOPED FOR LOW

TEMPERATURE USE

DUNKERLEY, F. J. LEAVENWORTH, H. W., JR.

DUNKERLEY, F. J. /AM. MACHINE AND FOUNDRY CO./

DATE- OCT. 1967 REAN- SEE ALSO NASA-SP-5068

M-FS-1541

Three new magnesium-lithium alloys have been developed for application at cryogenic temperatures. These lightweight alloys have approximately doubled the tensile and yield strengths at room temperature of previously described magnesium-lithium alloys.

B67-10366

STUDY MADE OF DIELECTRIC PROPERTIES OF

PROMISING MATERIALS FOR CRYOGENIC

CAPACITORS

MATHES, K. N. /GE/ MINNICH, S. H. DATE- OCT.

1967

M-FS-13620

Experimental investigations were conducted to determine dielectric properties of promising materials for cryogenic capacitors to be used in energy storage and pulse applications. The three classes of materials investigated were inorganic bonded ferroelectric materials, anodic coatings on metal foils, and polar low temperature liquids.

B67-10374

HANDBOOKS DESCRIBE EDDY CURRENT TECHNIQUES

USED IN NONDESTRUCTIVE TESTING OF METAL

PARTS AND COMPONENTS

SPON- INNOVATOR NOT GIVEN /GEN. DYN./CONVAIR/

DATE- OCT. 1967

M-FS-13172

Handbooks describe eddy current techniques used in nondestructive testing of metal parts and components.

B67-10375

ANALYSIS OF STABILITY-CRITICAL ORTHOTROPIC

CYLINDERS SUBJECTED TO AXIAL COMPRESSION

FINLEY, R. L. /BOEING CO./ LIU, L. S. YANG, P.

B. DATE- OCT. 1967

M-FS-12869

Analytical procedure for determining critical buckling loads of orthotropic cylinders subjected to axial compression loading has been defined. Three modes of instability have been considered - general instability, local instability caused by panel and interframe buckling, and local instability caused by yielding and crippling in areas of stress concentration.

B67-10381

MACHINING HEAVY PLASTIC SECTIONS

STALKUP, O. M. /N. AM. AVIATION/ DATE- OCT. 1967

M-FS-12720

Machining technique produces consistently satisfactory plane-parallel optical surfaces for pressure windows, made of plexiglass, required to support a photographic study of liquid rocket combustion processes. The surfaces are machined and polished to the required tolerances and show no degradation from stress relaxation over periods as long as 6 months.

B67-10383

POLARIZED LIGHT REVEALS STRESS IN MACHINED

LAMINATED PLASTICS

FRANKOWSKI, J. /GEN. DYN./CONVAIR/ DATE- OCT.

03 MATERIALS (CHEMISTRY)

1967

LEWIS-10018

Polarized light applied to drilled laminated plastic components exposes to the human eye the locked-in stresses that will result in fractures and delaminations when the soldering procedure takes place. This technique detects stresses early in the production cycle before appreciable man-hours are invested in an item destined for rejection.

B67-10392

STUDY MADE OF DUCTILITY LIMITATIONS OF ALUMINUM-SILICON ALLOYS

BAILEY, W. A. /DOUGLAS AIRCRAFT CO./ FREDERICK, S. F. DATE- OCT. 1967

M-PS-12524

Study of the relation between microstructure and mechanical properties of aluminum-silicon alloys determines the cause of the variations in properties resulting from differences in solidification rate. It was found that variations in strength are a consequence of variations in ductility and that ductility is inversely proportional to dendrite cell size.

B67-10397

EXPERIMENTS SHED NEW LIGHT ON NICKEL-FLUORINE REACTIONS

FISCHER, J. GUNTER, W. JARRY, R. L. DATE- OCT. 1967 REAN- SEE ALSO ANL-6684

ARG-10008

Isotopic tracer experiments and scale-impingement experiments show fluorine to be the migrating species through the nickel fluoride scale formed during the fluorination of nickel. This is in contrast to nickel oxide scales, where nickel is the migrating species.

B67-10409

SCRIBABLE COATING FOR PLASTIC FILMS

CLARK, R. T. /N. AM. AVIATION/ DATE- OCT. 1967

MSC-11194

Scribable opaque coating for transparent plastic film tape is not affected by aging, vacuum, and moderate temperature extremes. It consists of titanium dioxide, a water-compatible acrylic polymer emulsion, and a detergent. The coating mixture is readily dispersed in water before it is dried.

B67-10417

TECHNIQUE FOR MEASURING MAGNETIC TAPE INTERLAYER ADHESION

CLEMENT, W. G. DATE- OCT. 1967

NPO-10011

Technique measures interlayer adhesion in spacecraft data storage tape to avoid blocking. An unwind force is exerted on the spool, and the displacement before breakaway of the weighted outer layer is used to calculate the peel-off force necessary. This technique also can have terrestrial applications.

B67-10421

SODIUM PERKEXATE PERMITS RAPID OXIDATION OF MANGANESE FOR EASY SPECTROPHOTOMETRIC DETERMINATION

BANE, R. W. DATE- OCT. 1967

ARG-262

Sodium perexenate oxidizes manganese to permanganate almost instantaneously in dilute acid solution and without a catalyst. A solution is prepared by dissolving 200 mg of sodium perexenate in distilled water and diluting to 100 ml.

B67-10429

ADHESIVES FOR LAMINATING POLYIMIDE INSULATED FLAT CONDUCTOR CABLE

MONTENOS, J. C. /QUANTUM, INC./ SAXTON, T. R. TAYLOR, R. L. DATE- NOV. 1967

M-PS-12066

Polymer adhesive laminates polyimide-film flat conductor cable. It is obtained by reacting an appropriate diamine with a dianhydride. The adhesive has also been used in the lamination of copper to copper for the preparation of multilayer circuit boards.

B67-10432

VIBRATION DAMPING COMPOSITION HAS FLUSH-AWAY FEATURE

FELIN, J. F. /N. AM. AVIATION/ DATE- NOV. 1967

M-PS-597

Vibration damping compound nullifies resonant frequencies in structures that support critical components undergoing vibration testing. The main feature of this damping composition is the ability to remove it with a flush of plain tap water.

B67-10436

FUEL CELL LIFE IMPROVED BY METALLIC SINTER ACTIVATION AFTER ELECTRODE ASSEMBLY WELDING

TAYLOR, W. A. /PRATT AND WHITNEY/ DATE- NOV. 1967

MSC-10965

Technique improves the service life of fuel cell electrodes. The welding is done before the metallic sinter is activated by depositing finely divided metal within the sinter structure from a solution with corrosion inhibiting ions. The activator solution flows through the porous sinter while attached to the backup plate.

B67-10437

STUDY MADE OF PNEUMATIC HIGH PRESSURE PIPING MATERIALS /10,000 PSI/

LOEB, M. B. /BOEING CO./ SMITH, J. C. DATE- NOV. 1967

KSC-10133

Evaluations of five types of steel for use in high pressure pneumatic piping systems include tests for impact strength, tensile and yield strengths, elongation and reduction in area, field weldability, and cost. One type, AISI 4615, was selected as most advantageous for extensive use in future flight vehicles.

B67-10439

STUDY MADE OF LARGE AMPLITUDE FUEL SLOSHING

DI MAGGIO, O. D. /N. AM. AVIATION/ SALZMAN, R. N. DATE- NOV. 1967

M-PS-12381

Study of resonant oscillations of an ideal fluid in a cylindrical tank is used to obtain a better understanding of fuel sloshing in large liquid booster. More realistic structural design criteria may be formulated when the dynamic response of the liquid in a cylindrical tank can be predicted analytically.

B67-10440

FLUID PROPERTIES HANDBOOK

GERSHMAN, R. /DOUGLAS AIRCRAFT CO./ SHERMAN, A. DATE- NOV. 1967

M-PS-13462

Single source compilation handbook, has been made of the most accurate available physical property data pertaining to helium, hydrogen, oxygen, and nitrogen.

B67-10441

NEWLY DEVELOPED FOAM CERAMIC BODY SHOWS PROMISE AS THERMAL INSULATION MATERIAL AT 3000 DEG F

BLOCKER, E. W. /UNITED AIRCRAFT CORP./ PAUL, R. D. DATE- NOV. 1967

M-PS-11968

Optimized zirconia foam ceramic body shows promise for use as a thermal insulation material. The insulating media displays low density and thermal conductivity, good thermal shock resistance, high melting point, and mechanical strength.

B67-10442

CORROSION OF ALUMINUM ALLOYS BY CHLORINATED HYDROCARBON/METHANOL MIXTURES

DE FOREST, W. S. /N. AM. AVIATION/ DATE- NOV. 1967

MSC-11365

Laboratory investigations show that water-free mixtures of Freon MF /trichlorofluoromethane/ and methanol vigorously attack aluminum alloys which contain significant amounts of copper. Freon MF alone did not attack the aluminum alloys at room temperature. Pure methanol had

only a slight corrosive effect on the alloy.

B67-10451

**STUDY MADE OF PROCEDURES FOR EXTERNALLY
LOADING AND CORROSION TESTING STRESS
CORROSION SPECIMENS**

HUMPHRIES, T. S. DATE- NOV. 1967 REAN- SEE ALSO
NASA-TN-X-53483
M-FS-12064

Study was initiated to determine methods or test specimens for evaluating stress corrosion cracking characteristics of common structural materials. It was found that the methods of externally loading and corrosion testing were reliable in yielding reproducible results for stress corrosion evaluation.

B67-10454

**WARPAGE ELIMINATED IN COPPER-CLAD
MICROWAVE CIRCUIT LAMINATES**

BOONE, W. L., JR. /IBM/ DATE- NOV. 1967
M-FS-13892

Cryogenic treatment of laminated copper-clad microwave circuit boards eliminates stresses that cause warpage when a circuit is etched on one side of the board. After etching, the stresses may be eliminated to reduce warpage.

B67-10455

**A METHOD OF DETERMINING COMBUSTION GAS
FLOW**

BON TEMPI, P. J. BON TEMPI, P. J. /N. AM. AVIATION/
DATE- DEC. 1967
M-FS-13757

Zirconium oxide coating enables the determination of hot gas flow patterns on liquid rocket injector face and baffle surfaces to indicate modifications that will increase performance and improve combustion stability. The coating withstands combustion temperatures and due to the coarse surface and coloring of the coating, shows the hot gas patterns.

B67-10463

**ACID SPRAY TECHNIQUE MILLS ALUMINUM ALLOY
MATERIALS WITHOUT IMMERSION**

DUFOUR, G. /LOCKHEED MISSILES AND SPACE CO./
DATE- NOV. 1967
M-FS-12500

Acid spray machining technique chemically mills aluminum alloy panels without immersing them in an etchant. The spray does not require artificial heating to initiate the etching process.

B67-10484

**METALLOGRAPHIC SAMPLES MOUNTED WITH
ROOM-TEMPERATURE, CURABLE, POLYESTER
CASTING RESINS**

HUGHES, J. KRUGER, O. SCHMITZ, F. DATE- DEC.
1967 REAN- SEE ALSO ANL-6712
ARG-10025

Study of epoxies and polyesters determines which type of resin would satisfy the desirable prerequisites of a metallographic mount. Investigated were Polylyte 8063, Polylyte 8173, PE-169, and PE-228. The results were compared to the standard thermosetting mounting material, Bakelite, and found to be favorable.

B67-10491

**MATERIAL FATIGUE DATA OBTAINED BY
CARD-PROGRAMMED HYDRAULIC LOADING SYSTEM**

DAVIS, W. T. DATE- DEC. 1967
LANGLEY-10042

Fatigue tests using load distributions from actual loading histories encountered in flight are programmed on punched electronic accounting machine cards. With this hydraulic loading system, airframe designers can apply up to 55 load levels to a test specimen.

B67-10501

**NEUTRON IRRADIATION AM241 EFFECTIVELY
PRODUCES CURIUM**

ANDERSON, R. W. MILSTEAD, J. STEWART, D. C.
DATE- DEC. 1967 REAN- SEE ALSO ANL-6932 ANL-6933
ARG-10030

Computer study was made on the production of multicurie amounts of highly alpha-active curium

242 from americium 241 irradiation. The information available includes curium 242 yields, curium composition, irradiation data, and production techniques and safeguards.

B67-10502

**REACTION OF STEAM WITH MOLYBDENUM IS
STUDIED**

KILPATRICK, M. LOTT, S. DATE- DEC. 1967 REAN-
SEE ALSO ANL-6257
ARG-295

Comprehensive report studies the reaction of flowing steam with refractory metals /in particular molybdenum/, in the temperature range of 1100 degrees C. The reaction products are hydrogen gas and molybdenum oxide vapor.

B67-10527

**QUANTUM MECHANICAL CALCULATIONS OF REACTIVE
SCATTERING CROSS SECTIONS IN BIMOLECULAR
ENCOUNTERS**

PIRKLE, J. C., JR. /GEORGIA INST. OF TECH./
DATE- DEC. 1967
M-FS-13594

Study applies the nonequilibrium collision theory of reaction rates to the estimation of rate constants for simple reactions. The complications in the quantum mechanical description of chemical reactions and the care needed in approximating the exact wave function for the collision are shown.

B67-10532

**COPPER AND NICKEL ADHERENTLY ELECTROPLATED
ON TITANIUM ALLOY**

BROWN, E. E. /BOEING CO./ DATE- DEC. 1967
M-FS-13952

Anodic treatment of titanium alloy enables electroplating of tightly adherent coatings of copper and nickel on the alloy. The alloy is treated in a solution of hydrofluoric and acetic acids, followed by the electroplating process.

B67-10533

**STUDY OF STRESS CORROSION IN ALUMINUM
ALLOYS**

BRUMMER, S. B. /TYCO LABS./ DATE- DEC. 1967
M-FS-13906

Mechanism of the stress corrosion cracking of high-strength aluminum alloys was investigated using electrochemical, mechanical, and electron microscopic techniques. The feasibility of detecting stress corrosion damage in fabricated aluminum alloy parts by nondestructive testing was investigated using ultrasonic surface waves and eddy currents.

B67-10551

**GAS PRESSURE IN SEALED ELECTROCHEMICAL CELLS
MEASURED EXTERNALLY**

SHERFEY, J. M. DATE- DEC. 1967
GSFC-10004

Piezoresistive transducer measures gas pressure inside sealed secondary electrochemical cells without breaking the seal. This method is based on the observed fact that the force exerted by the cell faces on the clamp tightening them against the transducer is a function of the gas pressure inside the cell.

B67-10570

**RADIANT HEAT SOURCE, VACUUM BAG, PROVIDE
PORTABLE BONDING OVEN**

NICHOLLS, A. H. /N. AM. AVIATION/ DATE- DEC.
1967

MSC-11342

Portable bonding oven is formed to any desired size or configuration to attach doublers and brackets to the surfaces of large structures. A radiant heat source is used in combination with a heat resistant transport vacuum bag and a black heat absorbing cloth.

B67-10573

**SPECTROPHOTOMETRIC TECHNIQUE QUANTITATIVELY
DETERMINES NABET INHIBITOR IN ETHYLENE
GLYCOL-WATER SOLUTIONS**

GARRARD, G. G. /N. AM. AVIATION/ DATE- DEC. 1967
MSC-11496

Spectrophotometric method, using a ratio-recording ultraviolet-absorption spectrophotometer, permits analysis of NaMBT in ethylene glycol-water solutions with high accuracy. It reduces analysis time, requires smaller samples, and is able to detect extremely small concentrations of mercaptobenzothiazole.

B67-10577
PURE XENON HEXAFLUORIDE PREPARED FOR THERMAL PROPERTIES STUDIES
 MALM, J. G. CSBORNE, D. W. SCHREINER, F. DATE- DEC. 1967
 ARG-10056

Preparation of a xenon hexafluoride and sodium fluoride salt yields a sample of the highest possible purity for use in thermal measurements. The desired hexafluoride can easily be freed from the common contaminants, xenon tetra-fluoride, xenon difluoride, and xenon oxide tetrafluoride, because none of these compounds reacts with sodium fluoride.

B67-10578
STUDY OF CORROSION OF 1100 ALUMINUM
 DRALEY, J. E. LOESS, R. E. MORI, S. DATE- DEC. 1967

ARG-10045
 Corrosion of 1100 aluminum in oxygen-saturated water at 70 degrees C under experimental conditions was studied, emphasizing effects of exposure interruption, the number of specimens, and the refreshment rate. A logarithmic equation was derived to express the corrosion rate.

B67-10579
MAGNESIUM-ZINC REDUCTION IS EFFECTIVE IN PREPARATION OF METALS
 KNIGHTON, J. B. STEUNBERG, R. K. DATE- DEC. 1967

ARG-10050
 Uranium, thorium, and plutonium are effectively prepared by magnesium-zinc reduction, using uranium oxides, thorium dioxide, and plutonium dioxide as starting materials. This technique is also useful in performing reduction of metals such as zirconium and titanium.

B67-10580
SIMPLE COLORIMETRIC METHOD DETERMINES URANIUM IN TISSUE
 DORAN, D. /ST. PROCOPIUS COLL./ PRIGERIO, N. A. DATE- DEC. 1967 REAN- SEE ALSO ANL-7136
 ARG-10039

Simple colorimetric micromethod determines concentrations of uranium in tissue. The method involves dry ashing organic extraction, and colorimetric determination of uranyl ferrocyanide. This uranium determination technique could be used in agricultural research, tracer studies, testing of food products, or medical research.

B67-10582
STUDY MADE OF RESISTANCE OF STAINLESS STEELS TO ZINC-VAPOR CORROSION
 BENNETT, G. A. BURRIS, L., JR. NELSON, P. A. DATE- DEC. 1967
 ARG-10055

Study of the corrosion resistance of several stainless steels to zinc vapor revealed that some stainless steels could be employed for use in zinc processing equipment housings or vapor lines.

B67-10583
STUDY OF CREVICE-GALVANIC CORROSION OF ALUMINUM
 DRALEY, J. E. LOESS, R. E. MORI, S. DATE- DEC. 1967 REAN- SEE ALSO ANL-6236
 ARG-10013

Corrosion effects of aluminum-copper and aluminum-nickel couples in oxygenated distilled water, and aluminum alloys in oxygenated copper sulfate solution were studied. One of each of the couples had a water tight seal, and showed no substantial corrosion, and of the unsealed couples, only the aluminum-copper developed corrosion.

B67-10584
FOGGING TECHNIQUE USED TO COAT MAGNESIUM WITH PLASTIC
 MROZ, T. S. DATE- DEC. 1967
 LEWIS-10316

Cleaning process and a fogging technique facilitate the application of a plastic coating to magnesium plates. The cleaning process removes general organic and inorganic surface impurities, oils and greases, and oxides and carbonates from the magnesium surfaces. The fogging technique produces a thin-filmlike coating in a clean room atmosphere.

B67-10586
DEVICE MEASURES STATIC FRICTION OF MAGNETIC TAPE
 COLE, P. T. DATE- DEC. 1967 REAN- SEE ALSO NASA-TN-D-3399
 GSFC-10360

Device measures the coefficient of static friction of magnetic tape over a range of temperatures and relative humidities. It uses a strain gage to measure the force of friction between a reference surface and the tape drawn at a constant velocity of approximately 0.0001 inch per second relative to the reference surface.

B67-10589
EXPLOSIVE-TRAIN INITIATED THROUGH SOLID BULKHEAD BY PRESSURE CARTRIDGE
 WILKOWSKI, J. C. /N. AM. AVIATION/ DATE- DEC. 1967
 MSC-11395

Explosive-train initiated pressure cartridge transmits a shock wave igniting a main charge of explosive through a solid bulkhead without destroying or damaging the seal or the bulkhead. The main charge could be an explosive, a pyrotechnic, or a propellant.

B67-10592
MATHEMATICAL RELATION PREDICTS ACHIEVABLE DENSITIES OF COMPACTED PARTICLES
 AYER, J. E. SCPPET, F. E. DATE- DEC. 1967
 ARG-10082

Series of mathematical relationships predicts compact densities of spherical shapes in a cylinder as a function of particle dimension, and compact density of angular shapes as a function of particle shape and absolute size.

B67-10593
SOLVENT PERMITS SOLID CURING AGENTS TO BE USED AT ROOM TEMPERATURES
 ST. CYR, M. C. /DOUGLAS AIRCRAFT CO./ DATE- DEC. 1967
 M-FS-13434

Solvent system dissolves the solid curing agents used with polyurethane resins in adhesive systems. The system developed yields bond strengths comparable to 100 percent solid formulations. The optimum solvent chosen was a 55.5 percent solution in anhydrous tetrahydrofuran.

B67-10596
EPOXY RESINS PRODUCE IMPROVED PLASTIC SCINTILLATORS
 MARKLEY, F. W. DATE- DEC. 1967
 ARG-241

Plastic scintillator produced by the substitution of epoxy resins for the commonly used polystyrene is easy to cast, stable at room temperature, and has the desirable properties of a thermoset or cross-linked system. Such scintillators can be immersed directly in strong solvents, an advantage in many chemical and biological experiments.

B67-10599
BACTERIOSTATIC CONFORMAL COATING FOR ELECTRONIC COMPONENTS
 BLAND, C. LE DOUX, F. N. DATE- DEC. 1967
 GSFC-10007

Coating for electronic components used in space applications has bacteriostatic qualities capable of hindering bacterial reproduction, both vegetative and sporulative viable microorganisms. It exhibits high electrical resistivity, a low outgassing rate, and is capable of restraining

electronic components when subjected to mechanical vibrations.

B67-10600

DYNAMIC CAPTIVE PLASTIC SEAL

DRYER, E. O. /N. AM. AVIATION/ DATE- DEC. 1967
M-FS-12988

Fluoroplastic material held captive between valve sealing surfaces of 16 to 125 rms microns provides zero leakage to a high-pressure line at high cryogenic temperatures, when the plastic material is subjected to sufficient stress. This sealing technique makes unnecessary the use of superfinished valve sealing surfaces.

B67-10608

A CERAMIC COMPOSITE THERMAL INSULATION

SPON- INNOVATOR NOT GIVEN /MARSHALL/ DATE- DEC. 1967
REAN- SEE ALSO NASA-TN-X-53646
M-FS-13991

Ceramic composite thermal insulation comprised of alumina-silica fibers, pigmentary potassium titanate, and asbestos fibers, bonded with a colloidal silica sol has improved insulating capabilities to both radiant and convective heat. Gelation of the colloidal silica sol prevents binder migration.

B67-10627

THORIATED TUNGSTEN TUBE PROVIDES IMPROVED

HIGH TEMPERATURE THERMOCOUPLE SHEATH

ZELLNER, G. J. /WESTINGHOUSE ASTRONUC. LAB./
DATE- DEC. 1967
NUC-10145

Thermocouple tubing of thoriated tungsten with a very fine grain structure produces a small-diameter sheath capable of operating up to 5000 degrees R in a hydrogen and graphite environment. This tubing remains ductile and resists both grain growth and carbiding even after prolonged exposure to temperature.

B67-10634

PHOTOVOLTAIC EFFECT IN ORGANIC

POLYMER-IODINE COMPLEX

HERMANN, A. M. REMBAUM, A. DATE- DEC. 1967
REAN- SEE ALSO B66-10682 AND B67-10132
NPO-10373

Certain charge transfer complexes formed from organic polymers and iodine generate appreciable voltages at relatively low impedances upon exposure to light. These films show promise in applications requiring chemically and electrically stable films as detectors of optical radiation and as energy converters in photovoltaic cells.

B67-10641

COMPILATION OF DETECTION SENSITIVITIES IN THERMAL-NEUTRON ACTIVATION

WAHLGREN, M. A. WING, J. DATE- DEC. 1967 REAN-
SEE ALSO ANI-6953
ARG-10068

Detection sensitivities of the chemical elements following thermal-neutron activation have been compiled from the available experimental cross sections and nuclear properties and presented in a concise and usable form. The report also includes the equations and nuclear parameters used in the calculations.

B67-10645

EDDY CURRENT PROBE MEASURES SIZE OF CRACKS IN NONMETALLIC MATERIALS

MUSSER, C. W. /BOEING CO./ DATE- JAN. 1968
M-FS-14059

Nondestructive method uses powdered iron and eddy current probe to measure the depth/width ratio of cracks in electrically nonconductive materials. The eddy current probe measures the mass of metal in the crack after it has been filled with the powdered iron.

B67-10647

SYNTHESIS OF PURE AROMATIC GLYCIDYL ESTERS FOR USE AS ADHESIVES

SPON- INNOVATOR NOT GIVEN /BORDEN CHEM. CO./
DATE- JAN. 1968
M-FS-12705
SPON- INNOVATOR NOT GIVEN

Laboratory study was conducted to synthesize pure glycidyl esters of aromatic acids and to convert the resultant epoxy esters to polymers for use as adhesive over a range of temperatures down to minus 423 degrees F.

B67-10659

BUCKLING STRENGTH OF FILAMENT-WOUND CYLINDERS UNDER AXIAL COMPRESSION IS INVESTIGATED

SPON- INNOVATOR NOT GIVEN /NASA WASHINGTON/ DATE-
DEC. 1967 REAN- SEE ALSO NASA-CR-266
HQ-10032

Analytical study was made of the effects of axial compression on buckling strength of filament-wound cylinders having diameter-to-wall thickness ratios of 167 to 643. Analytical predictions for buckling loads were obtained by using linear anisotropic shell theory.

B67-10660

STUDY MADE OF MECHANICS OF DEFORMATION AND FRACTURE OF FIBROUS COMPOSITES

ROSEN, B. W. /GE/ DATE- DEC. 1967
HQ-10035

Report summarizes the findings of studies made of the influence of both fiber and matrix characteristics upon the mechanics of deformation and fracture of fibrous composites. The major portion of the report is devoted to a study of the mechanics of tensile failure of a fibrous composite.

B68-10020

DISTILLATION DEVICE SUPPLIES CESIUM VAPOR AT CONSTANT PRESSURE

BASIULIS, A. SHEFSIEK, P. K. /RCA/ DATE- FEB. 1968
XNP-08124

Distillation apparatus in the form of a U tube supplies small amounts of pure cesium vapor at constant pressure to a thermionic converter. The upstream leg of the U tube is connected to a vacuum pump to withdraw noncondensable impurities, the bottom portion serves as a reservoir for the liquid cesium.

B68-10023

HASTELLOY X PROPERTIES, DATA, AND METALLURGICAL CHARACTERISTICS

GLASIER, L. F., JR. /AEROJET-GEN. CORP./ DATE-
FEB. 1968
NUC-10302

Literature survey and testing program were initiated to obtain pertinent information for Hastelloy X, a nickel-base alloy, through the temperature range of minus 423 degrees to 1800 degrees F. A report has been prepared which includes the tensile properties, mechanical properties, and the manufacturing and fabrication processes.

B68-10029

HEAT TREATMENT PROCEDURE TO INCREASE DUCTILITY OF DEGRADED NICKEL ALLOY

PRAGER, M. /N. AM. AVIATION/ DATE- FEB. 1968
M-FS-12410

Tests demonstrate the room temperature ductility of degraded Rene 41 can be increased to acceptable values by solution heat treatment at a temperature of 2050 degrees to 2150 degrees F /1 to 2 hours/ and cooling through a controlled temperature range followed by normal aging in air /16 hours at 1400 degrees F/.

B68-10031

PANELIZED HIGH PERFORMANCE MULTILAYER INSULATION

BURKLEY, R. A. SHRIVER, C. B. /GOODYEAR AEROSPACE CORP./ STUCKEY, J. M. DATE- FEB. 1968
M-FS-14023

Multilayer insulation coverings with low conductivity foam spacers are interleaved with quarter mil aluminized polymer film radiation shields to cover flight type liquid hydrogen tankage of space vehicles with a removable, structurally compatible, lightweight, high performance cryogenic insulation capable of surviving extended space mission environments.

B68-10032

SURVEY MADE OF REFRACTORY METALS

AULT, G. M. DATE- FEB. 1968

LEWIS-10380

Survey reviews the structural applications of

03 MATERIALS (CHEMISTRY)

refractory metals and the special problems they present in manufacture, evaluation, and application. The unique facilities required for their processing and evaluation, a summary of accomplishments in achieving commercial products, and the present status of the most advanced refractory materials are presented.

B68-10034

CONTINUOUS DETONATION REACTION ENGINE

LANGE, O. H. STEIN, R. J. TUBBS, H. E. DATE- FEB. 1968

M-FS-14019

Reaction engine operates on the principles of a controlled condensed detonation rather than on the principles of gas expansion. The detonation results in reaction products that are expelled at a much higher velocity.

B68-10043

CURE OF EPOXY RESINS DETERMINED BY SIMPLE TESTS

LADAKI, M. NIGH, W. G. /N. AM. AVIATION/ DATE- FEB. 1968

M-FS-13131 M-FS-13132

Rapid visual and simple quantitative tests indicate the degree of cure of particular epoxy resin binders in prepreg stock. It is possible that these tests may be extended to a number of different epoxy formulations.

B68-10046

SURVEY OF FRACTURE TOUGHNESS TEST METHODS

BROWN, W. F., JR. JONES, M. H. SRANLEY, J. E. DATE- MAR. 1968 REAN- SEE ALSO NASA-TN-D-2599 AND ASTM-NASA-STP-410

LEWIS-10379

Comprehensive survey presents current methods of fracture toughness testing that are based on linear elastic fracture mechanics. General principles of the basic two dimensional crack stress field model are discussed in relation to real three dimensional specimens. Methods of test instrumentation and procedure are described.

B68-10048

SIMPLE TEST FOR PHYSICAL STABILITY OF CRYOGENIC TANK INSULATION

ROSSELLO, D. /DOUGLAS AIRCRAFT CO./ DATE- MAR. 1968

M-FS-12547

Qualitative test determines the ability of insulation liners used on liquid hydrogen tanks to withstand stresses produced by the thermal shocks imparted to the insulation during tank filling and drainage. Test specimens are bonded to metal plates with a low thermal expansion coefficient and are immersed in liquid hydrogen.

B68-10049

METHOD OF MAINTAINING ACTIVITY OF HYDROGEN-SENSING PLATINUM ELECTRODE

HARMAN, J. N., III /BECKMAN INSTR./ DATE- MAR. 1968

M-FS-1422

Three-electrode hydrogen sensor containing a platinum electrode maintained in a highly catalytic state, operates with a minimal response time and maximal sensitivity to the hydrogen gas being sensed. Electronic control and readout circuitry reactivates the working electrode of the sensor to a state of maximal catalytic activity.

B68-10062

PYROTECHNIC DEVICE PROVIDES ONE-SHOT HEAT SOURCE

HALLER, H. C. LALLI, V. R. /TRW EQUIPMENT LABS./ DATE- MAR. 1968

LEWIS-10131

Pyrotechnic heater provides a one-shot heat source capable of creating a predetermined temperature around sealed packages. It is composed of a blend of an active chemical element and another compound which reacts exothermically when ignited and produces fixed quantities of heat.

B68-10066

STATIC STRUCTURAL ANALYSIS OF SHELL-TYPE STRUCTURES

BAKER, E. H. CAPPELLI, A. P. KOVALEVSKY, L. RISH, F. L. VERRETTE, R. M. /N. AM. AVIATION/ DATE- MAR. 1968 REAN- SEE ALSO NASA-CR-912 MSC-11555

Shell analysis manual provides methods for determining static deflections and internal load and stress distributions in shells under various loading conditions, and methods of analyzing static instability of shell structures. Also included are methods for determining the lightest shell wall for various constructions.

B68-10085

REINFORCED THERMAL-SHOCK RESISTANT CERAMICS

CRUMP, D. N. /THOMPSON RAMO WOOLDRIDGE/ DATE- MAY 1968

LEWIS-10376

Composite material, made by dispersing short tungsten-rhenium fibers randomly throughout zirconium oxide, is highly resistant to oxidizing environments at temperatures above 2000 degrees F. This reinforced ceramic is also thermal stress resistant.

B68-10092

MOLDING A HIGH-DENSITY LAMINATE

HARAWAY, W. M. HEIER, W. C. KING, C. B. DATE- MAR. 1968

LANGLEY-10051

Molding press is used to form phenolic resin impregnated glass fiber cloth into a high-density, cylindrical-ring laminate. The press applies clamping pressure and heat to a mold containing the glass fiber cloth laminate, which has hydrostatic pressure applied to it by means of a specially designed pressure plug.

B68-10094

HIGH STRENGTH NICKEL-BASE ALLOY WITH IMPROVED OXIDATION RESISTANCE UP TO 2200 DEGREES F

FRECHE, J. C. WATERS, W. J. DATE- APR. 1968

LEWIS-10115

Modifying the chemistry of the NASA TAZ-8 alloy and utilizing vacuum melting techniques provides a high strength, workable nickel base superalloy with improved oxidation resistance for use up to 2200 degrees F.

B68-10095

COBALT-TUNGSTEN, FERROMAGNETIC HIGH-TEMPERATURE ALLOY

ASHBROOK, R. L. DRESHFIELD, R. L. FRECHE, J. C. HOFFMAN, A. C. SANDROCK, G. D. DATE- APR. 1968

REAN- SEE ALSO NASA-TN-D-4338

LEWIS-10378

Cobalt-base alloy which combines high temperature strength and magnetic properties has a composition in weight percent of 7-1/2 tungsten, 2-1/2 iron, 1 titanium, 1/2 zirconium, 1/2 carbon, and the balance cobalt. It may be used as construction material for electric motors and generators operating at high temperatures.

B68-10101

REACTION RATES OF GRAPHITE WITH OZONE MEASURED BY ETCH DECORATION

HENNIG, G. R. MONTET, G. L. DATE- APR. 1968

ARC-10086

Etch-decoration technique of detecting vacancies in graphite has been used to determine the reaction rates of graphite with ozone in the directions parallel and perpendicular to the layer planes. It consists essentially of peeling single atom layers off graphite crystals without affecting the remainder of the crystal.

B68-10102

ANALYTICAL TECHNIQUES FOR DETERMINING BORON IN GRAPHITE

HENNIG, G. R. MONTET, G. L. DATE- APR. 1968

ARC-10087

Two analytical techniques, a gold nucleation and an etch-decoration technique have been developed for determining the presence and mobility of boron in graphite.

B68-10103

GLASSY MATERIALS INVESTIGATED FOR NUCLEAR

REACTOR APPLICATIONS

LYNCH, E. D. DATE- APR. 1968 REAN- SEE ALSO
ANL-7062
ARG-10075

Studies determine the feasibility of preparing fuel-bearing glasses and glasses bearing neutron-absorbing materials for use as crystalline fuel and control rods for reactors. Properties investigated were devitrification resistance, uranium solubility, and density.

B68-10104

DECOMPOSITION VESSEL

BERNAS, B. /NATL. ACAD. OF SCI./ DATE- MAR. 1968
GSPC-10343

Stainless steel crucible-shaped vessel permits rapid decomposition of silicates and other refractory compounds by acids at relatively low temperatures. The vessel is lined with tetrafluoroethylene fluorocarbon resin and sealed by a sheet of the same material retained in a stainless steel screw cap.

B68-10105

BLAST DEFLECTOR TRAPS SMOKE AND DEBRIS FROM EXPLOSIVE TRAINS

WILKOWSKI, J. C. /N. AM. AVIATION/ DATE- MAR. 1968
MSC-11241

Blast deflector protects interior areas and personnel from the smoke and debris of explosive trains. It contains open-cell foam to absorb the pressure loads generated by explosive charges and control the smoke and debris.

B68-10109

TUNGSTEN-RHENIUM ALLOY THERMOCOUPLES EFFECTIVE FOR HIGH-TEMPERATURE MEASUREMENT

BROOKS, E. J. KRAMER, W. C. DATE- APR. 1968
REAN- SEE ALSO ANL-6981
ARG-10059

Tungsten-rhenium alloy thermocouples, specifically, insulated, sheathed W/W plus 26 Re and W plus 5 Re/W plus 26 Re thermocouples, are effective for temperature measurement in excess of 2920 degrees C. These thermocouples have a high thermoelectric output and excellent relationship to temperatures up to 2760 degrees C.

B68-10142

DEVICE PROVIDES CONTROLLED GAS LEAKS

KAMI, S. K. KING, H. J. /HUGHES AIRCRAFT CO./ DATE- APR. 1968
NPO-10298

Modified palladium leak device provides a controlled release /leak/ of very small quantities of gas at low or medium pressures. It has no moving parts, requires less than 5 watts to operate, and is capable of releasing the gas either continuously or in pulses at adjustable flow rates.

B68-10146

LAMINATED SHEET COMPOSITES REINFORCED WITH MODULAR FILAMENT SHEET

REECE, O. Y. DATE- MAY 1968
M-PS-14575

Aluminum and magnesium composite sheet laminates reinforced with low density, high strength modular filament sheets are produced by diffusion bonding and explosive bonding. Both processes are accomplished in normal atmosphere and require no special tooling or cleaning other than wire brushing the metal surfaces just prior to laminating.

B68-10153

STUDY OF CRACK INITIATION PHENOMENA ASSOCIATED WITH STRESS CORROSION OF ALUMINUM ALLOYS

HUNTER, M. S. /ALUMINUM CO. OF AM./ DATE- MAY 1968
M-PS-14283

Study of stress corrosion cracks in aluminum alloys reveals that crack initiation is greatly influenced by boundary orientation and directionality of the structure. In all crack susceptible materials, intergranular corrosion and

stress corrosion cracking started and progressed in boundaries oriented perpendicularly to the stressing direction.

B68-10167

EVALUATION OF IGNITION MECHANISMS IN SELECTED NONMETALLIC MATERIALS

GERSTEIN, M. MC LAIN, M. ROSS, W. /DYN. SCI. CORP./ DATE- MAY 1968
MSC-11645 MSC-11646 MSC-11647

Test program evaluates thermal and electric ignition mechanisms in selected nonmetallic materials found in spacecraft with concentrated oxygen atmospheres. The phenomena evaluated were spontaneous ignition, ignition of flammable vapor by a spark, and ignition by an arc where the arc produces the combustible vapor and the ignition source.

B68-10172

STUDY REVEALS EFFECT OF ALUMINUM ON SATURATION MOMENT OF FE-NI ALLOYS

ALDRED, A. T. BARDOS, D. I. BECK, P. A. /ILLINOIS UNIV./ DATE- MAY 1968
ARG-90259

Study of saturation magnetization, important in the investigation of the electronic structure of alloys, reveals the effect of aluminum on the saturation moments of iron-nickel alloys. The saturation magnetizations were extrapolated to the absolute zero of temperature for calculating average atomic moments.

B68-10177

SARAN FILM IS FIRE-RETARDANT IN OXYGEN ATMOSPHERE

GOODWIN, J. T. HERRERA, W. R. /SOUTHWEST RES. INST./ DATE- JUN. 1968
MSC-11604

Saran was tested for flammability as a wrapping on TPE-insulated electrical wire bundles in oxygen gas at pressures of 7.5 psia and 14.7 psia. It was found to be fire retardant or self-extinguishing in most instances.

B68-10184

STRESS-CORROSION CHARACTERISTICS OF ALUMINUM CASTING ALLOY M-45

LOVOY, C. V. DATE- JUN. 1968 REAN- SEE ALSO
B65-10092 AND B67-10159
M-PS-14817

Evaluation of the stress-corrosion characteristics of aluminum alloy M-45 shows that the most favorable artificial aging cycle for this alloy, with regard to optimum strength and stress-corrosion resistance, appears to be 400 degrees F for 12 hours.

B68-10189

REACTION STUDIED OF STEAM WITH NIOBIUM AND TANTALUM

KILPATRICK, M. LOTT, S. K. DATE- JUN. 1968
ARG-10051

Study reveals the kinetics of niobium and tantalum with steam at elevated temperatures to determine the suitability of high melting metals for fabrication of equipment for temperature steam environments. Niobium obeyed linear kinetics from 1050 degrees to 1500 degrees C but tantalum followed a parabolic rate law.

B68-10191

EVALUATION OF METHODS FOR NONDESTRUCTIVE TESTING OF BRAZED JOINTS

KANNO, A. DATE- JUN. 1968 REAN- SEE ALSO
ANL-6924
ARG-90175

Evaluation of nondestructive methods of testing brazed joints reveals that ultrasonic testing is effective in the detection of nonbonds in diffusion bonded samples. Radiography provides excellent resolutions of void or inclusion defects, and the neutron radiographic technique shows particular advantage for brazing materials containing cadmium.

B68-10192

WELDING OF COMMERCIAL BASE PLATES IS INVESTIGATED

03 MATERIALS (CHEMISTRY)

CHEEVER, D. L. MARTIN, D. C. MISHLER, H. W.
MONROE, R. E. /BATTELLE MEM. INST./ DATE- JUN.
1968
M-FS-13649

Investigation of aluminum alloy welds reveals that the combinations of metallic elements with hydrogen are not capable of producing weld porosity themselves, rather they tend to increase the amount of porosity only in the presence of arc contamination by water vapor.

B68-10194
SUSCEPTIBILITY OF IRRADIATED STEELS TO
HYDROGEN EMBRITTLEMENT

ROSSIN, A. D. DATE- JUN. 1968 REAN- SEE ALSO
ANL-7266
ARG-10115

Investigation determined whether irradiated pressure-vessel steels 4340 and 212-B are susceptible to hydrogen embrittlement and to catastrophic failure. Hydrogen-charging conditions which completely embrittled 4340 steel had negligible effect on 212-B steel in tensile and delayed-failure tests.

B68-10195
ELEMENTARY REVIEW OF ELECTRON MICROPROBE
TECHNIQUES AND CORRECTION REQUIREMENTS

HART, R. K. DATE- JUN. 1968 REAN- SEE ALSO
ANL-7078
ARG-10062

Report contains requirements for correction of instrumented data on the chemical composition of a specimen, obtained by electron microprobe analysis. A condensed review of electron microprobe techniques is presented, including background material for obtaining X ray intensity data corrections and absorption, atomic number, and fluorescence corrections.

B68-10196
FUNDAMENTAL ELECTRODE KINETICS

ELDER, J. P. DATE- JUN. 1968 REAN- SEE ALSO
ANL-7072
ARG-10067

Report presents the fundamentals of electrode kinetics and the methods used in evaluating the characteristic parameters of rapid-charge transfer processes at electrode-electrolyte interfaces. The concept of electrode kinetics is outlined, followed by the principles underlying the experimental techniques for the investigation of electrode kinetics.

B68-10197
STUDY OF MECHANICAL PROPERTIES OF URANIUM
COMPOUNDS

BEALS, R. J. DRAGEL, G. M. HANDWERK, J. H.
TOTTLE, C. R. DATE- JUN. 1968 REAN- SEE ALSO
ANL-7070
ARG-10074

Study determines the mechanical properties, including brittleness and ductility of several uranium compounds. These include uranium dioxide, uranium sulfide, and uranium phosphide.

B68-10198
CRYSTAL STRUCTURE ANALYSIS OF INTERMETALLIC
COMPOUNDS

CONNER, R. A., JR. DOWNEY, J. W. DWIGHT, A. E.
DATE- JUN. 1968
ARG-10092

Study concerns crystal structures and lattice parameters for a number of new intermetallic compounds. Crystal structure data have been collected on equiatomic compounds, formed between an element of the Sc, Ti, V, or Cr group and an element of the Co or Ni group. The data, obtained by conventional methods, are presented in an easily usable tabular form.

B68-10199
STUDIES IN ZIRCONIUM OXIDATION

DRALEY, J. E. DRUNEN, C. J. LEVITAN, J. DATE-
JUN. 1968 REAN- SEE ALSO ANL-7252
ARG-10099

Study provides insight into the oxidation mechanism of zirconium by combining electrical measurements with oxidation data. The

measurement of electrical potential across growing scale on zirconium and the determination of conventional weight-change oxidation data were carried out at 550, 700, and 800 degrees C.

B68-10200
RESISTIVITY MEASUREMENTS OF NEUTRON-IRRADIATED
PURE METALS AND AL-ZN ALLOYS

HORAK, J. A. DATE- JUN. 1968 REAN- SEE ALSO
ANL-7185
ARG-10108

Report presents resistivity measurements and their interpretation for neutron-irradiated pure metals and Al-Zn alloys. The influence of temperature, the role of point defects, and the aging behavior on resistivity are considered. The experimental procedures and results are discussed in detail.

B68-10201
TECHNOLOGICAL SURVEY OF TELLURIUM AND ITS
COMPOUNDS

STEINDLER, H. J. VISSERS, D. R. DATE- JUN. 1968
REAN- SEE ALSO ANL-7142
ARG-10119

Review includes data on the chemical and physical properties of tellurium, its oxides, and fluorides, pertinent to the process problem of handling fission product tellurium in fluoride form. The technology of tellurium handling in nonaqueous processing of nuclear fuels is also reviewed.

B68-10204
MANGANESE-ALUMINA-CERAMIC GLASS ELIMINATES
RIGID CONTROLS NECESSARY IN BONDING METALS
TO CERAMICS

HOLLAR, E. L. DATE- JUN. 1968
SAN-10012

Matrix of manganese-alumino-silicate glass simplifies the processes of metallizing alumina ceramics. Because the manganese in the glass is preoxidized to the 2 plus state by firing in nitrogen, the ceramic can be metallized in dry hydrogen. Lengthening the firing time permits a lower metallizing temperature.

B68-10212
ION PLATING TECHNIQUE IMPROVES THIN FILM
DEPOSITION

MATTOX, D. M. DATE- JUN. 1968
SAN-10006

Ion plating technique keeps the substrate surface clean until the film is deposited, allows extensive diffusion and chemical reaction, and joins insoluble or incompatible materials. The technique involves the deposition of ions on the substrate surface while it is being bombarded with inert gas ions.

B68-10214
REDUCING BUBBLES IN GLASS COATINGS IMPROVES
ELECTRICAL BREAKDOWN STRENGTH

BANKS, E. DATE- JUN. 1968
LEWIS-10278

Helium reduces bubbles in glass coatings of accelerator grids for ion thrusters. Fusing the coating in a helium atmosphere creates helium bubbles in the glass. In an argon atmosphere, entrapped helium diffuses out of the glass and the bubbles collapse. The resultant coating has a substantially enhanced electrical breakdown strength.

B68-10215
GLASS COATED SINGLE GRID FOR CHARGED
PARTICLE ACCELERATION

BANKS, B. A. NAKANISHI, S. DATE- JUN. 1968
LEWIS-10106

Glass coating is used on a single grid accelerator system for ion thrusters. The uniformly thin, smooth, dense, impervious glass coating has a high dielectric strength and is firmly bonded to the accelerator grid.

B68-10221
LIQUID CRYSTAL CALIBRATOR

COHEN, S. E. /LOCKHEED-GEORGIA CO./ DATE- JUN.
1968

M-PS-14151

Calibration apparatus determines the operating temperature range /sensitivity/ of liquid crystals. The calibrator maintains a precisely controlled test surface temperature. It permits a measurement accuracy of plus or minus 0.5 degrees F and a sensitivity of plus or minus 0.15 degrees F.

B68-10251

WELD MICROFISSURING IN INCONEL 718

MINIMIZED BY MINOR ELEMENTS

MORRISON, T. J. SHIRA, C. S. WEISENBERG, L. A. /N. AM. ROCKWELL CORP./ DATE- JUL. 1968 REAN-SEE ALSO B67-10049

M-PS-18185

Manganese, silicon, and magnesium markedly reduce the tendency of Inconel 718 to weld microfissuring. By combining a manganese, 0.20 percent by content, with silicon, greater than 0.25 percent content, or by adding 20 ppm of magnesium, the weld microfissuring decreased in the standard alloy.

B68-10253

HIGH TEMPERATURE ALLOY

FRANK, R. G. SEMMEL, J. W., JR. /GE/ DATE- JUL. 1968

LEWIS-10377

Molybdenum is substituted for tungsten on an atomic basis in a cobalt-based alloy, S-1, thus enabling the alloy to be formed into various mill products, such as tubing and steels. The alloy is weldable, has good high temperature strength and is not subject to embrittlement produced by high temperature aging.

B68-10256

GRAPHITE CLOTH FACILITATES VACUUM

EVAPORATION OF SILICON MONOXIDE

CARITHERS, M. D. /GEORGIA INST. OF TECH./ DATE- JUL. 1968

M-PS-14764

Woven graphite cloth facilitates the vacuum deposition of thin films of silicon monoxide on substrate surfaces. The cloth serves both as a container and electric heating element for the silicon monoxide. It minimizes and prevents the silicon monoxide particle ejection, provides uniform heat distribution, and cools rapidly by radiation.

B68-10271

PREPARATION OF SILVER-ACTIVATED ZINC SULFIDE

THIN FILMS

FELDMAN, C. SWINDELLS, F. E. /MELPAR/ DATE- AUG. 1968

GSFC-10687

Silver improves luminescence and reduces contamination of zinc sulfide phosphors. The silver is added after the zinc sulfide phosphors are deposited in thin films by vapor evaporation, but before calcining, by immersion in a solution of silver salt.

B68-10274

VISCOSITY AND DENSITY OF METHANOL/WATER

MIXTURES AT LOW TEMPERATURES

AUSTIN, J. G. KURATA, F. SWIFT, G. W. /KANSAS UNIV./ DATE- AUG. 1968

M-PS-14991

Viscosity and density are measured at low temperatures for three methanol/water mixtures. Viscosity is determined by a modified falling cylinder method or a calibrated viscometer. Density is determined by the volume of each mixture contained in a calibrated glass cell placed in a constant-temperature bath.

B68-10278

CHARACTERISTICS OF FLUIDIZED-PACKED BEDS

GABOR, J. D. MECHAN, W. J. DATE- AUG. 1968 REAN-SEE ALSO ANL-6859

ARG-10049

Study of fluidized-packed bed includes investigation of heat transfer, solids-gas mixing, and elutriation characteristics. A fluidized-packed bed is a system involving the fluidization of small particles in the voids of a

packed bed of larger nonfluidized particles.

B68-10279

A 100 ANGSTROM NIOBIUM WIRE

CLINE, H. E. ROSE, R. M. WULFF, J. /MIT/ LEWIS-10128

Composite of fine niobium wires in copper is used to study the size and proximity effects of a superconductor in a normal matrix. The niobium rod was drawn to a 100 angstrom diameter wire on a copper tubing.

B68-10281

STUDY OF BEHAVIOR OF STEROLS AT INTERFACES

KLEIN, P. D. KNIGHT, J. C. SZCZEPANIK, P. A. DATE- AUG. 1968

ARG-10085

Behavior of sterols and sterol acetates on various types of interfaces indicates that the function of a sterol depends upon a surface orientation and surface energy of the interface. Column-chromatographic techniques determine the retention volume of various sterols under standard conditions.

B68-10285

PRE-WELD HEAT TREATMENT IMPROVES WELDS IN

RENE 41

PRAGER, M. /N. AM. ROCKWELL CORP./ DATE- AUG. 1968

M-PS-18174

Cooling of Rene 41 prior to welding reduces the incidence of cracking during post-weld heat treatment. The microstructure formed during the slow cooling rate favors elevated temperature ductility. Some vestiges of this microstructure are apparently retained during welding and thus enhance strain-age crack resistance in air.

B68-10302

EFFECTS OF SURFACE PREPARATION ON QUALITY

OF ALUMINUM ALLOY WELDMENTS

KIZER, D. SAPERSTEIN, Z. /IIT RES. INST./ DATE- AUG. 1968

M-PS-13152

Study of surface preparations and surface contamination effects on the welding of 2014 aluminum involves several methods of surface analysis to identify surface properties conducive to weld defects. These methods are radioactive evaporation, spectral reflectance mass spectroscopy, gas chromatography and spark emission spectroscopy.

B68-10334

MICROPROBE INVESTIGATION OF BRITTLE

SEGREGATES IN ALUMINUM MIG AND TIG WELDS

LARSEN, P. A. MILLER, E. L. /MCDONNELL DOUGLAS CORP./ DATE- SEP. 1968

M-PS-14720

Quantitative microprobe analysis of segregated particles in aluminum MIG /Metal Inert Gas/ and TIG /Tungsten Inert Gas/ welds indicated that there were about ten different kinds of particles, corresponding to ten different intermetallic compounds. Differences between MIG and TIG welds related to the individual cooling rates of these welds.

B68-10340

APPLICATION OF THE SOLID LUBRICANT

MOLYBDENUM DISULFIDE BY SPUTTERING

PRZYBYSZEWSKI, J. SPALVINS, T. DATE- SEP. 1968

LEWIS-10544

Molybdenum disulfide lubricant film is deposited on two substrates, niobium and nickel-chromium alloys, by means of physical direct-current sputtering. The sputtering system uses a three-electrode /triode/ geometry - a thermionic cathode, an anode, and the target, all enclosed in a vacuum chamber.

B68-10344

NICKEL BASE ALLOY WITH IMPROVED STRESS

RUPTURE PROPERTIES

COLLINS, H. E. QUIGG, R. J. /TRW/ DATE- SEP. 1968

LEWIS-10283

Nickel base superalloy with improved stress

03 MATERIALS (CHEMISTRY)

rupture properties is used for jet aircraft turbine blades. This alloy is capable of maintaining its strength and its creep, oxidation, and thermal fatigue resistance at high temperature.

B68-10351
THERMAL CONDUCTIVITY AND DIELECTRIC CONSTANT OF SILICATE MATERIALS
 SIMON, I. WECHSLER, A. E. /ARTHUR D. LITTLE, INC./ DATE- SEP. 1968
 M-FS-14856

Report on the thermal conductivity and dielectric constant of nonmetallic materials evaluates the mechanisms of heat transfer in evacuated silicate powders and establishes the complex dielectric constant of these materials. Experimental measurements and results are related to postulated lunar surface materials.

B68-10355
EXPERIMENTS WITH CERAMIC COATINGS
 LYNN, E. K. ROLLINS, C. T. /N. AM. ROCKWELL CORP./ DATE- SEP. 1968
 M-FS-18150

Report describes the procedures and techniques used in the application of a ceramic coating and the evaluation of test parts through observation of the cracks that occur in this coating due to loading.

B68-10358
FIRE RETARDANT FOAMS DEVELOPED TO SUPPRESS FUEL FIRES
 FISH, R. GILWEE, W. J. PARKER, J. A. RICCITIELLO, S. R. DATE- SEP. 1968
 ARC-10098

Heat insulating polyurethane foam retards and suppresses fuel fires. Uniformly dispersed in the foam is a halogenated polymer capable of splitting off hydrogen halide upon heating and charring of the polyurethane.

B68-10360
FIBER GLASS REINFORCED STRUCTURAL MATERIALS FOR AEROSPACE APPLICATION
 BARTLETT, D. H. BARTLET, D. H. /BOEING CO./ DATE- SEP. 1968
 M-FS-14806

Evaluation of fiber glass reinforced plastic materials concludes that fiber glass construction is lighter than aluminum alloy construction. Low thermal conductivity and strength makes the fiber glass material useful in cryogenic tank supports.

B68-10368
CONSOLIDATION AND FABRICATION TECHNIQUES FOR VANADIUM-20 W/O TITANIUM /TV-20/
 BURT, W. R. KARASEK, F. J. KRÄNER, W. C. MAYFIELD, R. H. MC GOWAN, R. D. DATE- OCT. 1968
 REAN- SEE ALSO ANL-7127 AND ANL-6928
 ARG-10148

Tests of the mechanical properties, fuel compatibility, sodium corrosion and irradiation behavior were made for vanadium and vanadium alloy. Improved methods for consolidation and fabrication of bar, rod, sheet, and high-quality, small diameter, thin-wall tubing of vanadium-20 without titanium are reported.

B68-10369
TUNGSTEN FIBER-REINFORCED NICKEL SUPERALLOY
 PETRASEK, D. W. SIGNORELLI, R. A. WETTON, J. W. DATE- OCT. 1968 REAN- SEE ALSO NASA-TN-D-4787 AND NASA-TN-X-52342
 LEWIS-10424

Tungsten fiber-reinforced nickel superalloy combines the strength of refractory metals with the oxidation resistance of superalloys. Knowledge of the relationship between fabrication technique, matrix compositions and fiber sizes minimized fiber-matrix reaction. Potential application includes high temperature turbine components.

B68-10373
PRODUCT IDENTIFICATION TECHNIQUES USED AS TRAINING AIDS FOR ANALYTICAL CHEMISTS
 GRILLO, J. F. DATE- OCT. 1968

SAN-10025
 Laboratory staff assistants are trained to use data and observations of routine product analyses performed by experienced analytical chemists when analyzing compounds for potential toxic hazards. Commercial products are used as examples in teaching the analytical approach to unknowns.

B68-10378
NONDESTRUCTIVE METHOD FOR MEASURING RESIDUAL STRESSES IN METALS, A CONCEPT
 SCHWEBEL, C. D. /BOEING CO./ DATE- OCT. 1968
 KSC-10237

Nondestructive direct measurement of residual surface stresses in metals can be made because metal under stress has a different electrochemical solution potential than in the unstressed condition. The method uses two matched electrolytic cells to cancel extraneous effects on the actual solution potential of the metal specimen.

B68-10380
NICKEL-BASE SUPERALLOY*S EXCELLENT PROPERTIES PROMOTE ITS SERVICE TO 2200 DEGREES F
 FRECHE, J. C. WATERS, W. J. DATE- OCT. 1968
 REAN- SEE ALSO NASA-TN-D-4390, B66-10222, AND B68-10094
 LEWIS-10355

Nickel base alloy with high strength, ductility, good impact and oxidation resistance, microstructural stability, workability potential, and the ability to show improved strength and ductility when directly solidified has recently been developed for high temperature applications.

B68-10381
HIGH-EMITTANCE COATINGS ON METAL SUBSTRATES
 EMANUELSON, R. C. LUOMA, W. L. WALEK, W. J. /PRATT AND WHITNEY AIRCRAFT CORP./ DATE- OCT. 1968
 LEWIS-10325

High-emittance coatings of iron, calcium, and zirconium titanates thermally sprayed on stainless steel, columbium-1 percent zirconium, and beryllium substrates promote and control radiative heat transfer from the metal substrates. Adherence, compatibility and emittance stability at elevated temperature and high vacuum were evaluated.

B68-10385
ELECTROMOTIVE SERIES ESTABLISHED FOR METALS USED IN AEROSPACE TECHNOLOGY
 KUSTER, C. A. /N. AM. ROCKWELL CORP./ DATE- OCT. 1968
 M-FS-18327

Electromotive series has been established for approximately 130 commonly used aerospace metals. For most metals an initial potential and a service related potential was obtained.

B68-10390
IMPROVED PROCESS FOR EPITAXIAL DEPOSITION OF SILICON ON PREDIFFUSED SUBSTRATES
 CLARKE, M. G. HALSOR, J. L. WORD, J. C. /WESTINGHOUSE ELEC. CORP./ DATE- OCT. 1968
 M-FS-14910

Process for fabricating integrated circuits uniformly deposits silicon epitaxially on prediffused substrates without affecting the sublayer diffusion pattern. Two silicon deposits from different sources, and deposited at different temperatures, protect the sublayer pattern from the silicon tetrachloride reaction.

B68-10391
TRAINING MANUALS FOR NONDESTRUCTIVE TESTING USING MAGNETIC PARTICLES
 SPON- INNOVATOR NOT GIVEN /GEN. DYN./CONVAIR/ DATE- OCT. 1968
 M-FS-20187

Training manuals containing the fundamentals of nondestructive testing using magnetic particle as detection media are used by metal parts inspectors and quality assurance specialists. Magnetic particle testing involves magnetization of the test specimen, application of the magnetic

particle and interpretation of the patterns formed.

B68-10392

CONTAMINATION CONTROL HANDBOOK

SPON- INNOVATOR NOT GIVEN /SANDIA CORP./ DATE- OCT. 1968

M-PS-20185

Contamination Control Handbook provides technical information on avoiding contamination of physical, chemical or biological systems or products. The book includes control methods for product design, gases and liquids, airborne and surface contamination, radiation, packaging handling, storage and personnel.

B68-10394

NONDESTRUCTIVE TESTING OF BRAZED ROCKET

ENGINE COMPONENTS

ADAMS, C. J. HAGEMAIER, D. J. MEYER, J. A. /N. AM. ROCKWELL CORP./ DATE- OCT. 1968

M-PS-18191

Report details study made of nondestructive radiographic, ultrasonic, thermographic, and leak test methods used to inspect and evaluate the quality of the various brazed joints in liquid-propellant rocket engine components and assemblies. Descriptions of some of the unique equipment and methods developed are included.

B68-10408

THE THERMODYNAMIC PROPERTIES OF THE WUSTITE PHASE ARE STUDIED

ACKERMAN, R. J. SANDFORD, R. W., JR. DATE- DEC. 1968 REAN- SEE ALSO ANL-7250

ARG-10200

Study of the precise location of the wustite phase boundaries and the dependence of the partial pressure of oxygen on the temperature and composition of the solid phase was made. From the pressure of oxygen, the temperature and the composition thermodynamic quantities can be determined.

B68-10409

THE PREPARATION, IDENTIFICATION AND PROPERTIES OF CHLOROPHYLL DERIVATIVES

KATZ, J. J. PENNINGTON, F. C. STRAIN, H. R. SVEC, W. A. DATE- DEC. 1968

ARG-10205

In the investigation of 10-hydroxy chlorophylls a and b novel techniques included modification of chromatography and the use of fully-deuterated compounds isolated from fully-deuterated autotrophic algae to determine the molecular structure of the chlorophylls.

B68-10414

TITANIUM-NITROGEN REACTION INVESTIGATED FOR APPLICATION TO GETTERING SYSTEMS

ARNTZEN, J. D. COLEMAN, L. F. KYLE, M. I. PIERCE, R. E. DATE- NOV. 1968 REAN- SEE ALSO ANL-7167

ARG-10208

Titanium is one of several gettering materials available for removing nitrogen from inert gases. The reaction rate of titanium-metal sponge and nitrogen in argon-nitrogen mixtures was studied at 900 degrees C. The rate was found to depend upon the partial pressure of nitrogen in the gas phase. Mathematical relationships simulate titanium systems.

B68-10419

CHEMISTRY LABORATORY SAFETY MANUAL

AVAILABLE

ELSBROCK, R. G. DATE- NOV. 1968

SAN-10030

Chemistry laboratory safety manual outlines safe practices for handling hazardous chemicals and chemistry laboratory equipment. Included are discussions of chemical hazards relating to fire, health, explosion, safety equipment and procedures for certain laboratory techniques and manipulations involving glassware, vacuum equipment, acids, bases, and volatile solvents.

B68-10425

NITRIC ACID-ORGANIC MIXTURES SURVEYED FOR

USE IN SEPARATION BY ANION EXCHANGE METHODS

BLOOMQUIST, C. A. A. FARIS, J. P. STEWART, D. C. DATE- NOV. 1968 REAN- SEE ALSO ANL-6999

ARG-10065

Column elution-spectrographic analysis technique compares certain solvents directly to the methanol system, using inert rare earths instead of actinides. Distribution ratios for americium between 90 percent solvent, 10 percent 5 M nitric acid and Dowex 1 nitrate form resin for a large group of organics miscible in water was determined.

B68-10433

AN ECONOMICAL METHOD FOR THE CONTINUOUS PRODUCTION OF IODINE-123

BLUE, J. W. SMITH, W. R. SODD, V. J. DATE- DEC. 1968

LEWIS-10518

Simple and inexpensive method produces iodine 123, in a conventional cyclotron. Tellurium 122, a stable isotope available in enrichments exceeding 95 percent, is held on a porous metal plate by a flowing stream of helium and bombarded with either alpha particles or helium 3.

B68-10454

HYDROGEN PEROXIDE ETCHING PROVES USEFUL FOR GERMANIUM

DAYAL, Y. /IIT RES. INST./ KAMPWIRTH, R. PRIMAK, W. DATE- DEC. 1968

ARG-10170

Influence of process variations in the etching of germanium with hydrogen peroxide has been studied, along with damage effects due to radiation. The work advances the knowledge of the etching process for germanium.

B68-10455

GRAIN-BOUNDARY MIGRATION IN KCL BICRYSTALS

GIBBON, C. F. DATE- DEC. 1968 REAN- SEE ALSO ANL-7232

ARG-10181

Boundary migration in melt-grown bicrystals of KCl containing pure twist boundaries was investigated. The experiments involve the use of bicrystal specimens in the shape of right-triangular prisms with the boundary parallel to one side.

B68-10520

AMBIENT TEMPERATURE CATALYST FOR HYDROGEN

IGNITION

ROBERTS, R. W. /N. AM. ROCKWELL CORP./ DATE- NOV. 1968

LEWIS-10551

Low cost, ambient temperature catalyst for reacting hydrogen gas with air in a catalytic cell near the point of evolution at a controlled rate is announced.

B68-10522

METHOD FOR REMOVING SURFACE-DAMAGED LAYERS

FROM NICKEL ALLOYS

FAWLEY, R. W. /N. AM. ROCKWELL CORP./ DATE- NOV. 1968

M-PS-18151

Electrical discharge machining /EDM/ damaged layer can be effectively removed from Rene 41, Inconel 625, Inconel 718, and Monel K-500 by abrasive-grit blasting or electropolishing /at room temperature/ at a current density of 5A/inches squared in a water solution of phosphoric and sulfuric acids.

B68-10523

EVALUATION OF A FLUOROCARBON PLASTIC USED

IN CRYOGENIC VALVE SEALS

CIERNIAK, R. E. LIEB, J. H. MOWERS, R. E. /N. AM. ROCKWELL CORP./ DATE- NOV. 1968

M-PS-18189

Effects of strain rate, temperature, crystallinity, and surface finish /smoothness/ on the tensile strength of a commercial chlorotrifluoroethylene plastic /CTFE/ used for lipseals in very fast-acting liquid oxygen valves.

B68-10524

DISPENSING GRADUATE FOR BUTADIENE

03 MATERIALS (CHEMISTRY)

HIRSHFIELD, S. M. /N. AM. ROCKWELL CORP./ DATE- NOV. 1968
NPO-10070

Graduate was designed for dispensing small volumes of liquid 1,3-butadiene or other volatile liquids which are in the gaseous state at room temperature.

B68-10526

PRECISE DOPING OF METALS BY SMALL GAS FLOWS
BARRETT, C. A. DATE- NOV. 1968
LEWIS-10444

Simple method was developed for doping refractory metals with oxygen. The metal specimens are heated in a dynamic high-vacuum system. The system can be used for other oxygen absorption processes /such as low-pressure oxidation measurements/ and for gases other than oxygen.

B68-10527

GRAIN GROWTH INHIBITOR FOR POROUS TUNGSTEN MATERIALS

TODD, H. H. /ELECTRO-OPT. SYSTEMS/ DATE- NOV. 1968

LEWIS-10535

Boron, either uncombined or combined with nitrogen or carbon added to tungsten powder prior to processing, effectively inhibits grain growth. The tungsten material is stable up to 1800 degrees C.

B68-10528

METHOD FOR CONTROLLING DENSITY AND PERMEABILITY OF SINTERED POWDERED METALS

TODD, H. H. /ELECTRO-OPT. SYSTEMS/ DATE- NOV. 1968

LEWIS-10393

Improved, relatively low-cost method has been developed to produce porous metals with predetermined pore size, pore spacing, and density, utilizing powder-metal processes. The method uses angular not spherical tungsten powder.

B68-10532

MASS LOADING EFFECTS ON VIBRATED RING AND SHELL STRUCTURES

LEE, S. Y. /N. AM. ROCKWELL CORP./ DATE- NOV. 1968

M-FS-14979

Efficient methods for predicting the effects of attached masses on the vibration characteristics of ring and shell structures have been developed and substantiated with experimental data.

B68-10536

A RAPID STRESS-CORROSION TEST FOR ALUMINUM ALLOYS

HELFRICH, W. J. /KAISER ALUMINUM AND CHEM. CORP./ DATE- DEC. 1968

M-FS-20175

Stressed alloy specimens are immersed in a salt-dichromate solution at 60 degrees C. Because of the minimal general corrosion of these alloys in this solution, stress corrosion failures are detected by low-power microscopic examination.

B68-10552

SIMULATED HAILSTONE FABRICATION AND USE IN TESTING WEATHERABILITY OF STRUCTURES

STOLLER, F. W. DATE- DEC. 1968

NPO-10783

Equipment fabricates and uses simulated hailstones to test the weatherability of exposed structures. The equipment projects the hailstones at velocities experienced in hailstorms.

B68-10553

STRUCTURAL THERMAL-CONTROL COATINGS

STOLLER, F. W. DATE- DEC. 1968

NPO-10785

Specifications have been formulated for application of thermal-control paints on large radar antenna structures exposed to solar radiation. The paint minimizes thermally induced mechanical deflections and glare of incident solar radiation.

B68-10557

SEPARATOR FOR ALKALINE BATTERIES

HOYT, H. W. PFLUGER, H. L. /BORDEN CO./ DATE- DEC. 1968
GSFC-10173

Separator compositions have been tested as components of three-plate silver-zinc oxide cells in a standard cycling test. Six materials meet imposed requirements, giving cycling performance superior to cellophane.

B68-10561

WELD JOINT STRENGTH AND MECHANICAL PROPERTIES IN 2219-T81 ALUMINUM ALLOY

KROPP, C. J. WITZELL, W. E. /GEN. DYN./CONVAIR/ DATE- DEC. 1968

LEWIS-10479

Plate and sheet were welded using automatic TIG /Tungsten Inert Gas/ weld techniques and manual repair weld techniques. Yield strength of 2219-T81 sheet and plate decreases significantly when welded.

B68-10568

STRESS-CORROSION-INDUCED PROPERTY CHANGES IN ALUMINUM ALLOYS

BANKSTON, B. F. CLOTFELTER, W. N. DATE- DEC. 1968

M-FS-20209

Measurements of electrical conductivity, ultrasonic surface wave attenuation, and internal friction loss were made on aluminum alloys 7079-T6, 2219-T31, and 2219-T81 as a function of the onset of stress corrosion.

B69-10004

STUDY OF ACTINIDE CHEMISTRY IN SATURATED POTASSIUM FLUORIDE SOLUTION

COHEN, D. THALMAYER, C. E. DATE- JAN. 1969

ARG-10204

Study concerning the chemistry of actinides in saturated KF solution included work with neptunium, uranium, and americium. Solubilities, absorption spectra, oxidation-reduction reactions, and solid compounds which can be produced in KF solution were examined. The information is used for preparation of various materials from salts of the actinides.

B69-10006

LEVITATION-MELTING TECHNIQUE FOR METALS AND ALLOYS

DOWNNEY, J. W. DATE- JAN. 1969

ARG-10240

Experimentation resulted in an improved levitation-melting technique for metals and alloys which quickly produces a completely homogeneous melt. Also developed were two levitation coils that permit a wide variety of metals to be levitated in the molten state and a helium quenching method which minimizes contamination and segregation.

B69-10010

SUPERCONDUCTIVITY IN ZIRCONIUM-RHODIUM ALLOYS

ZEGLER, S. T. DATE- JAN. 1969

ARG-10223

Metallographic studies and transition temperature measurements were made with isothermally annealed and water-quenched zirconium-rhodium alloys. The results clarify both the solid-state phase relations at the Zr-rich end of the Zr-Rh alloy system and the influence upon the superconducting transition temperature of structure and composition.

B69-10025

EVALUATION OF LUBRICANTS FOR BALL BEARINGS AT HIGH TEMPERATURES

JOHNSON, R. L. SLINNEY, H. E. DATE- FEB. 1969

LEWIS-10578

Calcium fluoride-barium fluoride coating on ball bearing cages or as fillers in porous bearing cages lubricate bearings successfully for operations in air at temperatures of 1200 to 1500 degrees F.

B69-10026

TWO SYSTEMS DEVELOPED FOR PURIFYING INERT ATMOSPHERES

FOSTER, M. S. JOHNSON, C. E. KYLE, M. L. DATE-
FEB. 1969
ARG-10234

Two systems, one for helium and one for argon, are used for purifying inert atmospheres. The helium system uses an activated charcoal bed at liquid nitrogen temperature to remove oxygen and nitrogen. The argon system uses heated titanium sponge to remove nitrogen and copper wool beds to remove oxygen. Both use molecular sieves to remove water vapor.

B69-10029
CORROSION REDUCTION OF ALUMINUM ALLOYS IN
FLOWING HIGH-TEMPERATURE WATER

DRALEY, J. E. RUTHER, W. E. DATE- FEB. 1969
REAN- SEE ALSO ANL-7227
ARG-10244

Report describes a technique for reducing the corrosion rate of aluminum by adding colloidal substances in a closed-loop system. Experimental work shows that the addition of graphite and colloidal hydrated aluminum oxide significantly reduces the corrosion rate in flowing high-temperature water.

B69-10033
ELECTROCHEMICAL STUDY OF ALUMINUM
CORROSION IN BOILING HIGH PURITY WATER

DRALEY, J. E. LEGAULT, R. A. DATE- APR. 1969
ARG-10306

Electrochemical study of aluminum corrosion in boiling high-purity water includes an equation relating current and electrochemical potential derived on the basis of a physical model of the corrosion process. The work involved an examination of the cathodic polarization behavior of 1100 aluminum during aqueous oxidation.

B69-10048
STUDY OF FLUORIDE CORROSION OF NICKEL ALLOYS
GUNTHER, W. H. STEINDLER, M. J. DATE- FEB. 1969
REAN- SEE ALSO ANL-7241

ARG-10224
Report contains the results of an investigation of the corrosion resistance of nickel and nickel alloys exposed to fluorine, uranium hexafluoride, and volatile fission product fluorides at high temperatures. Survey of the unclassified literature on the subject is included.

B69-10049
TEFLON-PACKED FLEXIBLE JOINT
BELMONT, G. E. DATE- FEB. 1969
LEWIS-90252

Teflon-packed flexible joint separates the movement of the shaker from the liquid nitrogen hose during the ground testing of cryogenic zero-g equipment. The joint allows the hose to lie on the floor in a stationary position as the shaker moves back and forth, thus, the hose is not subject to violent motion.

B69-10053
REFRACTORY OXIDE INSULATED THERMOCOUPLE
DESIGNED AND ANALYZED FOR HIGH TEMPERATURE
APPLICATIONS
POPPER, G. F. ZEREN, T. Z. DATE- FEB. 1969
ARG-10202

Study establishes design criteria for constructing high temperature thermocouple to measure nuclear fuel pin temperature. The study included a literature search to determine the compatibility of material useful for thermocouples, a hot zone error analysis, and a prototype design for hot junction and connector pin connections.

B69-10054
TRANSPUTONIUM ELEMENTS PROCESSED FROM ROCK
DEBRIS OF UNDERGROUND DETONATIONS
BLOOMQUIST, C. A. A. HARVEY, H. W. HOH, J. C.
HORWITZ, E. P. DATE- MAR. 1969 REAN- SEE ALSO
ANL-7134
ARG-10222

Six-step chemical processing method extracts minute quantities of transplutonium elements found in rock debris following a nuclear detonation. The process consists of dissolution of rock, feed preparation, liquid-liquid extraction, final

purification of transplutonium elements and plutonium, and separation of the transplutonium elements.

B69-10055
THERMAL EXPANSION PROPERTIES OF AEROSPACE
MATERIALS

GREEN, E. F. /N. AM. ROCKWELL CORP./ DATE- MAR.
1969
M-FS-18335

Thermal expansion properties of materials used in aerospace systems are compiled into a single handbook. The data, derived from experimental measurements supplemented by information from literature sources, are presented in charts and tables arranged in two sections, covering cryogenic and elevated temperatures.

B69-10058
SINTERING CHARACTERISTICS AND PROPERTIES
OF PUS AND PUP ARE DETERMINED
KRUGER, O. L. MOSER, J. B. DATE- MAR. 1969
ARG-10228

Report on the preparation of plutonium monosulphide and plutonium monophosphide includes a description of the sintering characteristics and properties of these high-temperature compounds. data on weight loss, microstructure, density, melting point, thermal expansion, microhardness, Seebeck coefficient, and thermal diffusion are included.

B69-10061
INSERTION DEVICE FOR PRESSURE TESTING
HOWLAND, B. T. MAURIN, A. L. /N. AM. ROCKWELL
CORP./ DATE- MAR. 1969
MSC-15185

Test device which introduces either pressure or vacuum into a test pipe or tube, is insertable into the tested item where it secures itself into position and requires no external support. The unit has an operating range from zero to 25,000 psig and to any vacuum level that available equipment can reach.

B69-10065
MATERIALS DATA HANDBOOK, ALUMINUM ALLOY
6061
SESSLER, J. WEISS, V. /SYRACUSE UNIV. RES.
INST./ DATE- MAR. 1969
M-FS-20381

Comprehensive compilation of technical data on aluminum alloy 6061 is presented in handbook form. The text includes data on the properties of the alloy at cryogenic, ambient, and elevated temperatures and other pertinent information required for the design and fabrication of components and equipment utilizing this alloy.

B69-10066
FRACTOGRAPHY CAN BE USED TO ANALYZE FAILURE
MODES IN POLYTETRAFLUOROETHYLENE
NERREN, B. H. DATE- MAR. 1969
M-FS-20294

Fractographic principles used for analyzing failure in metals are applied to the analysis of the microstructure and fracture of polytetrafluoroethylene. This material is used as seals in cryogenic systems.

B69-10067
DIFFUSION OF TRACE GASES FOR LEAK DETECTION -
A STUDY
BROWN, J. L. DATE- MAR. 1969
M-FS-20254

Study reveals quantitative measurements of the diffusion of trace gases /Freon and helium/ injected into systems by different methods. Results show that uniform mixing does not always occur, thus evaluation of the system under test and establishment of the method of trace gas injection are mandatory.

B69-10068
TENSILE AND FATIGUE PROPERTIES OF INCONEL
718 AT CRYOGENIC TEMPERATURES
MALIN, C. O. SCHMIDT, E. H. /N. AM. ROCKWELL
CORP./ DATE- MAR. 1969
M-FS-18192

03 MATERIALS (CHEMISTRY)

Tests to determine the tensile and fatigue properties of Inconel 718 at cryogenic temperatures show that the alloy increases in strength at low temperatures, with very little change in toughness. The effect of surface finish and grain size on the fatigue properties was also determined.

B69-10072

REFRACTORY-METAL COMPOUND IMPREGNATION OF POLYTETRAFLUOROETHYLENE

LEIBICKI, H. F. DATE- MAR. 1969

LEWIS-10733

Process impregnates polytetrafluoroethylene /PTFE/ with rhenium or molybdenum compounds. The refractory metals impregnated PTFE combines chemical inertness with electrical conductivity. They are useful for electro-chemical cells, chemical processing equipment, catalysts, electrostatic charge removal, RF gasketing, and cable shielding.

B69-10074

ADHESIVE FOR CRYOGENIC TEMPERATURE APPLICATIONS

DOYLE, H. M. /MCDONNELL DOUGLAS CORP./ DATE- MAR. 1969

LEWIS-10264

Adhesive, which bonds a metal liner to a filament wound composite structure used for cryogenic pressure vessels, prevents the metal liner from buckling under depressurization. The adhesive consists of adducts of urethane and epoxy resins.

B69-10079

PREPARATION OF THORIUM MAGNESIUM-ZINC REDUCTION

HARIHARAN, A. V. KNIGHTON, J. B. STEUNENBERG, R. K. DATE- MAR. 1969 REAN- SEE ALSO ANL-7058

ARG-10245

Magnesium-zinc reduction of thorium dioxide is used for the preparation of thorium metal. Potential economic advantages of this technique include use of relatively inexpensive reagents for the metal and flux phases, and production of metal of acceptable quality in good yield.

B69-10081

SPECTROGRAPHIC ANALYSIS OF BISMUTH-TIN EUTECTIC ALLOYS BY SPARK-IGNITED,

LOW-VOLTAGE AC-ARC EXCITATION

HUFF, E. A. KULPA, S. J. DATE- APR. 1969 REAN- SEE ALSO ANL-7331

ARG-10288

Spectrographic method determines individual stainless steel components in molten bismuth-42 w/o tin eutectic to determine the solubility of Type 304 stainless steels. It utilizes the high sensitivity and precision of the spark-ignited, low-voltage ac-arc excitation of samples rendered homogeneous by dissolution.

B69-10084

IMPROVED PH BUFFERING AGENT FOR SODIUM HYPOCHLORITE

NASH, J. R. VEEDER, L. N. /N. AM. ROCKWELL CORP./ DATE- MAR. 1969

MSC-15443

Sodium citrate/citric acid was found to be an effective buffer for pH control when used with sodium hypochlorite. The mixture does not corrode aluminum. The buffer appears to form a type of conversion coating that may provide corrosion-resistant properties to aluminum in other applications.

B69-10092

DIRECT MEASUREMENT OF CARBON-14 IN CARBON DIOXIDE BY LIQUID SCINTILLATION COUNTING

HORROCKS, D. L. DATE- APR. 1969

ARG-10237

Liquid scintillation counting technique is applied to the direct measurement of carbon-14 in carbon dioxide. This method has high counting efficiency and eliminates many of the basic problems encountered with previous techniques. The technique can be used to achieve a percent substitution reaction and is of interest as an analytical technique.

B69-10098

CORROSION PROTECTION OF ALUMINUM ALLOYS IN CONTACT WITH OTHER METALS

KUSTER, C. A. /N. AM. ROCKWELL CORP./ DATE- APR. 1969

M-FS-18526

Study establishes the quality of chemical and galvanized protection afforded by anodized and alodized coatings applied to test panels of various aluminum alloys. The test panels, placed in firm contact with panels of titanium alloys, were subjected to salt spray tests and visually examined for corrosion effect.

B69-10108

HANDBOOKS FOR NONDESTRUCTIVE TESTING USING ULTRASONICS

SPON- INNOVATOR NOT GIVEN /GEN. DYN./CONVAIR/ CONVAIR/ DATE- APR. 1969 REAN- SEE ALSO

NASA-CR-61209, NASA-CR-61210, NASA-CR-61211, AND NASA-CR-61228

M-FS-20409

Four handbooks have been prepared for use in teaching metal parts inspectors and quality assurance technicians the fundamentals of nondestructive testing using ultrasonic detection methods. The handbooks may be used in the shop or laboratory, or as study texts in technical schools and in the home.

B69-10118

NEW RAPID-CURING, STABLE POLYIMIDE POLYMERS WITH HIGH-TEMPERATURE STRENGTH AND THERMAL STABILITY

BURNS, E. A. JONES, J. P. KENDRICK, W. R. LUBOWITZ, H. R. THORPE, R. S. WILSON, E. R. /TRW, INC./ DATE- MAY 1969

LEWIS-10576

Additive-type polymerization reaction forms thermally stable polyimide polymers, thereby eliminating the volatile matter attendant with the condensation reaction. It is based on the utilization of reactive alicyclic rings positioned on the ends of polyimide prepolymers having relatively low molecular weights.

B69-10123

PRODUCTION OF METALS AND COMPOUNDS BY RADIATION CHEMISTRY

MARSIK, S. J. PHILIPP, W. H. DATE- MAY 1969

LEWIS-10231

Preparation of metals and compounds by radiation induced chemical reactions involves irradiation of metal salt solutions with high energy electrons. This technique offers a method for the preparation of high purity metals with minimum contamination from the container material or the cover gas.

B69-10136

PREPARATION OF HIGH PURITY COPPER FLUORIDE BY FLUORINATING COPPER HYDROXYFLUORIDE

KING, R. B. LUNDQUIST, J. R. /BATELLE NORTHWEST/ DATE- MAY 1969

LEWIS-10794

Copper fluoride containing no more than 50 ppm of any contaminating element was prepared by the fluorination of copper hydroxyfluoride. The impurity content was obtained by spark source mass spectrometry. High purity copper fluoride is needed as a cathode material for high energy density batteries.

B69-10138

LIQUID GALLIUM ROTARY ELECTRIC CONTRACT PRZYBYSZESKI, J. S. DATE- MAY 1969

LEWIS-10828

Due to its low vapor pressure, gallium, when substituted for mercury in a liquid slip ring system, transmits substantial amounts of electrical current to rotating components in an ultrahigh vacuum. It features low electrical loss, little or no wear, and long maintenance-free life.

B69-10147

TORSION SYSTEM FOR CREEP TESTING WITH MULTIPLE STRESS REVERSALS

LILIENTHAL, P. A. /ILLINOIS UNIV./ DATE- MAY

1969

HQ-10039

Torsion system proves exploratory data on accelerated creep due to multiple stress reversals. Torsional testing of tubular specimens is best suited for reversed stress creep tests since large strains are obtainable while maintaining specimen geometry.

B69-10154

FUEL ELEMENT CONCEPT FOR LONG LIFE HIGH

POWER NUCLEAR REACTORS

MCDONALD, G. E. ROM, F. E. DATE- MAY 1969

LEWIS-10309

Nuclear reactor fuel elements have burnups that are an order of magnitude higher than can currently be achieved by conventional design practice. Elements have greater time integrated power producing capacity per unit volume. Element design concept capitalizes on known design principles and observed behavior of nuclear fuel.

B69-10168

SEPARATION OF TRACES OF METAL IONS FROM

SODIUM MATRICES

KORKISCH, J. ORLANDINI, K. A. DATE- JUN. 1969

REAN- SEE ALSO ANL-7421

ARG-10341

Method for isolating metal ion traces from sodium matrices consists of two extractions and an ion exchange step. Extraction is accomplished by using 2-thenyltrifluoroacetone and dithizone followed by cation exchange.

B69-10170

REDUCTION BY MONOVALENT ZINC, CADMIUM, AND

NICKEL CATIONS

MEYERSTEIN, D. MULAC, W. A. DATE- JUN. 1969

ARG-10328

Understanding of chemical properties of monovalent transition metal cations in aqueous solutions was obtained by a study of kinetics of reduction of different inorganic substrates by zinc, cadmium, and nickel.

B69-10176

COATINGS DECREASE METAL FATIGUE FAILURE

SUMSION, H. T. DATE- JUN. 1969

ARG-10015

Metal test specimens were coated with suitable materials to limit the rate of attack of fresh metal surfaces by the atmosphere. The fatigue properties of coated metals were superior to those which were uncoated and approached the properties observable in vacuum.

B69-10179

MANUAL OF TYPICAL LOW TEMPERATURE

MECHANICAL PROPERTIES OF SEVERAL MATERIALS

MALIN, C. O. /ROCKETDYNE/ DATE- JUN. 1969

M-PS-18331

Manual contains information resulting from tests regarding low temperature properties of a number of materials commonly used in aerospace. The mechanical properties data are presented for 54 commonly used materials. The data is taken from many sources and is averaged and adjusted to represent the properties of typical material.

B69-10192

DETECTING HYDROGEN-CONTAINING CONTAMINANTS

ON METAL SURFACES

GROVE, E. L. LOSELE, W. A. /IIT RES. INST./

DATE- JUN. 1969

M-PS-20456

Spark emission spectroscopy analyzes surface contamination of metals. This technique controls the quality of surface preparations and is useful in fundamental investigations of surface properties of metals.

B69-10195

EFFECT OF INTERPARTICLE FORCES ON THE

FLUIDIZATION OF FINE PARTICLES

BAERNS, M. G. RAMASWAMI, D. DATE- JUN. 1969

REAN- SEE ALSO ANL-7086

ARG-10264

Report studies elucidation and description of

effect of interparticle forces on feasibility of gaseous fluidization of particles below 50 microns in diameter. Interparticle forces are determined by inclined-plane method. Study indicated that fluidizability is related to the interparticle adhesive force.

B69-10196

IDENTIFICATION AND EVALUATION OF LINEAR

DAMPING MODELS IN BEAM VIBRATIONS

BOERS, B. L. ROSENBERG, G. S. WAMBSGANSS, M. W.,

JR. DATE- JUL. 1969 REAN- SEE ALSO ANL-7292

ARG-10275

Sensitive method, identifying effective damping mechanisms, involves comparing experimentally determined ratio of first to second mode magnification factors related to common point on beam. Cluster size has little effect on frequencies of elements, magnification factor decreases with cluster size, and viscous and stress damping are dominant damping mechanisms.

B69-10198

RECENT DEVELOPMENT IN ORGANIC SCINTILLATORS

HORROCKS, D. L. WIRTH, H. O. DATE- JUL. 1969

ARG-10344 ARG-10346

Discussion on recent developments of organic scintillators includes studies of organic compounds that form glass-like masses which scintillate and are stable at room temperature, correlations between molecular structure of organic scintillators and self-quenching, recently developed fast scintillators, and applications of liquid-scintillation counters.

B69-10200

HIGH TEMPERATURE COATINGS FOR GAS BEARINGS

MURRAY, S. F. /MECH. TECHNOL./ DATE- JUL. 1969

LEWIS-10793

Aluminum oxide and nickel-chrome bonded chrome carbide coatings enhance the performance of gas bearings at temperatures up to 1400 degrees F. A plasma-sprayed aluminum-oxide coating is applied to the bearing surface and a plasma-sprayed 25 percent nickel-chrome bonded chrome carbide coating is applied to the journal surface.

B69-10206

MEASUREMENTS OF THERMOELECTRIC POWER IN

ANNEALED AND QUENCHED GOLD-PLATINUM ALLOYS

BAARLE, C. V. HUEBENER, R. P. DATE- JUL. 1969

ARG-10303

Report gives measurements of absolute thermoelectric powers of dilute gold-platinum alloys and influence of quenched-in lattice vacancies on their thermoelectric powers. It investigates phonon-drag component of thermoelectric power as a function of platinum concentration, and change in phonon-drag thermoelectric power by lattice vacancies.

B69-10235

TECHNIQUE FOR ABRASIVE CUTTING OF

THICK-FILM CONDUCTORS FOR HYBRID CIRCUITS

NUGENT, J. B. PALERMO, J. S. /MIT/ DATE- AUG.

1969

MSC-13242

Abrasive jet technique, producing prototype conductor networks for thick-film hybrid microcircuits, does not require screening and fixing procedures. Pantograph engraver is used to perform abrasive cutting of the conductor network.

B69-10237

DIFFUSION BOND METHOD OF JOINING STEEL AND

A TFE-BRONZE COMPOSITE

LALACONA, F. P. DATE- JUL. 1969

M-PS-20482

Diffusion bonding method does not affect the mechanical properties of steel nor the strength of Teflon. It alleviates problems of adhesive outgassing, radiation damage, and delamination.

B69-10240

THERMOPHYSICAL PROPERTIES OF SODIUM

GOLDEN, G. H. TOKAR, J. V. DATE- AUG. 1969

REAN- SEE ALSO ANL-7323

ARG-10363

03 MATERIALS (CHEMISTRY)

Assessment is given of physical and thermodynamic properties of sodium. FORTRAN subroutine computes enthalpy and entropy of sodium in given state, and composition, molecular weight, volume, and compressibility factor of corresponding vapor. Tabular results for saturated liquid and vapor are presented for a 500-2500 degree F range.

B69-10241

ZONE PURIFICATION OF POTASSIUM CHLORIDE

SUSMAN, S. DATE- AUG. 1969

ARG-10377

Procedure for removal of sodium and bromine from KCl involves zone refining in dilute halogen atmosphere. Distribution of Na and Br at concentrations of parts per million is followed by neutron-activation analyses.

B69-10250

A NEW SOLID LUBRICANT

FUSARO, R. L. SLINNEY, H. E. DATE- AUG. 1969

LEWIS-10812

Friction and wear life studies on burnished films of the compound graphite fluoride have demonstrated its potential as a solid lubricant material. It is effective in moist air, dry air, or in dry argon at temperatures up to approximately 400 degrees C.

B69-10252

STUDY OF HIGH TEMPERATURE BEARING MATERIALS

FRANK, R. G. /GE/ DATE- AUG. 1969

LEWIS-10829

Experimental investigation identifies materials suitable for use in potassium lubricated turbo-generator journal bearing and shaft applications at high temperatures. Attention is given to nonrefractory metals and alloys, refractory metals and alloys, Fe-Ni-Co bonded carbides, refractory compounds, and refractory metal bonded carbides.

B69-10254

CONTINUOUS ANALYSIS OF NITROGEN DIOXIDE

IN GAS STREAMS OF PLANTS

DURKIN, W. T. /NATL. LEAD CO. OF OHIO/ KISPERT,

R. C. DATE- JUL 1969 REAN- SEE ALSO NLCO-1025

ARG-10356

Analyzer and sampling system continuously monitors nitrogen dioxide concentrations in the feed and tail gas streams of a facility recovering nitric acid. The system, using a direct calorimetric approach, makes use of readily available equipment and is flexible and reliable in operation.

B69-10256

INDUCTION PROBE DETERMINES LEVELS OF

LIQUID METALS

JOHNSON, T. R. PIERCE, R. D. TEATS, F. G. DATE-

JUL. 1969 REAN- SEE ALSO ANL-7153

ARG-10348

Mutual-inductance probe accurately measures liquid levels in a variety of liquid metals at elevated temperatures. It can be used in pyrochemical processes for the recovery of spent reactor fuel.

B69-10257

METHOD FOR COPPER STAINING OF GERMANIUM

CRYSTALS

RIVET, E. J. DATE- JUL. 1969

ARG-10403

Proper conditions for copper staining of germanium crystals include a low solution temperature of 3 degrees C, illumination of the sample by infrared light, and careful positioning of the light source relative to the sample so as to minimize absorption of the infrared light.

B69-10262

THERMAL RADIATION SHIELDS FOR PIPING IN

VACUUM ENVIRONMENTS

SPAGNUOLO, A. C. DATE- AUG. 1969

LEWIS-10899

System of thermal radiation shielding reduces radiant heat transfer in vacuum installations containing piping which carries working fluids. Method employs successive layers of spacers and rolled metal shields which are easily installed or removed, expedites efficient removal of entrapped

gases, and adapts easily to small pipings.

B69-10265

TECHNIQUE FOR ANCHORING FASTENERS TO

HONEYCOMB PANELS

BROWN, W. J. SPAGNUOLO, A. C. STONEBRAKER, J. C.

DATE- AUG. 1969

LEWIS-10888

Two-piece fastener bushing provides mounting surface for components on a three-inch thick honeycomb structure. Specially constructed starter drill and sheet metal drill permit drilling without misalignment. Tapered knife-edge cutting tool removes honeycomb core material without tearing the adjacent material.

B69-10266

IMPROVED HIGH-TEMPERATURE SILICIDE COATINGS

KLOPP, W. D. STEPHENS, J. R. STETSON, A. R.

/INTERN. HARVESTER CO./ WIMBER, R. T. DATE- AUG.

1969

LEWIS-10817

Special technique for applying silicide coatings to refractory metal alloys improves their high-temperature protective capability. Refractory metal powders mixed with a baked-out organic binder and sintered in a vacuum produces a porous alloy layer on the surface. Exposing the layer to hot silicon converts it to a silicide.

B69-10283

AUTOMATED MEASUREMENT OF THERMAL

CONDUCTIVITY

HALE, D. V. /LOCKHEED MISSILES AND SPACE CO./

DATE- AUG. 1969

M-FS-20454

Testing technique permits accurate measurement of temperature-dependent thermal conductivity, by virtue of the small temperature differential required across a specimen. The permissible mean insulation temperature ranges from cryogenic to 10 degrees F for the insulation under test.

B69-10287

TECHNIQUE FOR ASSESSING POTENTIAL FIRE

HAZARDS

LAMPERT, H. M. /GE/ DATE- AUG. 1969

HQ-10279

Combustion hazard modeling technique limits the fire evaluation to a description of only thermal energy exchanges which are involved in the burning process, and the calculation of temperatures, temperature changes, and weight losses as a result of these energy changes.

B69-10292

APPARATUS AUTOMATICALLY MEASURES SOLUBLE

RESIDUE CONTENT OF VOLATILE SOLVENTS

OSWALT, F. W. DATE- AUG. 1969

SAN-10032

Solvent Purity Meter /SPM/ automatically measures the soluble residue in volatile solvents used in cleaning or extraction of oils, greases, and other nonvolatile materials. The SPM gives instantaneous and continuous readout of soluble contaminant residues in concentrations as low as one part per million of solution.

B69-10293

HIGH STRENGTH, SUPERPLASTIC SUPERALLOY

ASHBROOK, R. L. FRECHE, J. C. WATERS, W. J.

DATE- AUG. 1969

LEWIS-10805

High strength superplastic superalloys are produced by extruding a pre-alloyed powder. The cast nickel base superalloy was remelted and converted to pre-alloyed powder by inert gas atomization. The superalloy shows high tensile strength and superplasticity and finds use in hot working and casting.

B69-10299

HEPARIN INSOLUBILIZED WITH CROSSLINKING

AGENT

REHBAUM, A. DATE- AUG. 1969

NPO-10834

New plastic compositions, involving the synthesis of a polymeric system containing heparin insolubilized with crosslinking agents, show

appreciable promise in human body implant technology.

B69-10309

METALLIC DIFFUSION MEASURED BY A MODIFIED KNUDSEN TECHNIQUE

FRAY, D. J. /MIT/ DATE- SEP. 1969
HQ-10145

Diffusion coefficient of a metal in high temperature system is determined. From the measurement of the weight loss from a Knudsen cell, the vapor pressure of the escaping species can be calculated. If the only way this species can enter the Knudsen cell is by diffusion through a foil, the weight loss is diffusion flux.

B69-10330

SIMPLE TEST INDICATES DEGREE OF CURE OF POLYIMIDE COATINGS

URIBE, J. R. /N. AM. ROCKWELL CORP./ WALLAUCH, J. R. DATE- SEP. 1969
MSC-15487

Qualitative test involves immersing a coated cable in methyl-2-pyrrolidone and removing it in one to three minutes. Evidence of any cracking, peeling, or other defects that shows under 20-power magnification indicates that the coating has not been completely cured.

B69-10339

DEVELOPMENT AND TEST OF FLEXIBLE FILM COUPON STRIPS FOR USE AS A SAMPLING TECHNIQUE

ALDRIDGE, C. /MCDONNELL DOUGLAS ASTRONAUTICS CO./ DATE- SEP. 1969
M-FS-20448

Film consisting of a gelatin base serves as a flexible, water soluble microbiological assay coupon for clean room use. It is nontoxic to microorganisms and capable of remaining unchanged during periods of storage.

B69-10352

IMPROVED HIGH-TEMPERATURE-STRENGTH NICKEL-BASE SUPERALLOY

FRECHE, J. C. WATERS, W. J. DATE- SEP. 1969
LEWIS-10874

Nickel-base superalloy has a strength of 20,000 psi at 2,200 degrees F, approximately double the strength of the strongest available cast nickel-base alloys. It is not subject to the formation of embrittling phases upon long time exposure at intermediate temperatures.

B69-10357

SPIRAL-FLOW APPARATUS FOR MEASURING PERMEATION OF SOLIDS BY GASES

MITCHELL, S. M. /N. AM. ROCKWELL CORP./ WILLIAMS, B. B. DATE- SEP. 1969
M-FS-16517

Test assembly measures the rate of permeation of a solid by a gas. Test gas is forced, under pressure, into a cylindrical plug containing the solid to be tested. Gas chromatograph detects the presence of the test gas.

B69-10360

IMPROVED GYRO-FLOTATION /DAMPING/ FLUIDS

JACOBS, S. S. /M AND T CHEMICALS, INC./ DATE- SEP. 1969
MSC-13217

Synthesis of a metal-stabilized halophosphazene compound with a density of 3 gm/cc at 137 degrees F serves as an improved stabilizer fluid for floated gyros. Gyro sensitivity can be increased with a fluid of higher density which could support a heavier float.

B69-10366

INSTRUMENTATION FOR NONDESTRUCTIVE TESTING OF COMPOSITE HONEYCOMB MATERIALS

MARTIN, G. /N. AM. ROCKWELL CORP./ MOORE, J. F. DATE- SEP. 1969
M-FS-20405

Program develops instrumentation for nondestructive testing of adhesive-bond strength in honeycomb materials and air coupled inspection methods suitable for large tankage.

B69-10372

EFFECTS OF HYDROGEN ON METALS

CATALDO, C. E. DATE- SEP. 1969
M-FS-20364

Several rules to guide choice of materials, and methods of welding, electroplating, and heat treatment will provide a method for minimizing failures in storage tanks and related hardware. Failures are caused by high-pressure hydrogen effects, the formation of hydrides in titanium, and hydrogen absorption through various metals processing techniques.

B69-10377

SEPARATION OF THE RARE EARTHS BY ANION-EXCHANGE IN THE PRESENCE OF LACTIC ACID

PARIS, J. P. DATE- SEP. 1969
ARG-10436

Investigation of adsorption of rare earths and a few other elements to an anion-exchange resin from mixed solvents containing lactic acid shows that the lanthanides are absorbed more strongly than from the alpha-hydroxyisobutyric acid system, but with less separation between adjacent members of the series.

B69-10397

MAGNETIC FORMING OF RESISTIVE MATERIALS

WANIEK, R. W. /ADVANCED KINETICS INC./ DATE- SEP. 1969
M-FS-20417

Necessary theoretical foundation is given for the treatment of magnetic stresses applied to cylindrical boundaries and swaging of metallic tubing. Emphasis is placed on the use of high-resistivity materials such as stainless steel and Hastelloy.

B69-10406

QUICK-SET TEMPORARY BONDING CLAMPS

BAKER, C. D. DATE- SEP. 1969
NPO-10695 NPO-10696

Method of bonding materials to a flat surface eliminates the use of bolts to hold the pieces together. Two adhesives are used, the primary or permanent bonding material and a quick setting adhesive. No permanent aftereffects are left on the surfaces to which the materials are bonded.

B69-10412

DIRECT IN-VIAL COLLECTION FOR LIQUID-SCINTILLATION ASSAY OF CARBON-14 AND TRITIUM

HUEBNER, L. G. KISIELESKI, W. E. DATE- SEP. 1969
REAN- SEE ALSO ANL-7278
ARG-10424

Dissolution of biological materials combines the simplicity of oxygen-flask combustion with the reproducibility and purity of the final product, and convenience of direct in-vial collection of the sample by the sealed-tube method. It assures quantitative and reproducible recoveries.

B69-10413

INSTRUMENTATION FOR POTENTIOSTATIC CORROSION STUDIES WITH DISTILLED WATER

LOESS, R. E. YOUNGDAHL, C. A. DATE- SEP. 1969
ARG-10409

Corrosion is studied potentiostatically in the corroding environment of distilled water with an instrument that measures the potential of the corroding specimen immediately after interruption of the polarizing current. No current is flowing. The process permits compensation for Ir drops when potentiostatic control is used in high resistance systems.

B69-10414

POSSIBLE CORRELATION BETWEEN WORK-HARDENING AND FATIGUE-FAILURE

RETTUNEN, P. O. KOCKS, U. F. DATE- SEP. 1969
ARG-10371

Conceptual theory proposes that cyclic hardening due to non-uniform strain and stress amplitudes during testing, especially during the initial application of stress to a specimen, may correlate positively with the ultimate strength of the specimen under test.

03 MATERIALS (CHEMISTRY)

B69-10417

DEVELOPMENT OF STRUCTURAL TEST ARTICLES FROM MAGNESIUM-LITHIUM AND BERYLLIUM; ALARIO, R. /FAIRCHILD HILLER/ DATE- NOV. 1969 M-FS-14959

Study on the fabrication and testing of a magnesium-lithium box beam shows the formability and machinability characteristics of that alloy to be excellent. Results of forming tests for shrink and stretch flanges show values for both flange heights that may be used in future beryllium design.

B69-10423

COORDINATION CHEMISTRY IN FUSED-SALT SOLUTIONS

GRUEN, D. M. DATE- SEP. 1969 ARG-10469

Spectrophotometric work on structural determinations with fused-salt solutions is reviewed. Constraints placed on the method, as well as interpretation of the spectra, are discussed with parallels drawn to aqueous spectrophotometric curves of the same materials.

B69-10425

COMPARATIVE CHROMATOGRAPHY OF CHLOROPLAST PIGMENT

GRANDOLFO, M. SHERMA, J. STRAIN, H. H. DATE- SEP. 1969 ARG-10415

Methods for isolation of low concentration pigments of the cocklebur species are described. The methods entail two step chromatography so that the different sorption properties of the various pigments in varying column parameters can be utilized. Columnar and thin layer methods are compared. Many conditions influence separability of the chloroplasts.

B69-10430

PRODUCTION OF SOLVATED ELECTRONS

THOMAS, J. K. DATE- SEP. 1969 ARG-10416

Current research, both theoretical and experimental, relating to the production and kinetics of interactions of solvated electrons is reviewed. Particular attention is focused on solvated electrons generated by ionizing radiation in water, alcohols, and organic systems.

B69-10451

IMPROVED INORGANIC ION EXCHANGE MEMBRANES

ARRANCE, F. C. /MC DONNELL DOUGLAS CORP./ BERGER, C. KEMMERS, A. D. DATE- SEP. 1969 LEWIS-10737

New method makes solid ion exchange membrane electrolytes for use in hydrocarbon-oxygen and hydrogen-oxygen fuel cells. The membrane is a sintered composite of zirconia, phosphoric acid, and zeolite.

B69-10457

ABRASION AND FRACTURE TESTING IN A HIGH-PRESSURE HYDROGEN ENVIRONMENT

SWRESBY, G. V. /ROCKETDYNE/ WALKER, R. J. DATE- SEP. 1969 M-FS-18480 M-FS-18488

Two devices are necessary for abrasion and fracture testing of materials evaluated for storage of hydrogen at high pressure for long periods. The first device abrades tensile specimens. The second device tests for fracture toughness of metals. Both devices permit testing in both yield and failure modes in high pressure hydrogen.

B69-10464

NONDESTRUCTIVE DETERMINATION OF COHESIVE STRENGTH OF ADHESIVE-BONDED COMPOSITES

THOMPSON, D. O. /N. AM. ROCKWELL CORP./ DATE- OCT. 1969 M-FS-20397

Systematic plan determines vibration responses and modes of honeycomb composites, correlates vibrational responses of composite specimens varying in strength of cohesive bond, determines effects of thickness variation of the face sheet over the frequency range, optimizes the

characteristics of the excitation transducer, and measures bond strength.

B69-10468

IMPROVED RETORT FOR CLEANING METAL POWDERS WITH HYDROGEN

ARIAS, A. DATE- SEP. 1969 LEWIS-10718

Improved cleaning retort produces uniform temperature distribution in the heated zone and minimizes hydrogen channeling through the powder bed. Retort can be used for nonmetallic powders, sintering in a reducing atmosphere, and for cleaning powders in reduction atmospheres other than hydrogen.

B69-10488

BASAL-PLANE METALLOGRAPHY OF DEFORMED PYROLYTIC CARBON

ADKINS, J. M. FISCHBACH, D. B. DATE- SEP. 1969 NPO-11196

Cleavage technique is recommended over the normal polishing technique in preparing pyrolytic carbon for metallographic examination of basal-plane surfaces. After careful removal of torn basal-plane fragments and other cleavage debris with cellulose tape, the true structure is clearly revealed.

B69-10501

IONENE MEMBRANE BATTERY SEPARATOR

MOACANIN, J. TOR, H. Y. DATE- OCT. 1969 NPO-11091

Ionic transport characteristics of ionenes, insoluble membranes from soluble polyelectrolyte compositions, are studied for possible application in a battery separator. Effectiveness of the thin film of separator membrane essentially determines battery lifetime.

B69-10511

THERMALLY CONDUCTING ELECTRON TRANSFER POLYMERS

BYRD, M. R. /MC DONNELL DOUGLAS CORP./ JENKINS, R. K. LISTER, J. L. DATE- OCT. 1969 GSPC-10703

New polymeric material exhibits excellent physical shock protection, high electrical resistance, and thermal conductivity. It is especially useful for electronic circuitry, such as subminiaturization of components and modular construction of circuits.

B69-10522

MEASUREMENT OF GAS FLOW AT EXTREMELY LOW PRESSURES

BITTERLY, J. G. /MC DONNELL DOUGLAS CORP./ DATE- SEP. 1969 MSC-13261

Method accurately measures the flow of gases produced by evaporation or sublimation at pressures approaching total vacuum. Measurement of heat rejection in terms of flow of steam is taken with water as the liquid undergoing change in phase.

B69-10530

A METHOD FOR OBSERVING GAS EVOLUTION DURING PLASTIC LAMINATE CURE

NICHOLLS, A. H. /N. AM. ROCKWELL CORP./ DATE- OCT. 1969 MSC-15592

Polyimide, phenolic, and other resins which develop volatiles during laminating or molding cure are studied using optimum cure cycles. The specimen is placed on a platen and sealed in a plastic bag, then heated and observed for gas evolution using a binocular microscope. A cover plate is added to simulate an autoclave.

B69-10531

TESTING THE FLAMMABILITY OF MATERIALS EXPOSED TO ARCS

HANLETT, B. J. /N. AM. ROCKWELL CORP./ KRUPSKI, A. L. DATE- OCT. 1969 MSC-15225

Apparatus tests flammability and ignition characteristics of materials in close proximity to incandescent metal fragments or spalls ejected

from intermittent short circuit arcs in air or oxygen rich atmospheres. It simulates a situation where an exposed live wire makes contact with a grounded member in areas containing organic matter.

B69-10536

IMPROVED METHOD OF PRODUCING OXIDE-DISPERSION-STRENGTHENED ALLOYS

GRANT, N. J. /MIT/ SCHILLING, W. F. DATE- OCT. 1969

HQ-10461

Dispersion strengthened alloys having the required properties are produced by a process in which the refractory particles are less than 100 to 500 Å thick. These are fine enough to ensure the strength characteristics without appreciable degradation of other characteristics. The alloy consists of a matrix metal and a dispersoid metal.

B69-10540

IMPROVED PRIMER FOR BONDING POLYURETHANE ADHESIVES TO METALS

CONSTANZA, I. J. /N. AM. ROCKWELL CORP./ DATE- OCT. 1969

M-FS-90591

Primer ensures effective bonding integrity of polyurethane adhesives on metal surfaces at temperatures ranging from minus 423 degrees to plus 120 degrees F. It provides greater metal surface protection and bond strengths over this temperature range than could be attained with other adhesive systems.

B69-10543

BURST DIAPHRAGM LEAK DETECTOR

PASCOLLA, J. A. /ROCKETDYNE/ DATE- OCT. 1969

M-FS-14500

New method replaces flowmeter approach with readily available burst diaphragm leak detector assembly mounted to all drain ports. This allows simultaneous leak detection of all flange seals under operating conditions.

B69-10552

TECHNIQUE FOR ULTRASONIC CLEANING WITH VOLATILE SOLVENTS ELIMINATES NEED FOR HOODS OR CONDENSERS

PPERSKY, E. /N. AM. ROCKWELL CORP./ DATE- OCT. 1969

MSC-15611

Technique ultrasonically cleans small quantities of small mechanical parts in organic solvents without the need for vapor removal equipment. Parts are placed in a thin plastic bag with the solvent and then suspended in a cleaning tank containing the water-detergent solution.

B69-10559

DEVELOPMENT OF IMPROVED POTTING AND CONFORMAL COATING COMPOUNDS

WEBSTER, J. A. /MONSANTO RES. CORP./ DATE- OCT. 1969

M-FS-20219 M-FS-20223

Improved organic potting and conformal coating materials protect fragile electronic components and circuitry from mechanical shock and vibration, moisture, and corrosion. These materials meet specifications covering resistance to cycling, radiation, flammability, and sterilizing agents for certain space applications.

B69-10564

A NEW METHOD FOR FABRICATION OF FLEXIBLE VACUUM PURGE JACKETS

SHEIVER, C. B. /GOODYEAR AEROSPACE CORP./ DATE- NOV. 1969

M-FS-12646

Polyurethane-coated synthetic fabric is fitted with a filament-glass mat exterior which gives it a high degree of springback ability. Material is capable of maintaining its springback capability in a temperature range from ambient to cryogenic.

B69-10572

A COMPARISON OF TWO METHODS OF MEASURING PARTICLE SIZE OF AL2O3 PRODUCED BY A SMALL ROCKET MOTOR

DOBBINS, R. A. STRAND, L. D. DATE- NOV. 1969

NPO-11198

The size of aluminum oxide particles produced by small rocket motors is determined by tank collection and spectrophotometry. The size of the particulate determines loss in thrust due to particle lag, particulate radiant heat transfer, acoustic attenuation and impingement and rocket plume structure and properties.

B69-10580

SILPHENYLENE ELASTOMERS HAVE HIGH THERMAL STABILITY AND TENSILE STRENGTH

SPON- INNOVATOR NOT GIVEN /SOUTHERN RES. INST./ DATE- OCT. 1969

M-FS-20250

Two polymeric silphenylene ethers, when cured by reactions with ethyl silicates and metal salts at room temperature, form elastomers having excellent thermal stability and tensile properties. The highest tensile strength obtained in a reinforced elastomer was 2800 psi.

B69-10581

A METHOD FOR PRECISION ANODIZE STRIPPING

PETERS, R. L. /N. AM. ROCKWELL CORP./ DATE- OCT. 1969

MSC-15040

Felt templates saturated with etch solution remove anodized finish from aluminum without damage to the surface. The solution is a combination of nitric acid, chromic acid, and hydrofluoric acid.

B69-10592

EFFECTS OF STERILIZATION ON THE ENERGY-DISSIPATING PROPERTIES OF BALSA WOOD

SORKIN, A. B. DATE- DEC. 1969

NPO-11207

Technical report on the effects of sterilization on the energy-dissipating properties of balsa wood is given. Sterilization by ethylene oxide plus heat enhances the average specific energy of balsa while plastic impregnation followed by irradiation-induced polymerization does not.

B69-10595

A METHOD FOR USING SURFACE TENSION TO DETERMINE THE SIZE OF HOLES IN HARDWARE

HINES, W. J. /N. AM. ROCKWELL CORP./ DATE- NOV. 1969

MSC-15194

To check the size of small holes in injectors, flow control orifices, filters, and similar hardware, a surface tension technique is used. The liquid surface tension causes it to act as a membrane when pressure is applied. This bubble pressure is a function of hole diameter and surface tension.

B69-10596

AUTOMATIC SAMPLE ROTATOR FOR METALLOGRAPHIC POLISHING

ADKINS, J. M. BERNETT, E. C. DATE- NOV. 1969

NPO-11015

Simple, inexpensive device can be attached to most metallographic sample polishing tables. It provides a suitable surface finish for microscopic examination or photography of surface details of the samples.

B69-10599

LIQUID OXYGEN-COMPATIBLE INSULATION SYSTEM

JONES, J. S. /N. AM. ROCKWELL CORP./ DATE- NOV. 1969

M-FS-16113

To provide insulation for tees, elbows, sumps, and valves that are used to pass or store fluids at cryogenic temperatures, individual parts are insulated in an environmentally controlled facility. It is desirable that such insulation be liquid oxygen compatible and be easily removable and reinstallable.

B69-10602

PROGRAMMED SCHEDULE HOLDS FOR IMPROVING LAUNCH VEHICLE HOLDS

GRALOW, F. H. /BOEING CO./ HAYES, J. D. STREIFF, M. A. TEMPLE, A. G. VENDITTI, R. A. DATE- NOV. 1969

03 MATERIALS (CHEMISTRY)

M-FS-14502

Baseline definition and system optimization are used for the analysis of programmed holds developed through prelaunch system analysis. Identification of design specifications for ground support equipment and maintenance concepts, and design specifications are used to describe the functional utilization of the overall flow process.

B69-10605

STRAIN-AGE CRACKING IN RENE 41 ALLOY
PRAGER, M. /ROCKETDYNE/ THOMPSON, E. G. DATE- NOV. 1969 REAN- SEE ALSO ROCKETDYNE REPT. NO. 66-20

M-FS-18650

Weldability test determines the effects of material and process variables on the occurrence of strain-age cracking, and demonstrates effective and practical means for its reduction. Studies consist of tensile, impact, and stress-rupture tests.

B69-10606

LITERATURE REVIEW ON PICKLING INHIBITORS AND CADMIUM ELECTROPLATING PROCESSES
ELSEA, A. R. /BATTELLE MEM. INST./ FLETCHER, E. E. GROENEVELD, T. P. DATE- NOV. 1969

M-FS-14421

Because introduction of hydrogen during bright-cadmium electroplating of high strength steels causes hydrogen-stress cracking, a program was undertaken to evaluate various processes and materials. Report describes effectiveness of inhibitors for reducing hydrogen absorption by steels.

B69-10611

DIRECT DETERMINATION OF LEAD-210 BY LIQUID-SCINTILLATION COUNTING
FAIRMAN, W. D. SEIDLET, J. DATE- DEC. 1969 ARG-10462

Soft betas, the internal conversion electrons, and unconverted gamma rays from lead-210 are efficiently detected in a liquid scintillation counting system with efficiency of 97 percent. The counter is interfaced with a multichannel pulse height analyzer. The spectra obtained is stored on paper tape and plotted on an x-y plotter.

B69-10616

RETENTION OF DUCTILITY IN HIGH-STRENGTH STEELS
PARKER, E. R. /LAWRENCE RADIATION LAB./ ZACKAY, V. F. DATE- NOV. 1969 ARG-10497

To produce high strength alloy steel with retention of ductility, include tempering, cooling and subsequent tempering. Five parameters for optimum results are pretempering temperature, amount of strain, strain rate, temperature during strain, and retempering temperature.

B69-10627

ANALYSIS OF CELL PERFORMANCE AND THERMAL REGENERATION OF A LITHIUM-TIN CELL HAVING AN IMMOBILIZED FUSED-SALT ELECTROLYTE
CAIRNS, E. J. SHIMOTAKE, H. DATE- OCT. 1969 ARG-10453

Cell performance and thermal regeneration of a thermally regenerative cell uses lithium and tin and a fused-salt electrolyte. The emf of the Li-Sn cell, as a function of cathode-alloy composition, is shown to resemble that of the Na-Bi cell.

B69-10629

GLASS FABRIC FIRE BARRIER FOR SILICONE RUBBER PARTS
BLACKMER, K. L. /N. AM. ROCKWELL CORP./ DATE- OCT. 1969 MSC-15555

Preformed knitted glass-fabric covers are placed about silicone rubber items in such a way as to completely isolate them from the effects of adjacent fire. These covers permit retention of the desirable resilient properties of the silicone rubber while forming a very effective fire

barrier.

B69-10635

DEVICE SEPARATES HYDROGEN FROM SOLUTION IN WATER AT AMBIENT TEMPERATURES
ALBRIGHT, C. F. /GARRETT CORP./ DATE- NOV. 1969 MSC-13335

Separator decreases the partial pressure of hydrogen gas dissolved in the water produced by fuel cells containing an alkaline electrolyte. The unit eliminates the hazards associated with the release of hydrogen from water solution when the hydrostatic pressure is rapidly decreased.

B69-10636

SYNTHESIS OF POLYETHERS OF HEXAFLUOROBENZENE AND HEXAFLUOROPENTANEDIOL
HARRISON, E. S. /WHITTAKER CORP./ HOLLANDER, J. LEVINE, H. H. TRISCHLER, F. D. DATE- DEC. 1969 M-FS-14962 M-FS-14964

Two new polyethers, poly /hexafluoropentamethylene tetrafluoro-p-phenylene ether/ and a completely hydroxyl-terminated polyether, is prepared by reactions of hexafluorobenzene with hexafluoropentanediol. The polyethers can be prepared as low molecular weight oils, as intermediate molecular weight waxes, or as high molecular weight elastomers.

B69-10641

NIObIUM-URANIUM ALLOYS WITH VOIDS OF PREDETERMINED SIZE AND TOTAL VOLUME
MC CLUSKEY, J. K. /IOWA STATE UNIV./ WILHELM, H. A. DATE- NOV. 1969 ARG-10490

Mixture of uranium oxide, niobium oxide, and graphite of various carbon-to-oxygen ratios is heated to a temperature below the melting point of the niobium-uranium alloy. The alloy is produced by this method with voids predetermined as to size and total volume.

B69-10642

ELECTROLYTIC SEPARATION OF CRYSTALS OF TRANSITION-METAL OXIDES
ARNOTT, R. J. /BROOKHAVEN NATL. LAB./ FERETTI, A. KUNNAMANN, W. DATE- NOV. 1969 ARG-10506

Versatile flux system grows large, well-formed, stoichiometric single crystals of mixed oxides of the transition-metal elements. These crystals have important uses in the microwave field, and applications as lasers and masers in communications.

B69-10647

SYNTHESIS OF PERBROMATES
APPELMAN, E. H. STUDIER, M. H. DATE- NOV. 1969 ARG-10459

Salts of heptavalent bromine were synthesized by a hot atom process, the beta decay of radioactive selenium-83 incorporated into a selenate. Formation of an unreactive perbromate ion led to preparation of macro amounts of perborate. A rubidium salt was isolated.

B69-10660

FINITE ELEMENT FORMULATION FOR LINEAR THERMOVISCOELASTIC MATERIALS
CHEN, J. C. HEER, E. DATE- NOV. 1969 NPO-11229

Report presents the finite difference equations in time and finite element matrix equations in space for general linear thermoviscoelastic problems. The equations are derived for a general three-dimensional body but are applicable to one and two-dimensional configurations with minor changes.

B69-10682

SEALED CONTAINER SAMPLING DEVICE
HENNIGAN, T. J. DATE- DEC. 1969 GSFC-10690

Sampling device, by means of a tapered needle, pierces a sealed container while maintaining the seal and either evacuates or pressurizes the container. This device has many applications in the chemical, preservative and battery-manufacturing industries.

B69-10692

ELIMINATION OF DISSOLVED GASES IN
HYPERGOLIC ENGINE PROPELLANTS
MONROE, E. W. /N. AM. ROCKWELL CORP./ DATE- DEC.
1969

M-FS-16179

Exposure to ultrasonic vibration eliminates
dissolved gases in hypergolic propellants. A
manometer connected to the ullage of the
propellant container measures the volume of gases
freed.

B69-10711

PROPERTIES OF AIR AND COMBUSTION PRODUCTS
OF FUELS WITH AIR
LEWANDOWSKI, K. FOFERL, D. J. SVEVLA, R. DATE-
DEC. 1969

LEWIS-11030

Thermodynamic and transport properties include
ratio of specific heats, molecular weight,
viscosity, heat capacity, thermal conductivity,
and Prandtl number. Properties are calculated
from 300 to 2500 degrees K and for pressures of
three and ten atmospheres.

B69-10730

EFFECTS OF HIGH-PRESSURE HYDROGEN ON
STORAGE VESSEL MATERIALS
CHANDLER, W. T. /N. AM. ROCKWELL CORP./ WALTER,
R. J. DATE- NOV. 1969

M-FS-18605

Tensile tests on welded plates of three grades of
steel indicate an appreciable decrease of tensile
strength and ductility of notched specimens and a
decrease in ductility of unnotched samples.
Surface cracking, evident in unnotched specimens,
is conducive to breakdown in tensile strength and
ductility.

B69-10737

MIXED ETHER BATH FOR ELECTRODEPOSITION OF
ALUMINUM
LUI, K. /ELECTRO-OPTICAL SYSTEMS, INC./ DATE-
DEC. 1969

LANGLEY-10200

Anisole added to the bath mixture improves
Brenner aluminum plating bath technique. Mixture
has lower bath vapor-pressure and the
electro-deposits obtained have greater physical
strength than deposits from the Brenner bath.

B69-10740

BURN-RATE TESTING APPARATUS
DAWN, F. S. GILL, W. L. DATE- DEC. 1969

MSC-10947

Combustibility tester fits into a sealed chamber
so that tests may be performed under controlled
atmospheric pressure and composition. Support
frame allows rotation of the test sample so that
ignition combustion may be tested in various
orientations from horizontal to vertical.

B69-10744

PRODUCTION OF CRYSTALLINE POLYMERS VIA
LIQUID CRYSTAL MONOMERS
LABES, M. /DREXEL INST. OF TECHNOLOGY/ PALOS, C.
DATE- DEC. 1969

HQ-10235

Method produces crystalline polymers through a
liquid crystalline phase of monomers. The
monomer is polymerized while held in the liquid
crystalline phase either thermally,
photolytically, catalytically, or by X ray or
gamma ray irradiation, and can be performed in an
electric or magnetic field that influences the
molecular orientation.

B69-10749

IMPROVED CURE METHOD FOR SINGLE COMPONENT
SILICONE RUBBER
LIPPITT, M. W. DATE- DEC. 1969

MSC-12230

Water is incorporated in a carrier and then
thoroughly mixed with the single component
silicone rubber containing acetic anhydride as a
curing agent. Because curing occurs with the
water supplied internally, controlled curing is
possible within a reasonable period of time,
regardless of the thickness of the material.

B69-10780

THERMAL CONDUCTIVITY PROBE
NAVICKAS, J. /MC DONNELL DOUGLAS CORP./ DATE-
DEC. 1969

M-FS-20566

Low-mass probe accurately measures the thermal
conductivity of polyurethane foam /and other
thermal insulating materials/ while exposed to
either hydrogen or helium permeation in
temperature ranges from ambient to cryogenic.
The thermal conductivity of a specimen is
determined from an experimentally determined
increase in temperature.

B69-10788

GAS CHROMATOGRAPH INJECTION PORT PROTECTIVE
DEVICE

ROBERTSON, M. D. /N. AM. ROCKWELL CORP./ WELZ,
E. A. DATE- DEC. 1969

M-FS-18585

To prevent samples containing foreign matter from
poisoning the gas chromatographic columns, a
pre-filter insertion is placed in the injection
port. The packing becomes a variable reactant,
for example, acids are removed by using an
alkaline liquid.

04 LIFE SCIENCES

B63-10003

NEW LOW-LEVEL A-C AMPLIFIER PROVIDES
ADJUSTABLE NOISE CANCELLATION AND AUTOMATIC
TEMPERATURE COMPENSATION

SMITH, J. R., JR. DATE- MAR. 1964

ARC-2

Circuit utilizing a transistorized differential
amplifier is developed for biomedical use. This
low voltage operating circuit provides adjustable
cancellation at the input for unbalanced noise
signals, and automatic temperature compensation is
accomplished by a single active element across the
input-output ends.

B64-10025

IMPROVED ELECTRODE GIVES HIGH-QUALITY
BIOLOGICAL RECORDINGS
DAY, J. L. LIPPITT, M. W. DATE- MAY 1964

MSC-17

To obtain high quality waveforms from a subject
engaged in physical activity, an improved
electrode assembly has been devised. This
consists of a cup containing an electrically
conductive paste and a silver electrode. The
paste maintains contact between the skin and the
plate.

B64-10108

DEVICE INDUCES LUNGS TO MAINTAIN KNOWN
CONSTANT PRESSURE
LIPPITT, M. W. REED, J. H. DATE- JUL. 1964

MSC-50

This device requires the use of thoracic muscles
to maintain prescribed air pressure in the lungs
for brief periods. It consists of a clear
plastic hollow cylinder fitted with a mouthpiece,
a spring-loaded piston, and a small vent for
escaping air when exhalation into the mouthpiece
displaces the piston.

B64-10146

TECHNIQUE SIMULATES EFFECT OF REDUCED GRAVITY
HEWES, D. E. SPADY, A. A., JR. DATE- JUN. 1964

LANGLEY-44

To simulate the effects of lunar gravity, an
arrangement of near-vertical cables has been
devised. These suspend the test subject
perpendicular to an inclined walkway to give the
effect of reduced gravitational pull.

B65-10332

TEST MONKEYS ANESTHETIZED BY ROUTINE PROCEDURE
SPON- INNOVATOR NOT GIVEN /SPACE/DEFENSE CORP./
DATE- NOV. 1965

HQ-18

Test monkeys are safely anesthetized for five
minutes by confining them for less than six

04 LIFE SCIENCES

minutes in enclosures containing a controlled volume of ether. Thus the monkeys can be properly and safely positioned on test couches and fitted with electrodes or other devices prior to physiological tests.

B66-10049

IMPROVED ELECTRODE PASTE PROVIDES RELIABLE MEASUREMENT OF GALVANIC SKIN RESPONSE
DAY, J. L. DATE- FEB. 1966 REAN- SEE ALSO
B64-10025 AND B65-10015
MSC-146

High-conductivity electrode paste is used in obtaining accurate skin resistance or skin potential measurements. The paste is isotonic to perspiration, is nonirritating and nonsensitizing, and has an extended shelf life.

B66-10117

MICROORGANISMS DETECTED BY ENZYME-CATALYZED REACTION
VANGO, S. P. WEETALL, H. H. WELIKY, N. DATE-
MAR. 1966
JPL-782

Enzymes detect the presence of microorganisms in soils. The enzyme lysozyme is used to release the enzyme catalase from the microorganisms in a soil sample. The catalase catalyzes the decomposition of added hydrogen peroxide to produce oxygen which is detected manometrically. The partial pressure of the oxygen serves as an index of the samples bacteria content.

B66-10118

INTEGRAL SKIN ELECTRODE FOR ELECTROCARDIOGRAPHY IS EXPENDABLE
SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE-
MAR. 1966
MSC-299

Inexpensive, expendable skin electrode for use in electrocardiography combines an electrical contact, conductive paste, and a skin-attachment adhesive. Application of the electrode requires only degreasing of the skin area.

B66-10154

PHONOCARDIOGRAPH SYSTEM MONITORS HEART SOUNDS
SPON- INNOVATOR NOT GIVEN /BECKMAN INSTR., INC./
DATE- APR. 1966
MSC-185

Phonocardiograph system monitors the mechanical activity of the heart in extreme environments. It uses a piezoelectric-crystal microphone with an integral preamplifier, and a signal conditioner having special frequency characteristics. The output signals can be recorded on tape, presented aurally, or transmitted telemetrically to a remote station.

B66-10184

SELF-INFLATING LIFEVEST STORES IN SMALL PACKAGE
RADNOSKY, M. I. DATE- MAY 1966
MSC-5A

Emergency lifevest is inflated with carbon dioxide from a self-contained cartridge in 10 seconds. When deflated, it fits into a package occupying less than 20 cubic inches and weighing less than one pound.

B66-10252

SEMICONDUCTOR FORMS BIOMEDICAL RADIATION PROBE
BURNS, F. P. FRIEDERICKS, J. E. /SOLID STATE RADIATION, INC./ DATE- JUN. 1966
MSC-320

Semiconductor radiation dosimeter in the form of a slender probe is easily inserted into body tissue. The probe has a signal-to-noise ratio that is acceptable to recording equipment and provides realistic measurements of the spatial and energy distributions of radiant electrons and protons.

B66-10314

PHONOCARDIOGRAPH MICROPHONE IS RUGGED AND MOISTUREPROOF
YOUNG, W. J. DATE- JUL. 1966
MSC-212

Microphone used as a phonocardiograph transducer monitors small amplitude audio signals in the

presence of large shock loads and high humidity. It contains a lead zirconate-lead titanate piezoelectric plate encapsulated in a flexible polyurethane resin. The resin is contained in a sealed nylon case having a diameter of less than one inch.

B66-10332

BELLOWS JOINT ABSORBS TORSIONAL DEFLECTIONS IN DUCT SYSTEM
DANIELS, C. M. /N. AM. AVIATION/ DATE- JUL. 1966
M-FS-882

Long, thin-walled bellows compressed into a short length absorbs the same amount of torsional deflection as the same tube in full length condition and saves in cost, complexity and space. This bellows has lower torsional spring rate to absorb the bulk of the duct assembly torsional deflections, leaving the other bellows free to absorb axial and angular deflections.

B66-10406

PLANT RESPIROMETER ENABLES HIGH RESOLUTION OF OXYGEN CONSUMPTION RATES
POSTER, D. L. /SPACE DEFENSE CORP./ DATE- SEP. 1966
HQ-47

Plant respirometer permits high resolution of relatively small changes in the rate of oxygen consumed by plant organisms undergoing oxidative metabolism in a nonphotosynthetic state. The two stage supply and monitoring system operates by a differential pressure transducer and provides a calibrated output by digital or analog signals.

B66-10468

RADON GAS, USEFUL FOR MEDICAL PURPOSES, SAFELY FIXED IN QUARTZ
FIELDS, P. R. STEIN, I. ZIRIN, M. H. DATE- NOV. 1966
ARG-2

Radon gas is enclosed in quartz or glass ampules by subjecting the gas sealed at a low pressure in the ampules to an ionization process. This process is useful for preparing fixed radon sources for radiological treatment of malignancies, without the danger of releasing radioactive gases.

B66-10515

APPARATUS ENABLES AUTOMATIC MICROANALYSIS OF BODY FLUIDS
SOFFEN, G. A. STUART, J. L. DATE- NOV. 1966
JPL-962

Apparatus will automatically and quantitatively determine body fluid constituents which are amenable to analysis by fluorometry or colorimetry. The results of the tests are displayed as percentages of full scale deflection on a strip-chart recorder. The apparatus can also be adapted for microanalysis of various other fluids.

B66-10647

MODIFIED ALGESIMETER PROVIDES ACCURATE DEPTH MEASUREMENTS
TURNER, D. P. /N. AM. AVIATION/ DATE- DEC. 1966
MSC-616

Algesimeter which incorporates a standard sensory needle with a sensitive micrometer, measures needle point depth penetration in pain tolerance research. This algesimeter provides an inexpensive, precise instrument with assured validity of recordings in those biomedical areas with a requirement for repeated pain detection or ascertaining pain sensitivity.

B66-10649

SPRAY-ON ELECTRODES ENABLE EKG MONITORING OF PHYSICALLY ACTIVE SUBJECTS
SPON- INNOVATOR NOT GIVEN /FRC/ DATE- DEC. 1966
REAN- SEE ALSO NASA-TN-D-3414

Easily applied EKG electrodes monitor the heart signals of human subjects engaged in various physical exercises. The electrodes are formed from an air drying, electrically conductive cement mixture that can be applied to the skin by means of a modified commercially available spray gun.

B67-10005

DIGITAL COMPUTER PROCESSING OF X-RAY PHOTOS
NATHAN, R. SELZER, R. H. DATE- JAN. 1967
JPL-792

Digital computers correct various distortions in medical and biological photographs. One of the principal methods of computer enhancement involves the use of a two-dimensional digital filter to modify the frequency spectrum of the picture. Another computer processing method is image subtraction.

B67-10056

ADJUSTABLE HINGE PERMITS MOVEMENT OF KNEE IN PLASTER CAST
MALEY, W. E. DATE- MAR. 1967
M-FS-1756

Metal knee hinge with an adjustable sleeve worn on the outside of a leg cast facilitates movement of the knee joint. This helps eliminate stiffness of the knee and eliminates bulkiness and adjustment difficulty.

B67-10114

INTEGRATED MOBILITY MEASUREMENT AND NOTATION SYSTEM
ROEBUCK, J. A., JR. /N. AM. AVIATION/ DATE- MAY 1967
MSC-726

System for description of movements and positions facilitates design of space suits with more mobility. This measurement and notation system gives concise and unequivocal descriptions, compatible with engineering analysis and applicable to specific needs.

B67-10129

ION EXCHANGE DETERMINES IODINE-131 CONCENTRATION IN AQUEOUS SAMPLES
FAIRMAN, W. D. SEDLET, J. DATE- MAY 1967
ARG-208

Inorganic radiiodide in aqueous media is analyzed by separating the radioactive iodine-131 as the iodide ion on a silver chloride column. The activity in the final precipitate may be determined by beta or gamma counting.

B67-10188

URANYL PHTHALOCYANINES SHOW PROMISE IN THE TREATMENT OF BRAIN TUMORS
FRIGERIO, N. A. DATE- JUN. 1967 REAN- SEE ALSO ANL-6910
ARG-100

Processes synthesize sulfonated and nonsulfonated uranyl phthalocyanines for application in neutron therapy of brain tumors. Tests indicate that the compounds are advantageous over the previously used boron and lithium compounds.

B67-10207

SELF-SEALING CLOSURE ENABLES ACCESS TO SEVERAL FLUID CONTAINERS
WHEELER, S. B. DATE- JUN. 1967
NFO-10123

Self-sealing closure enables small amounts of specific biochemical solutions to be withdrawn from or added to containers in inaccessible or small spaces. It uses a self-sealing septum of a silicone elastomer through which a hypodermic needle can be inserted.

B67-10245

AUTOMATED URINALYSIS TECHNIQUE DETERMINES CONCENTRATION OF CREATINE AND CREATININE BY COLORIMETRY
RHO, J. H. DATE- JUL. 1967
NFO-10149

Continuous urinalysis technique is useful in the study of muscle wastage in primates. Creatinine concentration in urine is determined in an aliquot mixture by a color reaction. Creatine is determined in a second aliquot by converting it to creatinine and measuring the difference in color intensity between the two aliquots.

B67-10252

BLOOD OXYGEN SATURATION DETERMINED BY TRANSMISSION SPECTROPHOTOMETRY OF HEMOLYZED BLOOD SAMPLES

MALIK, W. M. /INST. OF MED. SCIENCES/ DATE- AUG. 1967

MSC-11018

Use of the Lambert-Beer Transmission Law determines blood oxygen saturation of hemolyzed blood samples. This simplified method is based on the difference in optical absorption properties of hemoglobin and oxyhemoglobin.

B67-10304

CYTOLOGY IS ADVANCED BY STUDYING EFFECTS OF DEUTERIUM ENVIRONMENT
BOSE, S. CRESEPI, H. I. FLAUMENHAFT, E. /UNIV. OF AKRON/ KATZ, J. J. BOSE, S. DATE- AUG. 1967
ARG-205

Research of deuterium effects on biological systems shows deuteration is not incompatible with life. With the successful cultivation of deuterated bacteria, work is now being done on extraction of deuterio-compounds from bacteria.

B67-10305

LIQUID MICRURGY CHAMBER AND MICROSYRINGE DESIGNS ALLOW MORE EFFICIENT MICROMANIPULATIONS
DANIELS, E. W. DATE- AUG. 1967
ARG-251

More efficient micromanipulations on large amoebae achieved by liquid micrurgy chamber and microsyringe. These innovations move the system closer to the specimen, and flatten the specimen for a clear view of the nuclei, also eliminating spherical aberration and evaporation.

B67-10332

HAND-HELD INSTRUMENT SHOULD RELIEVE HEMATOMA PRESSURE
RAGGIO, L. J. /N. AM. AVIATION/ ROBERTSON, T. L. DATE- SEP. 1967
MSC-599

Portable instrument relieves hematomas beneath fingernails and toenails without surgery. This device simplifies the operative procedure with an instant variable heating tip, adjustable depth settings and interchangeable tip sizes for cauterizing small areas and relieving pressurized clots.

B67-10395

LARGE VOLUME CONTINUOUS COUNTERFLOW DIALYZER HAS HIGH EFFICIENCY
MANDELES, S. /CALIF. UNIV./ WOODS, E. C. DATE- OCT. 1967
HQ-10055

Dialyzer separates macromolecules from small molecules in large volumes of solution. It takes advantage of the high area/volume ratio in commercially available 1/4-inch dialysis tubing and maintains a high concentration gradient at the dialyzing surface by counterflow.

B67-10408

IMPROVED SAMPLE CAPSULE FOR DETERMINATION OF OXYGEN IN HEMOLYZED BLOOD
MALIK, W. M. /PRESBYTERIAN ME. CENTER/ DATE- OCT. 1967
MSC-11017

Sample capsule for determination of oxygen in hemolyzed blood consists of a measured section of polytetrafluoroethylene tubing equipped at each end with a connector and a stopcock valve. This method eliminates errors from air entrainment or from the use of mercury or syringe lubricant.

B67-10500

EFFECT OF PREPARATION PROCEDURES ON INTENSITY OF RADIOAUTOGRAPHIC LABELING IS STUDIED
BASERGA, R. KISIELESKI, W. E. DATE- DEC. 1967
ARG-10032

Effects of tissue preparation and extractive procedures on the intensity of radioautographic labeling are presented in terms of mean grain count per cell in cells labeled with tritiated precursors of proteins or nucleic acids. This information would be of interest to medical researchers and cytologists.

B67-10556

CONTINUOUS MICROBIAL CULTURES MAINTAINED
BY ELECTRONICALLY-CONTROLLED DEVICEEISLER, W. J., JR. WEBB, R. B. DATE- DEC. 1967
ARG-177

Photocell-controlled instrument maintains microbial culture. It uses commercially available chemostat glassware, provides adequate aeration through bubbling of the culture, maintains the population size and density, continuously records growth rates over small increments of time, and contains a simple, sterilizable nutrient control mechanism.

B67-10590

ULTRAVIOLET MICROSCOPY AIDS IN CYTOLOGICAL
AND BIOMEDICAL RESEARCHSCHLENK, F. SVIHLA, B. DATE- DEC. 1967 REAN-
SEE ALSO ANL-6971
ARG-178

Ultraviolet microscopy is used by cytologists and biochemists to study the morphological and physiological changes in the living cell under varied culture conditions. The yeast cell is used because of its content of ultraviolet absorbing materials and its lack of motility.

B67-10604

STUDY MADE OF RELATIONSHIP BETWEEN GROWTH
AND METABOLISMSURREY, K. DATE- DEC. 1967
ARG-10046

Study shows that the growth of X irradiated sunflower seeds is inversely related to the metabolism of the seeds. The actual magnitudes of the relation between the two differed for various ranges of X ray exposure. The results of the study suggested that the X rays affected the embryo.

B67-10663

REVIEW OF BIOLOGICAL MECHANISMS FOR
APPLICATION TO INSTRUMENT DESIGNHEALER, J. /ALLIED RES. ASSOCIATES/ DATE- DEC.
1967

HQ-33

Biological sensors are the mechanisms which enable a living organism to monitor its environment. Ways in which the functional mechanism of biosensors can be applied to develop new concepts of instrumentation, enhance and extend the human senses, and improve the sensitivity of existing instrumentation are described in a review of these mechanisms.

B68-10076

METABOLIC AND TOXICOLOGICAL EFFECTS OF
WATER-SOLUBLE XENON COMPOUNDS ARE STUDIEDFINKEL, A. J. KATZ, J. J. MILLER, C. E. DATE-
APR. 1968
ARG-90239

Biological properties of water-soluble xenon compounds are the moderate toxicity of these substances, their rapid decomposition in the body, the speed with which the xenate appeared to be reduced to xenon gas, and the very rapid elimination of this gas from the body.

B68-10169

RADIATION EFFECTS ON BACTERIAL CELLS

POWERS, E. L. DATE- JUN. 1968
ARG-10064

Study reveals the physicochemical and biochemical mechanisms which alter or modify the effects of high-energy radiation on living cells. An in-depth discussion is presented emphasizing the importance of optimizing bacterial treatment with glycerol.

B68-10206

INFRARED VIEWING PERMITS HUMAN IRIS
RESPONSE STUDIESSCHNASS, E. R. /N. AM. AVIATION/ DATE- JUN. 1968
ERC-10003

Infrared image converter tube and a filtered light source monitor and measure the eye of a subject during experimental task-work operations to obtain a more natural measurement of unimpeded iris response. The device permits observation in the

near infrared region, with little stimulation to the eye except by normal ambient lighting.

B68-10231

VACUUM PROBE SAMPLER REMOVES MICRON-SIZED
PARTICLES FROM SURFACESWHITFIELD, W. J. DATE- JUL. 1968
SAN-10003

Vacuum probe sampler removes micron-sized particles from sensitive surfaces, without damage to the surface. The probe has a critical orifice to ensure an optimum airflow rate that disturbs the boundary layer of air and raises bacteria from the surface into the probe with the moving air stream.

B68-10320

EXPERIMENTAL STUDY AND EVALUATION OF
RADIOPROTECTIVE DRUGSSMITH, D. E. THOMSON, J. F. DATE- AUG. 1968
ARG-10196

Experimental study evaluates radioprotective drugs administered before exposure either orally or intravenously. Specifically studied are the sources of radiation, choice of radiation dose, choice of animals, administration of drugs, the toxicity of protective agents and types of protective drug.

B68-10324

FOOD PRODUCTS FOR SPACE APPLICATIONS

COPE, P. S. LARSON, R. W. /WHIRLPOOL CORP./
DATE- AUG. 1968

MSC-11697 MSC-11698 MSC-11699

Specially-prepared foodstuffs supply an astronaut with a diet containing his basic nutritional requirements in a form that is useful in his environment. Several edible coatings preserve foods and give loose foods form and firmness. These coatings aid in packaging and give the food slip for easy removal from the package.

B68-10366

STRATIFICATION OF CENTRIFUGED AMOEBA NUCLEI
INVESTIGATED BY ELECTRON MICROSCOPYBREYER, E. P. DANIELS, E. W. DATE- OCT. 1968
ARG-10161

Study establishes a relationship between radioresistance and the nucleolar stratification characteristics of various amoeba species. Two species of fresh water amoeba are studied with the electron microscope. The report discusses the nature of nucleolar layers and their possible relationship to the differences in radiosensitivity of the two amoeba species.

B68-10424

RATE CONSTANTS MEASURED FOR HYDRATED
ELECTRON REACTIONS WITH PEPTIDES AND
PROTEINSBRAAMS, R. DATE- NOV. 1968
ARG-10195

Effects of ionizing radiation on the amino acids of proteins and the reactivity of the protonated amino group depends upon the pK subscript a of the group. Estimates of the rate constants for reactions involving the amino acid side chains are presented. These rate constants gave an approximate rate constant for three different protein molecules.

B68-10427

COMPOUND EQUATION DEVELOPED FOR POSTNATAL
GROWTH OF BIRDS AND MAMMALSLAIRD, A. K. DATE- NOV. 1968
ARG-10192

Compound growth equation was developed in which the rate of this linear growth process is regarded as proportional to the mass already attained at any instant by an underlying Gompertz process. This compound growth model was fitted to the growth data of a variety of birds and mammals of both sexes.

B68-10500

BIOLOGICAL ISOLATION GARMENT

SPROSS, F. R. DATE- NOV. 1968
MSC-12206

Biological Isolation Garment /BIG/ is a

one-piece loose fitting garment fabricated from a tightly woven, permeable, 100 percent-cotton fabric. Its headpiece, incorporates an integral oronasal respirator with 0.3-micron-particle filters, and a full width visor. All fabrication seams are sealed on the inside of the garment.

B68-10554

A MICROLAGOON TECHNIQUE FOR THE CULTURE OF MAMMALIAN CELLS

CONE, C. D., JR. PEDDREW, K. H. DATE- DEC. 1968
LANGLEY-10407

Technique obtains micropartitioning in a simple and reproducible manner by forming a field of tiny ponds or lagoons on the surface of a suitable culturing vessel. The technique allows free access of the common culture to all parts of the field.

B69-10022

INVESTIGATION OF TEMPERATURE DEPENDENCE OF DEVELOPMENT AND AGING

SACHER, G. A. DATE- FEB. 1969
ARG-10145

Temperature dependence of maturation and metabolic rates in insects, and the failure of vital processes during development were investigated. The paper presented advances the general hypothesis that aging in biological systems is a consequence of the production of entropy concomitant with metabolic activity.

B69-10087

CARBON OFFERS ADVANTAGES AS IMPLANT MATERIAL IN HUMAN BODY

BENSON, J. /N. AM. ROCKWELL CORP./ DATE- APR. 1969

M-FS-18207 M-FS-18208 M-FS-18204 M-FS-18205
M-FS-18206 M-FS-18209 M-FS-18210

Because of such characteristics as high strength and long-term biocompatibility, aerospace carbonaceous materials may be used as surgical implants to correct pathological conditions in the body resulting from disease or injury. Examples of possible medical uses include bone replacement, implantation splints and circulatory bypass implants.

B69-10088

MICROSCOPES AND COMPUTERS COMBINED FOR ANALYSIS OF CHROMOSOMES

BUTLER, J. W. BUTLER, M. K. STROUD, A. N. DATE- APR. 1969

ARG-10256

Scanning machine CHLOE, developed for photographic use, is combined with a digital computer to obtain quantitative and statistically significant data on chromosome shapes, distribution, density, and pairing. CHLOE permits data acquisition about a chromosome complement to be obtained two times faster than by manual pairing.

B69-10124

IMPROVED MOUSE CAGE PROVIDES VERSATILITY AND EASE IN HANDLING LABORATORY MICE

JONES, N. D. DATE- MAY 1969

MSC-12250

Mouse cage system provides versatility and ease in handling laboratory mice, cleaning their cages, and collecting uncontaminated metabolic test specimens. The cage, compact and free standing, contains a screened bottom and funnel channel to collect waste. The feed is in the cage top and thereby separates the food and waste.

B69-10160

RAPID AND PRECISE ANALYSIS FOR CALCIUM IN BLOOD SERUM

HOLTZMAN, R. B. ILCEWICZ, P. H. DATE- JUN. 1969

ARG-10246

Differential absorption spectrophotometric technique, using nurexide, gives a highly precise analysis of calcium in volumes of blood serum as small as 0.01 ml. The method of additions and proper timing allows compensation to be made for fading, variation in type of serum or plasma, and aging of the specimen.

B69-10163

AGGREGATION OF METALLOCHLOROPHYLLS - EXAMINATION BY SPECTROSCOPY

BOUCHER, L. J. KATZ, J. J. DATE- JUN. 1969
ARG-10273

Nuclear magnetic resonance measurements determine which metallochlorophylls, besides magnesium-containing chlorophylls, possess coordination aggregation properties. Infrared spectroscopy reveals that only zinc pheophytin and zinc methyl pheophorbide showed significant coordination aggregation, whereas divalent nickel and copper did not.

B69-10177

QUALITATIVE AND QUANTITATIVE ANALYSIS OF MIXTURES OF COMPOUNDS CONTAINING BOTH HYDROGEN AND DEUTERIUM

CRISPI, H. L. HARKNESS, L. KATZ, J. J. NORMAN, G. SAUR, W. DATE- JUN. 1969

ARG-10312

Method allows qualitative and quantitative analysis of mixtures of partially deuterated compounds. Nuclear magnetic resonance spectroscopy determines location and amount of deuterium in organic compounds but not fully deuterated compounds. Mass spectroscopy can detect fully deuterated species but not the location.

B69-10188

DIRECT READING OF ELECTROCARDIOGRAMS AND RESPIRATION RATES

WISE, J. P. DATE- AUG. 1969
KSC-10233

Technique for reading heart and respiration rates is more accurate and direct than the previous method. Index of a plastic calibrated card is aligned with a point on the electrocardiogram. Complexes are counted as indicated on the card and heart or respiration rate is read directly from the appropriate scale.

B69-10197

SUBSTITUTION OF STABLE ISOTOPES IN CHLORELLA

FLAUMENHAFT, E. KATZ, J. J. UPHAUS, R. A. DATE- JUL. 1969

ARG-10258

Replacement of biologically important isotopes in the alga Chlorella by corresponding heavier stable isotopes produces increasingly greater deviations from the normal cell size and changes the quality and distribution of certain cellular components. The usefulness of isotopically altered organisms increases interest in the study of such permuted organisms.

B69-10203

NEUTRON THERAPY OF CANCER

FRIGERIO, N. A. NELLANS, H. N. SHAW, M. J. DATE- JUL. 1969 REAN- SEE ALSO ANL-6971,

ANL-7136, AND ANL-7409

ARG-10310

Reports relate applications of neutrons to the problem of cancer therapy. The biochemical and biophysical aspects of fast-neutron therapy, neutron-capture and neutron-conversion therapy with intermediate-range neutrons are presented. Also included is a computer program for neutron-gamma radiobiology.

B69-10205

INTERNAL AND ANCESTRAL CONTROLS OF CELL-GENERATION TIMES

KUBITSCHER, H. E. DATE- JUL. 1969
ARG-10326

Lateral and longitudinal correlations between related cells reveal associations between the generation times of cells for an intermediate period /three generations in bacterial cultures/. Generation times of progeny are influenced by nongenetic factors transmitted from their ancestors.

B69-10207

PURIFICATION AND CHARACTERIZATION OF TWO FULLY DEUTERATED ENZYMES

CRISPI, H. L. KATZ, J. J. FARNERTER, S. ROKOP,

04 LIFE SCIENCES

S. DATE- JUL. 1969

ARG-10314

Comparative data reveal little difference between kinetic and thermal stabilities of pure preparations of two ordinary enzymes and their fully deuterated counterparts. The effects of temperature on the enzymes proved to be consistent with earlier results.

B69-10208

COMBUSTION METHOD FOR ASSAY OF BIOLOGICAL MATERIALS LABELED WITH CARBON-14 OR TRITIUM, OR DOUBLE-LABELED

HUEBNER, L. G. KISIELESKI, W. E. DATE- JUL. 1969

REAN- SEE ALSO ANL-7409

ARG-10331

Dry catalytic combustion at high temperatures is used for assaying biological materials labeled carbon-14 and tritium, or double-labeled. A modified oxygen-flask technique is combined with standard vacuum-line techniques and includes convenience of direct in-vial collection of final combustion products, giving quantitative recovery of tritium and carbon-14.

B69-10223

AUTOMATED MICROORGANISM SAMPLE COLLECTION MODULE

GALL, L. S. /IBM/ GRAHAM, M. D. UMBREIT, W. DATE- JUL. 1969

HQ-10421

Modified Gelman Sampler obtains representative sample of microorganism population. Proposed Sample Collection Module is based on direct inoculation of selected solid growth media encased in a cartridge at all times except during inoculation. Cartridge can be handled with no danger of contamination to sample or operator.

B69-10236

IMPRINTING OF CONFINING SITES FOR CELL CULTURES ON THERMOPLASTIC SUBSTRATES

CONE, C. D. FLEENOR, E. N. DATE- AUG. 1969

LANGLEY-10495

Prevention of test cell migration beyond the field of observation involves confining cells or cultures in microlagoons made in either a layer of grease or a thermoplastic substrate. Thermoplastic films or dishes are easily imprinted with specifically designed patterns of microlagoons.

B69-10268

HEALTH HAZARDS OF ULTRAFINE METAL AND METAL OXIDE POWDERS

BOYLEN, G. W., JR. CHAMBERLIN, R. I. VILES, F. J. /VILES, CHAMBERLAIN, AND BOYLEN/ DATE- AUG. 1969

LEWIS-10878

Study reveals that suggested threshold limit values are from two to fifty times lower than current recommended threshold limit values. Proposed safe limits of exposure to the ultrafine dusts are based on known toxic potential of various materials as determined in particle size ranges.

B69-10273

TECHNIQUE FOR HIGHLY EFFICIENT RECOVERY OF MICROBIOLOGICAL CONTAMINANTS

GODWIN, W. W. /MARTIN MARIETTA CORP./ DATE- AUG. 1969

MSC-13250

Collecting and recovery small assay samples of viable microbiological contaminants in a gas stream involves use of a commercially available water-soluble paper. This paper is nontoxic to a number of microbiological organisms and can be dry-heat-sterilized.

B69-10277

STERILIZATION TRAINING MANUAL

QUINN, E. A. /HAYES INTERN. CORP./ DATE- AUG. 1969

M-FS-20437

Spacecraft sterilization training manual provides a basic understanding of microbiological techniques and presents scientific information in language intelligible to shop personnel.

B69-10294

MASS CULTURE OF PHOTOBACTERIA TO OBTAIN LUCIFERASE

CHAPPELLE, E. W. PICCIOLO, G. L. RICH, E., JR. DATE- AUG. 1969

GSFC-10563

Inoculating preheated trays containing nutrient agar with photobacteria provides a means for mass culture of aerobic microorganisms in order to obtain large quantities of luciferase. To determine optimum harvest time, growth can be monitored by automated light-detection instrumentation.

B69-10304

SAMPLING AND HANDLING OF DESERT SOILS

BLANK, G. B. CAMERON, R. E. DATE- AUG. 1969

NPO-11171

Report on sampling and handling desert soils includes sections on selection, characterization, and photography of area, site, and soil, sterilization of sampling equipment and containers, and soil sample collection, transport, storage, and dispersal.

B69-10317

MICRODETERMINATION OF UREA IN URINE USING P-DIMETHYLAMINO BENZALDEHYDE /PDAB/

GEIGER, P. J. DATE- AUG. 1969

NPO-10715

Adaptation of the p-dimethylaminobenzaldehyde method for determining urea concentration in urine is an improved micromechanical method. Accuracy and precision are satisfactory. This method avoids extra steps of deproteinizing or removing normal urinary chromogens.

B69-10319

MINIATURE OXYGEN RESUSCITATOR

JOHNSON, G. TEEGEN, J. T. WADDELL, H. /N. AM. ROCKWELL CORP./ JOHNSON, G. /BOEING CO./

DATE- AUG. 1969

KSC-10398

Miniature, portable resuscitation system is used during evacuation of patients to medical facilities. A carrying case contains a modified resuscitator head, cylinder of oxygen, two-stage oxygen regulator, low pressure tube, and a mask for mouth and nose.

B69-10475

LIFE DETECTION

MARTIN, W. H. /MCDONNELL DOUGLAS CORP./ DATE- OCT. 1969

NPO-10510

Compact automated laboratory unit has 60 independently treatable culture chamber assemblies for metabolic studies of cultured microorganisms on the surface of Mars or other planets.

B69-10493

INHIBITION OF BROWNING IN FOODSTUFFS

ROSENTHAL, N. A. /SCHWARZ BIORESEARCH, INC./ DATE- SEP. 1969

HQ-10177

Addition of water-soluble sulfur-containing compounds, thio compounds or potential thio compounds, to a mixture of carbohydrates, and either proteins, peptides, or amino acids can retard or completely eliminate the browning process. Determining factor is dependent upon the concentration of the anti-browning agent in the aqueous media.

B69-10571

DESERT SOIL COLLECTION AT THE JPL SOIL SCIENCE LABORATORY

BLANK, G. B. CAMERON, R. E. DATE- NOV. 1969

NPO-11206

Collection contains desert soils and other geologic materials collected from sites in the United States and foreign countries. Soils are useful for test purposes in research related to extraterrestrial life detection, sampling, harsh environmental studies, and determining suitable areas for training astronauts for lunar exploration.

B69-10593

MICROBIOLOGICAL ASPECTS OF STERILIZATION
DEVELOPMENT LABORATORIESPAIK, W. W. STERN, J. A. DATE- NOV. 1969
NPO-11197

Report deals with an investigation of vertical laminar flow clean rooms for use in spacecraft assembly. A reduction of particulate and microbial contamination occurs in the application.

B69-10598

QUICK DON-DOFF ELECTRODE PASTES

MOSIER, B. /INST. FOR RESEARCH, INC./ DATE- NOV. 1969

MSC-13249

Evaluation of electrode pastes for use in electrocardiographs and electroencephalographs found that the one having the desired don-doff properties had to be water soluble or a water dispersible base. Poly /methyl vinyl ether/maleic anhydride/ or starch gels of the gum drop variety are two such bases.

B69-10715

QUANTITATIVE DETERMINATION OF FLAVIN NUCLEOTIDE
USING THE BACTERIAL BIOLUMINESCENT REACTIONCHAPPELLE, E. W. PICCIOLO, G. L. DATE- DEC. 1969
GSFC-10565

Photometric method based on the use of bacterial luminiscent reaction quantitatively detects the presence of flavin compounds in all forms of life. Aqueous cellular dispersion of a biological sample with an aqueous perchloric acid ruptures the cells and frees the flavin coenzymes from their proteins.

05 MECHANICAL

B63-10007

HIGH PURITY ELECTROFORMING YIELDS SUPERIOR
METAL MODELSHAEPFELI, R. M. HOUSTON, J. P. DATE- JAN. 1964
ARC-6

Ultrasonic electroforming has proven successful in making high purity metal models for heat transfer studies. This process provides smooth, pit-free models.

B63-10008

VACUUM FORMING OF THERMOPLASTIC SHEET RESULTS
IN LOW-COST INVESTMENT CASTING PATTERNSCLARKE, A. E., JR. DATE- MAR. 1964
ARC-7

Vacuum forming of a sheet of thermoplastic material around a mandrel conforming to the shape of the finished object provides a pattern for an investment mold. The thickness of the metal part is determined by the thickness of the plastic pattern.

B63-10009

CHAIN FRICTION SYSTEM GIVES POSITIVE,
REVERSIBLE DRIVEDAVIDSEN, J. S. DATE- APR. 1964
ARC-8

By cementing a strip of an elastomer to the smooth metal rim of the pulley and neoprene covered idlers providing suitable tension to the chain around the pulley, a positive reversible drive is accomplished more quietly and with less vibration.

B63-10023

V-SLOTTED SCREW HEAD AND MATCHING DRIVING TOOL
FACILITATE INSERTION AND REMOVAL OF SCREW
FASTENERSHANDLEY, M. G. DATE- JAN. 1964
FRC-16

A V-slotted designed screw and a screwdriver with a V-shaped tang facilitate driving the screw into difficult locations and minimize axial forces thus avoiding damage to the screw.

B63-10123

ELASTIC ORIFICE AUTOMATICALLY REGULATES GAS
BEARINGS

BATSCH, F. LAUB, J. L. DATE- JUN. 1964

JPL-135

Elastic, pressure-sensitive orifice is used to automatically regulate the rate of gas flow into bearings under varying loads. Formed of a molded elastomer, these orifices increase the stability of gas bearings.

B63-10139

METHOD OF WELDING JOINT IN CLOSED VESSEL
IMPROVES QUALITY OF SEAMFREEMAN, R. LEVOE, C. DATE- MAY 1964
JPL-170

To facilitate welding of closed vessels, a metal backup strip is used at the junction inside the vessel. After welding from the outside, this strip is dissolved by a chemically reactive solvent poured through a filler hole into the vessel.

B63-10141

VENTED PISTON SEAL PREVENTS FLUID LEAKAGE
BETWEEN TWO CHAMBERSMAC GLASHAN, W. F. MORRISON, R. DATE- DEC. 1964
JPL-179

To prevent fluid leakage around piston seals separating two fluids under differential pressure, a venting system has been devised. Two methods may be used for venting seals through internal passages to an external low-pressure area, O-ring or split-ring seals.

B63-10143

COINCIDENT SWITCH CLOSING REDUCES ERROR IN
MOTOR-DRIVEN TIMERRICH, S. DATE- DEC. 1964
JPL-182

To cut the lag-lead in motor-driven timing devices, the timing circuit has been extended to include a second switch. This is actuated in time with the first but driven directly at a speed x times faster than the first.

B63-10170

HIGH-PRESSURE REGULATING SYSTEM PREVENTS
PRESSURE SURGESKELLER, O. F. MAC GLASHAN, W. F. DATE- JUN. 1964
REAN- SEE ALSO U. S. PATENT NO. 3,105,515
JPL-231

Gas flow is controlled by means of a pressure regulating system which prevents pressure surges. A high-pressure fluid source, a spring-loaded fluid-damped regulator valve, an accumulator, a conventional normally closed command valve, and a control valve are the main components.

B63-10198

DEVICE TRANSMITS ROTARY MOTION THROUGH
HERMETICALLY SEALED WALLPORTER, R. N. DATE- APR. 1964
JPL-303

A wobble plate, metal bellows, and two shafts, assembled in a four-section housing, make it possible to transmit rotary motion through a hermetically sealed wall. In operation a rotational torque is developed by the wobble plate.

B63-10200

APPARATUS OF SMALL SIZE CAN BE EXTENDED INTO
LONG, RIGID BOOMMILLER, J. V. DATE- MAY 1964
JPL-305

Three metal sheets, having prenotched edges, are interlocked as they are unrolled from three feed rollers which form a triangle. The apparatus is relatively small, and the sheets can be erected into a rigid triangular boom of considerable length.

B63-10226

SELF SEALING DISCONNECT FOR TUBING FORMS METAL
SEAL AFTER BREAKAWAYGERNANDT, H. H. DATE- JAN. 1964
JPL-354

Disconnect fittings form a positive metal seal when the fill tube pulls against a metal sleeve when disconnected by force. A specially designed sleeve surrounds the fill tube. O-rings in the shoulder of the sleeve and near the outer end of

05 MECHANICAL

the fill tube seal against leakage.

B63-10228

PACKLESS VALVE WITH ALL-METAL SEAL HANDLES
WIDE TEMPERATURE, PRESSURE RANGE
MAC GLASHAN, W. F. DATE- MAR. 1964

JPL-361

A durable line valve utilizes stacked metal disks to seal off an inlet port. No packing or shaft sealing is needed, and the valve operates satisfactorily over a wide temperature and pressure range.

B63-10236

LIGHTWEIGHT UNIVERSAL JOINT TRANSMITS BOTH
TORQUE AND THRUST
BAMFORD, R. M. DATE- JAN. 1964

JPL-375

A lightweight universal joint uses a thin steel flexure plate to transmit torque and a steel rod to transmit thrust. Both the plate and rod are independently mounted and can act individually.

B63-10237

SUPERCOLD TECHNIQUE DUPLICATES MAGNETIC FIELD
IN SECOND SUPERCONDUCTOR
HILDEBRANDT, A. F. DATE- NOV. 1964

JPL-376

A superconductor cylinder, charged with a high magnetic field, can be used to create a similar field in a larger cylinder. The uncharged cylinder is precooled, lowered into a helium dewar system, and fitted around the cylinder with the magnetic field. Magnetic flux lines pass through the two cylinders.

B63-10240

SLEEVE AND CUTTER SIMPLIFY DISCONNECTING
WELDED JOINT IN TUBING
PERKINS, G. S. DATE- APR. 1964

JPL-384

To test equipment, welded tubing joints may have to be disconnected and rewelded. To eliminate rewelding, a nonstandard welding sleeve permits the tubing to be welded and then disconnected by a specially designed sleeve cutter. Use of this tool assures that only the sleeve is cut.

B63-10241

VEITCH DIAGRAM PLOTTER SIMPLIFIES BOOLEAN
FUNCTIONS

RUBIN, D. K. DATE- APR. 1964

JPL-385

This device for simplifying the plotting of a Veitch diagram consists of several overlays for blocking out the unwanted squares. This method of plotting the various input combinations to a computer is used in conjunction with the Boolean functions.

B63-10247

NEW PACKAGE FOR BELLEVILLE SPRING PERMITS RATE
CHANGE, EASY DISASSEMBLY

MAC GLASHAN, W. F. DATE- MAR. 1964

JPL-392

A spring package, with grooves to hold the spring washers at the inner and outer edges, reduces hysteresis to a minimum. Three-segment retainers permit easy disassembly so that the spring rate can be changed.

B63-10251

HELICAL TUBE SEPARATES NITROGEN GAS FROM
LIQUID NITROGEN

STEPHENS, J. B. DATE- JUN. 1964

JPL-398

To prevent a boiloff problem, liquid nitrogen flowing from a storage tank to a container, is separated into liquid and gaseous components. This is accomplished by centrifugal and venting action, using a section of perforated helical aluminum tubing.

B63-10289

FRICTIONAL WEDGE SHOCK MOUNT IS INEXPENSIVE,
HAS GOOD DAMPING CHARACTERISTICS

TENER, W. M. DATE- MAY 1964

JPL-IT-1001

A wedge-shaped shock mount uses rubber for energy

absorption, and the frictional characteristics of ordinary brake material for damping.

B63-10291

SPECIAL PLIERS CONNECT HOSE CONTAINING LIQUID
UNDER PRESSURE

BLAYDES, R. A. DATE- MAR. 1964

JPL-IT-1003

For speed and safety in handling disconnect fittings on a hose carrying liquid under pressure, special pliers have been constructed. A gear and rack mechanism is combined with two or more wide-opening U-shaped jaws which are placed over the quick-disconnect fittings.

B63-10292

HEAVY-DUTY STAPLE REMOVER OPERATED BY HAND
MORRISON, T. BENNER, R. DATE- MAR. 1964

JPL-IT-1004

To remove staples from thick reports, a rooter, bending hook and post are incorporated into a heavy duty hand tool. This makes possible one-step extraction of long staples.

B63-10304

BREAK-UP OF METAL TUBE MAKES ONE-TIME SHOCK
ABSORBER, BARS REBOUND

HATHAWAY, M. MC GEHEE, J. R. ZAVADA, E. DATE-
FEB. 1964 REAN- SEE ALSO NASA-TN-D-1477

LANGLEY-1A

A frangible metal tube has the capability to dissipate the energy generated when a vehicle lands with excessive velocity. The tube is so placed that, at impact, it is forced against a die and, as it fragments, energy is absorbed.

B63-10340

CRYOPUMPING OF HYDROGEN IN VACUUM CHAMBERS IS
AIDED BY CATALYTIC OXIDATION OF HYDROGEN

CHILDS, J. H. GROBMAN, J. RAYLE, W. DATE- JUN.
1964 REAN- SEE NASA-TN-D-863

LEWIS-15

Vacuum test facilities are required for high speed cryopumping of gaseous hydrogen at low pressures. One method involves the catalytic oxidation of hydrogen and condensation of the resulting water on a liquid nitrogen-cooled surface.

B63-10341

DESIGN OF VALVE PERMITS SEALING EVEN IF THE
STEM IS MISALIGNED

SCHMIDT, H. W. DATE- JAN. 1964

LEWIS-38

A conical-walled valve plug is designed to seal against a recessed spherical valve seat. This insures proper sealing during numerous seating cycles even though the valve stem is misaligned or forced out of its proper axis.

B63-10354

RAPID BILLET LOADER AIDS EXTRUSION OF
REFRACTORY METALS

DOLINSHEK, A. F. HERMAN, L. E. DATE- APR. 1964

LEWIS-50

A combination gravity and manually powered rapid billet loader reduces the time required for transferring hot metal billets from a heating furnace to an extrusion press. Positioned between the furnace and extrusion press, this loader is a simple slide-delivery device.

B63-10367

CONNECTOR FOR VACUUM-JACKETED LINES CUTS
TUBING SYSTEM COST

CALVERT, H. F. DATE- MAY 1964

LEWIS-66

A low-cost fitting, fabricated from standard connectors, is used for disconnecting flow lines in cryogenic systems. Utilizing vacuum-jacketed lines made from two sizes of tubing welded at the ends, the connectors are stronger and setup time is reduced.

B63-10368

COMPOSITE, VACUUM-JACKETED TUBING REPLACES
BELLOWS IN CRYOGENIC SYSTEMS

CALVERT, H. F. DATE- JUN. 1964

LEWIS-67

For reliability control of high pressure cryogenic

systems, one or more 90 degree elbow expansion devices are substituted for the metal bellows normally used. The device consists of a conducting tube inside a support tube, with the space between the tubes evacuated for insulation.

B63-10376

NOVEL CLAMPS ALIGN LARGE ROCKET CASES,
ELIMINATE BACK-UP BARS

FRANKLIN, W. J. MARTIN, N. C. DATE- JAN. 1964
M-FS-1

Welding clamps, placed inside and outside a rocket case, hold it in proper alignment during tungsten inert gas welding. These metal blocks, connected by a stainless steel band, eliminate the need for backup bars.

B63-10384

VACUUM-TYPE BACKUP BAR SPEEDS WELD REPAIRS
CARMODY, R. J. DATE- AUG. 1964

M-FS-12

A backup bar designed to use both vacuum and air pressure provides a method of sealing the weld root of a faulty section of seam weld. With slight redesign, the bar can be made sufficiently flexible to fit any large cylindrical surface.

B63-10385

FLEXIBLE HONEYCOMB STRUCTURE CAN BEND TO FIT
COMPOUND CURVES

CARMODY, R. J. DATE- APR. 1964
M-FS-13

For flexibility in forming a curved surface, a honeycomb configuration using multiple pleats has proved superior to the usual core structures. The partial pleats formed in individual cell walls permit movements to and from the central axis without tearing.

B63-10387

PORTABLE FLOORING PROTECTS FINISHED SURFACES,
IS EASILY MOVED

CARMODY, R. J. DATE- MAR. 1964
M-FS-15

To protect curved, finished surface and provide support for workmen, portable flooring has been made from rigid plastic foam blocks, faced with aluminum strips. Held together by nylon webbing, the flooring can be rolled up for easy carrying.

B63-10420

SIMPLE MECHANISM COMBINES POSITIVE LOCKING AND
QUICK-RELEASE FEATURES

CLAYTON, L. B. /HUGHES AIRCRAFT CO./ DATE- FEB.
1964
WOO-4

For secure locking and quick release of two objects, this device uses a spring-loaded slotted bolt, locked in position by two retainer arms. When these retainer arms are freed from contact, the bolt is ejected and the objects released.

B63-10431

HIGH-TEMPERATURE, HIGH-PRESSURE SPHERICAL
SEGMENT VALVE PROVIDES QUICK OPENING

GIOVANNETTI, A. HIMMELRIGHT, R. MEYER, K.
NITTA, H. DATE- APR. 1964
ARC-13

A hollow spherical segment valve with an eccentric permits non-rubbing closure and provides a means for gas-cooling the seal. The design allows quick opening at high temperatures and discharge pressures.

B63-10435

PORTABLE DISPLAY PANELING HAS WIDE USE, EASY
TAKE DOWN AND ASSEMBLY

DE VOTO, H. J. DATE- MAR. 1964
ARC-17

Design for a modular display panel is based on a cross-shaped corner connector and wooden lattice bars. The bars are fitted into the arms of the metal connector and a pocket slot holds a modular-size panel.

B63-10442

KINETIC-ENERGY ABSORBER EMPLOYS FRICTIONAL
FORCE BETWEEN MATING CYLINDERS

CONRAD, E. W. DATE- MAY 1964

LEWIS-75

A kinetic energy absorbing device uses a series of coaxial, mating cylindrical surfaces. These surfaces have high frictional resistance to relative motion when axial impact forces are applied. The device is designed for safe deceleration of vehicles impacting on landing surfaces.

B63-10489

FINE-PARTICLE FILTER PREVENTS DAMAGE TO VACUUM
PUMPS

HARLAMERT, P., JR. DATE- APR. 1964
LEWIS-106

A filter system for mechanical pumps is designed with a baffle assembly that rotates in a circulating oil bath which traps destructive particles. This prevents severe damage to the pump and is serviceable for long periods before it requires cleaning.

B63-10497

INTEGRAL COOLANT CHANNELS SUPPLY MADE BY
MELT-OUT METHOD

ESCHER, W. J. D. DATE- JUN. 1964
M-FS-91

Melt-out method of constructing strong, pressure-tight fluid coolant channels for chambers is accomplished by cementing pins to the surface and by depositing a melt-out material on the surface followed by two layers of epoxy-resin impregnated glass fibers. The structure is heated to melt out the low-melting alloy.

B63-10502

FLUID-PRESSURE METER CAN BE CALIBRATED WITHOUT
REMOVAL FROM FLOW LINE

MELTON, D. E. DATE- MAR. 1964
M-FS-98

The construction of a fluid pressure meter with two inlet ports, flexible diaphragms and a pressure-responsive transducer is described. One port can be connected to the line and the other to a source of standard pressures for calibration.

B63-10517

MINIATURE OXYGEN-HYDROGEN CUTTING TORCH
CONSTRUCTED FROM HYPODERMIC NEEDLE

SHLICHTA, P. DATE- APR. 1964
JPL-545

A miniature cutting torch consisting of a main body member, upon which the hydrogen and oxygen containers are mounted, valves for controlling gas flow, and a hypodermic needle that acts as a mixing tube and flame tip is constructed.

B63-10519

TOOL FACILITATES SEALING OF METAL FILL TUBES

COOLEY, H. H., JR. /UNITED AIRCRAFT CORP./ DATE-
JUL. 1964
MSC-24

A hand tool is designed for sealing metal fill tubes containing corrosive or inflammable liquids without the use of heat or open flame. The tool aligns the fill tube into which a tapered sealing pin is dropped and driven below the neck of tube.

B63-10526

BUILT-IN TEMPLATES SPEED UP PROCESS FOR MAKING
ACCURATE MODELS

SPON- INNOVATOR NOT GIVEN /LANGLEY/ DATE- FEB.
1964
LANGLEY-23

From accurate scale drawings of a model, photographic negatives of the cross sections are printed on thin sheets of aluminum. These cross-section images are cut out and mounted, and mahogany blocks placed between them. The wood can be worked down using the aluminum as a built-in template.

B63-10530

NEW ANEMOMETER HAS FAST RESPONSE, MEASURES
DYNAMIC PRESSURE DIRECTLY

LYNCH, J. W. REED, W. H., III DATE- OCT. 1964
LANGLEY-28

A simple anemometer having a fast response to high frequency wind fluctuations by direct measurement of two drag-force components in orthogonal planes

05 MECHANICAL

is described. It may be used to determine wind profiles to extensive heights and would be helpful in takeoff and landing of light planes.

B63-10547
ELLIPSOIDAL OPTICAL REFLECTORS REPRODUCED BY ELECTROFORMING
HUNGERFORD, W. J. LARMER, J. W. LEVINSOHN, M.
DATE- OCT. 1964
GSFC-92

An accurately dimensioned convex ellipsoidal surface, which will become a master after polishing, is fabricated from 316L stainless steel. When polishing of the master is completed, it is suspended in a modified watt bath for electroforming of nickel reflectors.

B63-10556
LATHE CONVERTED FOR GRINDING ASPHERIC SURFACES
LARMER, J. W. LEVINSOHN, M. MC CRAW, D.
PESSAGNO, E. H. TAUB, F. J. DATE- JUL. 1964
GSFC-115

A standard overarm tracing lathe converted by the addition of an independently driven diamond grinding wheel is used for grinding aspheric surfaces. The motion of the wheel is controlled by the lathe air tracer following the template which produces the desired aspheric profile.

B63-10558
NEW METHOD FORMS BOND LINE FREE OF VOIDS
KING, C. B. DATE- OCT. 1964
LANGLEY-20

A new bonding method using vacuum, pressure and heat, which produces a bond line free of voids, is described. This method is very successful in bonding ablation shields to a magnesium structural component in simulated reentry tests involving great heat and air turbulence.

B63-10560
CAMERA SHUTTER IS ACTUATED BY ELECTRIC SIGNAL
NEFF, J. E. DATE- NOV. 1964
ARC-20

Rotary solenoid energized by an electric signal opens a camera shutter, and when the solenoid is de-energized a spring closes it. By the use of a microswitch, the shutter may be opened and closed in one continuous, rapid operation when the solenoid is actuated.

B63-10564
A TECHNIQUE FOR MAKING ANIMAL RESTRAINTS
CLARKE, A. E., JR REITHAN, J. DATE- SEP. 1964
ARC-25

A contoured shell for restraining animals is made by thermoforming plastic over the anesthetized, frozen specimen. It may be vented, or pieces may be cut out to facilitate working in localized areas.

B63-10568
PLASTIC MOLDS REDUCE COST OF ENCAPSULATING ELECTRIC CABLE CONNECTORS
KNOTT, D. DATE- NOV. 1964
M-FS-69

Resin casting of the aluminum master pattern forms a plastic mold for encapsulating a cable connector. An elastomer is injected into the mold and cured. The mold is disassembled leaving an elastomeric encapsulation around the connector.

B63-10571
SELF-BALANCING BEAM PERMITS SAFE, EASY LOAD HANDLING UNDER OVERHANG
EDWARDS, O. H. DATE- MAR. 1964
M-FS-84

The use of a self-balancing I-beam with a counterweight and motor simplifies moving heavy loads that are inaccessible for cranes. The beam cannot be overloaded, as the counterweight will not balance the load, and thus acts as an automatic safety device.

B63-10590
STAINLESS-STEEL ELBOWS FORMED BY SPIN FORGING
SPON- INNOVATOR NOT GIVEN /CHANCE-VOUGHT CORP./
DATE- DEC. 1964
M-FS-122

Large seamless austenitic stainless steel elbows are fabricated by spin forging /rotary shear forming/. A specially designed spin forging tool for mounting on a hydrospin machine has been built for this purpose.

B64-10001
NEW INFLATABLE LIFERAFT IS NONTIPPABLE
RADNOFSKY, M. I. SHEWMAKE, G. A. DATE- MAR. 1964
REAN- SEE ALSO NASA-TN-D-1083
MSC-4A

A one-seamed lightweight life raft has three underwater ballast buckets as stabilizers. Nontippable, it can be compactly packaged and inflated with carbon dioxide.

B64-10006
SPEED-SENSING DEVICE AIDS CRANE OPERATORS
SPON- INNOVATOR NOT GIVEN /WALLOPS/ DATE- OCT. 1964
WS-4

So that crane operators can judge payload movements accurately, a friction-driven multilobed cam device energizes a buzzer and indicator lamp in the crane cab. The signal frequency of this speed sensor has a sensitivity to hoist movement of 1/8 inch.

B64-10011
METAL STRIP FORMS 21 FOOT BOOM, ROLLS UP FOR COMPACT STORAGE
SPON- INNOVATOR NOT GIVEN /CANADIAN COMMERCIAL CORP./ DATE- MAY 1964
GSFC-151

An extensible boom, carrying three separate electric conductor tapes, can be rolled into a compact storage drum. The tape is curved in cross section so that the boom automatically forms a tube as it is extended.

B64-10014
GUIDE FOR EXTRUSION DIES ELIMINATES STRAIGHTENING OPERATION
GYORGAK, C. A. HOOVER, R. J. DATE- NOV. 1964
LEWIS-152

To prevent distortion of extruded metal, a guidance assembly is aligned with the die. As the metal emerges from the extrusion dies, it passes directly into the receiver and straightening tube system, and the completed extrusion is withdrawn.

B64-10015
COMFORTABLE, LIGHTWEIGHT SAFETY HELMET HOLDS RADIO TRANSMITTER, RECEIVER
ATLAS, N. D. /N. AM. AVIATION/ DATE- MAY 1964
MSC-53

For two-way radio communication where safety gear is required, a lightweight helmet with few protrusions has been designed. The electronics components and power supply are mounted between the inner and outer shells, and resilient padding is used for the lining.

B64-10021
PRESSURE TRANSDUCER 3/8-INCH IN SIZE CAN BE FAIRED INTO SURFACE
SCHAEFFER, R. J. /N. AM. AVIATION/ DATE- MAY 1964
WOO-065

To measure fluid pressure with minimum disturbance to fluid flow, a miniature pressure transducer can be imbedded and faired into the test surface. Incorporated in the design are piezoresistive elements mounted on a diaphragm, which transform pressure strains into an electrical signal.

B64-10028
QUICK-ACTING CLUTCH DISENGAGES IDLE DRIVE MOTOR
STARK, K. W. DATE- AUG. 1964
GSFC-143

Positive-drive, no drag, over-running clutch is developed to conserve power of idle motor in a low-power system using multiple drive motors. This device is useful where a number of shaft speeds are required with frequent shifting.

B64-10031
MULTIPLE PORT PRESSURE SCANNER VALVE FEATURES

GREATER ACCURACY, QUICKER DATA
VINCENT, E. R. DATE- SEP. 1964
JPL-555

Fast, accurate, multipressure measuring system, which employs a multiple port pressure scanning valve that connects a pressure transducer to many pressures, is described.

B64-10050
MODIFIED GAS BEARING IS ADJUSTABLE TO OPTIMUM STIFFNESS RATIO

EVANS, J. L. DATE- AUG. 1964
M-FS-145

Inexpensive and rapid-adjustments of the radial to axial stiffness ratio of a spherical gas bearing are achieved by a series of gas passages in the equatorial plane of the sphere which feed into orifices that can be readily changed in size.

B64-10058
INSULATED WELD TOOLING PERMITS UNIFORM, HIGH-QUALITY WELD
SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- AUG. 1964
MSC-42

The application of a ceramic material coating to all surfaces contacting parts to be welded permits greater weld strength than the conventional weld tooling method.

B64-10066
ENCAPSULATION PROCESS STERILIZES AND PRESERVES SURGICAL INSTRUMENTS
MONTGOMERY, L. C. MORELLI, F. A. DATE- JUL. 1964
JPL-484

Ethylene oxide is blended with an organic polymer to form a sterile material for encapsulating surgical instruments. The material does not bond to metal and can be easily removed when the instruments are needed.

B64-10069
METAL-BENDING BRAKE FACILITATES LIGHTWEIGHT, CLOSE-TOLERANCE FABRICATION
ERCOLINE, A. L. WILTON, K. B. DATE- OCT. 1964
ARC-29

A lightweight, metal bending brake ensures very accurate bends. Features of the brake that adapt it for making complex reverse bends to close tolerances are a pronounced relief or cutaway of the underside of the bodyplate combined with modification in the leaf design and its suspension.

B64-10084
MOLDED ELASTOMER PROVIDES COMPACT FERRITE-CORE HOLDER, SIMPLIFIES ASSEMBLY
HAYDEN, R. R. DATE- NOV. 1964
JPL-584

A ferrite-core holder, fabricated by casting an elastomer in a simple mold, simplifies the assembly of modular matrix units for computers. Use of the device permits the core leads to be multiply threaded and soldered to terminals, without requiring intermediate terminals.

B64-10119
BUCKLE JOINS WEB STRAPS QUICKLY, ADJUSTS EASILY
WILKINSON, J. E. /CHANCE VUGHT CORP./ DATE- JUN. 1964
LANGLEY-21

To join web straps used to hoist heavy loads, a novel buckle permits two straps to be quickly joined and held by the combined forces of strap load tension and friction.

B64-10121
ELECTRONIC ASSEMBLY RACK PANELS SNAP ON AND OFF
BAILEY, J. W. DATE- JUN. 1964
GSFC-59

Snap fasteners on each side of an electronic assembly rack blank panel give quick access to the interior. Guide pins extending from the inside face easily slip into standard screw holes on the frame and provide additional support.

B64-10124
ATTACHMENT CONVERTS MICROSCOPE TO POINT SOURCE AUTOCOLLIMATOR

SHLICHTA, P. J. DATE- JUL. 1964
JPL-499

A low-power microscope or telescope provides a simple means of autocollimation. This is done by fitting the instrument with a light source to permit alignment from a reflecting surface normal to the optic axis of the instrument.

B64-10130
BEARING TRANSMITS ROTARY AND AXIAL MOTION
DOW, N. F. PETERS, R. W. DATE- SEP. 1964
LANGLEY-27

A low friction, two-component bearing comprised of a pair of ball-bearing races for transmitting rotary motion and an inner series of ball bearing assemblies for transmitting axial motion is described and should be useful in mechanisms such as stress-strain testing machines.

B64-10141
PNEUMATIC POWER IS TRANSMITTED THROUGH AIR BEARING
JOHNSON, H. I. WOBIG, O. A. DATE- JUL. 1964
MSC-8

A more efficient method for supplying high pressure air to an air bearing and pneumatic equipment mounted on it has been developed. The system uses a conventional air bearing and an air-supported sphere with a central passage. High pressure air is channeled through it into the pneumatic equipment on the sphere.

B64-10145
FLEXIBLE FASTENER ALLOWS THERMAL EXPANSION
CRUMPLER, W. B. DATE- JUN. 1964
LANGLEY-40

A flexible fastener permits thermal expansion of model skin sections which are rigidly attached to supporting structures in wind tunnel tests. The device uses a modified ball joint contact between the fastener and a skin section.

B64-10164
UPSETTING BUTT EDGE INCREASES WELD-JOINT STRENGTH
VESCO, D. DATE- OCT. 1964
M-FS-175

Mechanical upsetting /a mode of cold forging/ of butt edges to be welded is accomplished by the use of hydraulic rams and pressure rollers. The mechanical upsetting increases the thickness of the material in the heat-affected zone and compensates for the lower specific strength per unit thickness common to this area.

B64-10170
BALL BEARING USED IN DESIGN OF RUGGED FLOWMETER
MINKIN, H. L. DATE- JAN. 1965
LEWIS-159

A volumetric flowmeter which has a small magnet imbedded in the outer perimeter of the turbine wheel or in the bearing permits measurement of liquid flow rates in the presence of wide ranges and violent surges.

B64-10178
MACHINE TESTS CREASE DURABILITY OF SHEET MATERIALS
JONES, L. K. STANFORD, H. B. DATE- NOV. 1964
JPL-604

To test the crease resistance of sheet materials, the mid-section is folded over crease-control blades. One end is clamped to a motor-driven eccentric, the other to a spring, and durability is measured by the cycles required to produce failure.

B64-10185
THREADING HOOK FACILITATES SAFE RECOVERY OF HEAVY LOADS
ARTHUR, J. S. WILLIAMS, D. C. DATE- OCT. 1964
MSC-46

A C-shaped threading hook and shuttle mounted on a spring-loaded driving rod located inside the long-handled pole are developed for recovering

05 MECHANICAL

massive loads afloat in the sea.

B64-10188

BLADE VALVE ISOLATES COMPARTMENT IN PIPE,
OPENS TO ALLOW FREE FLOW
INUS, R. DATE- NOV. 1964
JPL-585

Two thin blades are incorporated into a valve which, when closed, form a sealed compartment in the shock-tube portion of a pipeline. When forced open by an actuator, gas flows through the system.

B64-10211

MICROMACHINING PRODUCES OPTICAL APERTURES TO
MICRON DIMENSIONS
WALCH, A. J. DATE- OCT. 1964
GSFC-206

Micron dimensioned rectangular optical aperture is formed under a high powered toolmakers microscope by laying two knife edged blocks over the miniature knife-edged hole in the base.

B64-10223

TWO-PART VALVE ACTS AS QUICK COUPLING
MAC GLASHAW, W. F. DATE- NOV. 1964
JEL-478

A two-part valve simplifies the problem of filling large tanks from smaller ones. One part acts as a check valve and remains integral to the recipient system, while the other part is integral to the donor system.

B64-10249

INSTRUMENT ADJUSTMENT KNOB LOCKS TO PREVENT
ACCIDENTAL MALADJUSTMENT
SPON- INNOVATOR NOT GIVEN /LEAR SIEGLER CORP./
DATE- NOV. 1964
M-FS-190

A device, incorporating a collar with a hexagonal opening which fits snugly over a hexagonal nut used to engage instrument panel components, keeps the adjustment knob locked. A quick release mechanism frees the knob for rotational adjustment.

B64-10272

VISCOUS-PENDULUM DAMPER SUPPRESSES STRUCTURAL
VIBRATIONS
REED, W. H., III DATE- NOV. 1964
LANGLEY-45

The viscous pendulum damper consists of a cylinder containing round trays on which round lead slugs rest. When assembled, the container is filled with a viscous liquid and attached, with axis vertical, to the structure. The device permits varying the damping of structural vibrations.

B64-10277

APPARATUS ALTERS POSITION OF OBJECTS TO
FACILITATE DEMAGNETIZATION
RINARD, G. WATSON, J. D. DATE- NOV. 1964
GSFC-234

An apparatus consisting of pulleys, a drive shaft and an inner compartment, in which components to be demagnetized are mounted, is constructed. Due to the speed ratio of the three frames, every point on a component in the inner compartment is cycled through an optimum locus in the demagnetization field.

B64-10278

SENSITIVE LOW-PRESSURE RELIEF VALVE HAS
POSITIVE SEATING AGAINST LEAKAGE
SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE-
NOV. 1964
WOO-041

A pilot-operated relief valve which provides positive seating against leakage in cryogenic systems is described. The principal advantage is that the pilot poppet is unaffected by variations in control pressures in the pilot cavity, and results in a more accurate sensing of inlet pressure conditions.

B64-10284

APPARATUS MEASURES VERY SMALL THRUSTS
SPON- INNOVATOR NOT GIVEN /HUGHES AIRCRAFT CO./
DATE- NOV. 1964

WOO-048

Measurement of very small thrusts of an ion engine are made by mounting the engine on a platform supported by leaf springs which are loaded to have a zero spring constant. Measuring apparatus includes an inductive sensor, servo amplifier, and a counterthrust feedback system.

B64-10306

COMPRESSED GAS SYSTEM OPERATES SEMITRAILER
BRAKES DURING WINCHING OPERATION
TUPPER, W. E. DATE- DEC. 1964
JPL-0036

To move van-type semi-trailers into and out of confined spaces, an auxiliary braking system is mounted on a standard dolly converter. Compressed nitrogen is used to actuate the brakes which are used in conjunction with a power winch.

B64-10327

CONNECTOR SEALS FLUID LINES AT CRYOGENIC
TEMPERATURES AND HIGH VACUUMS
KITTS, W. T. PLATT, P. K. DATE- JAN. 1965
GSFC-253

A connector that will serve as a seal for fluids at cryogenic temperatures and in high vacuums is constructed by installing a metal disk between two sets of mating serrations to form two sealing surfaces. Compression on both sealing surfaces is ensured by spring action of the disk.

B64-10348

SAFETY RESTRAINER PREVENTS WHIPPING OF
RUPTURED HIGH-PRESSURE HOSE
THOMPSON, W. E. DATE- DEC. 1964
LEWIS-99

The braid at each end of a standard electric cable puller is modified to reinforce high pressure, flexible, fluid transfer hoses. This safety device acts as a restraint if the line ruptures.

B64-10406

POLYCHART CONTOUR PLOTTER ENABLES DATA
EXTRAPOLATION FROM MULTIPLE PLOTTING CHARTS
SWINDALL, P. M. WISE, T. E. DATE- JUL. 1964
M-FS-37

A polychart contour plotter is used to reduce the data from all 19 antenna pattern charts to a one-chart form.

B65-10003

ILLUMINATED DISPLAY PANEL IS EASILY CHANGED
SPON- INNOVATOR NOT GIVEN /IBM/ DATE- JAN. 1965
MSC-108

Photographic negative placed between two plastic sheets and back-lighted in selected areas prepares illuminated multicolored display panels. The device is inexpensive, easily changed, and quickly fabricated.

B65-10007

THERMOCOMPRESSION BONDING PRODUCES EFFICIENT
SURFACE-BARRIER DIODE
SPON- INNOVATOR NOT GIVEN /IBM/ DATE- JAN. 1965
JPL-SC-066

Thermocompression bonding of a gold wire to a gallium-arsenide wafer produces a quality surface barrier diode with fast recovery times. The properties of this combination may be useful in semiconductor devices.

B65-10008

SHOCK ABSORBER PROTECTS MOTIVE COMPONENTS
AGAINST OVERLOADS
SPON- INNOVATOR NOT GIVEN /DOUGLAS AIRCRAFT CO./
DATE- JAN. 1965
WOO-092

Shock absorber with an output shaft, hollow gear, and a pair of springs forming a resilient driving connection between shaft and gear, operates when abnormally high torques are applied. This simple durable frictional device is valuable in rotating mechanisms subject to sudden overloads.

B65-10009

FORMING BLOCKS SPEED PRODUCTION OF STRAIN GAUGE
GRIDS
BONN, J. L. GARDNER, D. E. DATE- FEB. 1965
LEWIS-182

A tool is designed which facilitates the forming of wire grids used in manufacturing strain gage grids. Flattening the grid wire by a cold working process produces a stabilized grid which can be readily handled for storage or shipment.

B65-10014

USE OF TEAR RING PERMITS REPAIR OF SEALED MODULE CIRCUITRY

SPON- INNOVATOR NOT GIVEN /IBM/ DATE- JAN. 1965
M-FS-210

Improved packaging technique for modular electronic circuitry utilizes a tear ring which may be removed for repair and resealed. The tear ring is put over the container and header to which the electronic circuit assembly has been attached.

B65-10017

EXPLOSIVES ACTUATE NONMAGNETIC INDEXING DEVICE
BAUERNSCHUB, J. P., JR. DATE- JAN. 1965
GSFC-237

Nonmagnetic explosive-actuated indexing device creates magnetic field that can be tolerated by a sensor.

B65-10019

WIDE-ANGLE SENSOR MEASURES RADIANT HEAT ENERGY IN CORROSIVE ATMOSPHERES

SPON- INNOVATOR NOT GIVEN /BOEING CO./ DATE- JAN. 1965
REAN- SEE ALSO B63-10004
M-FS-228

Ellipsoidal cavity device measures radiant heat energy over wide incident angles in corrosive atmospheres. The instrument consists of a cavity in copper heat sink sealed with sapphire window to protect thermocouple.

B65-10020

OPTICAL ARRANGEMENT INCREASES USEFUL LIGHT OUTPUT OF SEMICONDUCTOR DIODES

SPON- INNOVATOR NOT GIVEN /IBM/ DATE- JAN. 1965
REAN- SEE ALSO B64-10297
JPL-SC-064

Useful light output of semiconductor diodes increased by incorporating the diode in an integral reflector and lens assembly. This reduces normal reflection losses between the diode and the air.

B65-10021

PICKUP DEVICE READS PRESSURES FROM PORTS IN ROTATING MECHANISMS

JANAS, B. DATE- JAN. 1965
REAN- SEE ALSO B64-10031
LEWIS-158

Indexing pickup monitors fluid pressures from ports at various angles on high or low speed rotating mechanisms in operation. By a simple axial movement of a takeoff connector, angle changing takes place. This device can be adapted for electric current monitoring.

B65-10022

KNOB LINKAGE PERMITS ONE-HAND CONTROL OF SEVERAL OPERATIONS

CODDING, G. C. LAVENDER, C. E. DATE- JAN. 1965
MSC-30

Electromechanical device with single knob provides one-hand control of numerous electrical or mechanical functions. The principle of this design may have application to remote-control switching devices.

B65-10027

FLUID-PRESSURE MEASUREMENT APPARATUS USES SHORT-LENGTH MANOMETER TUBES

SATHER, B. I. DATE- MAR. 1965
LEWIS-28

System of short length U-tube manometers with a proportionally divided reference pressure measures high fluid pressures.

B65-10029

SEISMIC TRANSDUCER MEASURES SMALL HORIZONTAL DISPLACEMENTS

GREENWOOD, T. L. DATE- MAR. 1965
M-FS-81

Pendular seismic transducer mounted on base plate measures small horizontal displacements of

structures subjected to vibration where no fixed reference point is available. Enclosure of transducer in transparent plastic case prevents air currents from disturbing the pendulum balance.

B65-10031

SPRING LOADED BEADED CABLE MAKES EFFICIENT WIRE PULLER

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- FEB. 1965
WOO-108

An efficient wire puller consists of a steel probe with a hole in one end fastened to a steel cable which is strung with metal beads compressed by spring loaded ferrules. This device allows cables to be pulled or forced around bends and elbows in pipes or tubes.

B65-10035

OCEANBORNE TRANSPONDER PLATFORM HAS GOOD STABILITY

SPON- INNOVATOR NOT GIVEN /IBM/ DATE- FEB. 1965
M-FS-171

Determination of space vehicle range and orbit is aided by a stable subsurface oceanic transponder. This device consists of a buoy held below the surface by a three-point system of anchors and mooring lines with an above surface antenna.

B65-10037

IMPROVED HOLDER PROTECTS CRYSTAL DURING HIGH ACCELERATION AND IMPACT

LE VAY, K. H. DATE- FEB. 1965
JPL-463

A plastic holder, which retains a crystal blank with standard silvered contacts sandwiched between two copper contacts, protects the crystal against vibration during high acceleration and impact.

B65-10038

FASTENER PROVIDES COOLING AND COMPENSATES FOR THERMAL EXPANSION

SPON- INNOVATOR NOT GIVEN /AEROJET-GEN. CORP./ DATE- FEB. 1965
NU-0003

A fastener composed of a concentric bellows welded to two plates forming an annular cavity provides cooling and thermal expansion compensation in a high temperature environment.

B65-10039

NONRESONANT SUPPORT FACILITATES VIBRATION TESTING OF STRUCTURES

SPON- INNOVATOR NOT GIVEN /BOEING CO./ DATE- FEB. 1965
M-FS-224

An essentially frictionless four-point support system which utilizes bearings and pistons allows for determination of vibration frequencies of large structures. Retardation of vertical or horizontal motion is due to the viscous damping by the hydrostatic pressure of the oil or by adjustment of the gas volume in the accumulator.

B65-10040

VALVE DESIGNED WITH ELASTIC SEAT
MAC GLASHAN, W. F., DATE- FEB. 1965

JPL-442

Absolute valve closure is accomplished by a machined valve with an axially annular channel which changes the outlet passage into a thin tubular elastic seat member with a retainer backup ring. The elasticity of the seat provides tight conformity to ball irregularity.

B65-10042

FLEXURE SUPPORT SYSTEM PROTECTS THERMALLY AND DYNAMICALLY LOADED MODELS

CRUMPLER, W. B. DATE- FEB. 1965
LANGLEY-39

The design of an eight legged flexure support system which permits differential thermal expansion of thin skinned models subjected to high temperatures is done by setting the lengthwise axes of the supporting legs approximately normal to the line of absolute motion of the model supported.

05MECHANICAL

B65-10049

SCREW LOCKING CUPS QUICKLY AND NEATLY CRIMPED
SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC.
CORP./ DATE- FEB. 1965
NU-0009

A tool consisting of a positioning pin which is engaged in the screw and depressed until the tool body contacts the locking cup permits quick and neat crimping.

B65-10053

SEAL ALLOWS BLIND ASSEMBLY AND THERMAL EXPANSION OF COMPONENTS
SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC.
CORP./ DATE- FEB. 1965
NU-0005

The design of a seal consisting of two concentric cylinders with outer and inner threaded elements attached to each side of the system interface withstands large temperature changes and allows for blind assembly.

B65-10060

NEW ALLOY BRAZES TITANIUM TO STAINLESS STEEL
SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- MAR. 1965
MSC-102

Brazing alloy of palladium, silver and silicon is used in brazing titanium to stainless steel without embrittling metals at the brazed interfaces.

B65-10063

CERAMIC-COATED BOAT IS CHEMICALLY INERT, PROVIDES GOOD HEAT TRANSFER
SPITZER, C. R. DATE- MAR. 1965
LANGLEY-90

Refractory metal foil sprayed with ceramic coating serves as evaporating boat for inorganic materials. The high thermal conductivity of this boat makes it useful with ohmic heaters.

B65-10064

DEVICE MEASURES CURVED SURFACE FINISH ON GEAR TEETH
SPON- INNOVATOR NOT GIVEN /GE/ DATE- MAR. 1965
WOO-112

Measurement of the curved surface finish on gear teeth is made by a device used in conjunction with a conventional profilometer.

B65-10070

SIMPLE SCALE INTERPOLATOR FACILITATES READING OF GRAPHS
FETTERMAN, D. E., JR. DATE- MAR. 1965
LANGLEY-88

Simple transparent overlay with interpolation scale facilitates accurate, rapid reading of graph coordinate points. This device can be used for enlarging drawings and locating points on perspective drawings.

B65-10074

NITROGEN DIOXIDE PRODUCED BY SELF-SUSTAINED PYROLYSIS OF NITROUS OXIDE
SABOL, A. P. DATE- MAR. 1965
LANGLEY-32

Apparatus is developed for achieving continuous self-sustaining pyrolysis reaction in the production of nitrogen dioxide from nitrous oxide. The process becomes self-sustaining because of the exothermic reaction and the regenerative heating of the gases in the pyrolysis chamber.

B65-10075

TENSION IS SERVO CONTROLLED IN FILM ADVANCE SYSTEM
SPON- INNOVATOR NOT GIVEN /AM. OPT. CO./ DATE- MAR. 1965
LANGLEY-54

Servocontrol device feeds film into a roller system. Two linear potentiometers connected to spring loaded tension rollers furnish servo input signal. Can be used in any continuous material transport system.

B65-10077

NEW COUPLING COMPENSATES FOR SHAFT MISALIGNMENT

SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC.
CORP./ DATE- MAR. 1965
NU-0013

Coupling of splined shafts with slight misalignment is accomplished by means of a crown spline and sleeve arrangement.

B65-10078

FABRICATION METHOD PRODUCES HIGH-GRADE ALUMINA CRUCIBLES
PALMOUR, H. DATE- MAR. 1965
M-FS-216

Alumina-binder mixture, which has been dry pressed in a die using a mating punch, forms crucibles of various configurations and after firing results in a ceramic structure for use in diffusion experiments.

B65-10090

COMPACT ASSEMBLY GENERATES PLASTIC FOAM, INFLATES FLotation BAG
DATE- APR. 1965
LANGLEY-96

Device for generating plastic foam consists of an elastomeric bag and two containers with liquid resin and a liquid catalyst. When the walls of the containers are ruptured the liquids come into contact producing foam which inflates the elastomeric bag.

B65-10094

CUTTER AND STRIPPER REDUCES COAXIAL CABLE CONNECTION TIME
THOMPSON, F. E. DATE- APR. 1965
ARC-40

Consisting of three pivoted members, this hand cutter and stripper positions to cut shielding and insulation at the right distance and depth. Coaxial cable is prepared quickly and accurately for connector attachment.

B65-10098

CONTACT STRESSES CALCULATED FOR MINIATURE SLIP RINGS
ALBRIGHT, F. G. DOMEREST, K. E. HORTON, J. C. DATE- APR. 1965
M-FS-280

Using mathematical formulations to plot the graphs of the contact preload versus the Hertzian load, calculations of unit loading of the preloaded brushes on slip rings can be made. This optimizes the design of contact brushes and miniature slip rings.

B65-10099

SLIT FEEDS REDUCE UNBALANCED TORQUES IN GAS-LUBRICATED BEARINGS
BATSCH, F. F. LAUB, J. H. DATE- APR. 1965 REAN- SEE ALSO B63-10123 AND B64-10050
JPL-264

Gas-lubricated journal bearing with narrow radial slits forming circular gas-feed passages regulates gas flow in precision instruments. Asymmetrical flow pattern and unbalanced torques are prevented.

B65-10101

JIG AND FIXTURE AID FABRICATION OF TUNGSTEN RIVETS
CHATTIN, J. H. DATE- APR. 1965
LEWIS-185

Jig and fixture that holds several lengths of tungsten rods produces rivets simply and inexpensively. The apparatus allows sufficient tungsten to be exposed for heating and forging into a rivet head.

B65-10104

LEAF-SPRING SUSPENSION PROVIDES ACCURATE PARALLEL DISPLACEMENTS
MC CREARY, R. A. DATE- APR. 1965
JPL-480

Leaf-spring suspension device with the springs symmetrically mounted on suspension frames provides accurate parallel displacements of loads over short linear distances.

B65-10109

ROCK BIT REQUIRES NO FLUSHING MEDIUM TO MAINTAIN DRILLING SPEED

SPON- INNOVATOR NOT GIVEN /HUGHES AIRCRAFT CO./
DATE- APR. 1965
JPL-WOO-031

Steel drill bit having terraces of teeth intersected by spiral grooves with teeth permits the boring of small holes through rock with low power. The cuttings are stored in a chamber behind the cutting head. Could be used as sampling device.

B65-10110
MAGNETS POSITION X-RAY FILM FOR WELD INSPECTION
WAGNER, R. P. DATE- APR. 1965
M-FS-253

Film-positioning device uses magnets to hold X-ray film for weld inspection in nonferrous structures, such as tanks, where access to interior points is difficult.

B65-10111
PROBE TESTS MICROWELD STRENGTH
SPON- INNOVATOR NOT GIVEN /DOUGLAS AIRCRAFT CO./
DATE- APR. 1965
WOO-118

Probe is developed to test strength of soldered, brazed or microwelded joints. It consists of a spring which may be adjusted to the desired test pressure by means of a threaded probe head, and an indicator lamp. Device may be used for electronic equipment testing.

B65-10113
SHOCK MOUNT ISOLATES PRESSURE TRANSDUCERS FROM VIBRATION
ROGERS, R. S., JR. DATE- APR. 1965
JPL-631

Pressure transducer is isolated from shock and vibration forces by a pressure-compensated shock mount. Silicone elastomer O-rings within the shock mount serve as shock and vibration-damping pads.

B65-10114
AVERAGING PROBE REDUCES STATIC-PRESSURE SENSING ERRORS
RITCHIE, V. S. DATE- APR. 1965
LANGLEY-36

Averaging the high and low pressure admitted to a plenum through circumferentially spaced orifices provides a probe that accurately senses the free-stream static pressure on an aerodynamic surface. This surface does not have a preferred angle of inclination to the direction of the airstream cross flow.

B65-10115
INERT GAS SPRAYING DEVICE AIDS IN REPAIR OF HAZARDOUS SYSTEMS
TELEHA, S. DATE- APR. 1965
LEWIS-8B

Inert gas spraying device aids in safely making mechanical repairs to a cryogenic fluid system without prior emptying of the system. This method can be applied to any natural or bottled gas system and with modifications to gasoline transports.

B65-10116
LOW-COST TOOL MINIMIZES DAMAGE TO O-RINGS DURING INSTALLATION
SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- APR. 1965
MSC-140

Tapered cylindrical tool enables O-ring installation over threaded fasteners without seal damage.

B65-10121
FLOW CONTROL VALVE IS INDEPENDENT OF PRESSURE DROP
SPON- INNOVATOR NOT GIVEN /THIOLKOL CHEM. CORP./
DATE- APR. 1965
JPL-WOO-039

Remote control of fluid flow in a low-power system is established by a flow control valve with a flapper and nozzle flow control. Constant rates are maintained despite fluctuating pressure across the valve.

B65-10126
COLLAPSIBLE TRUSS STRUCTURE IS AUTOMATICALLY EXPANDABLE
SPON- INNOVATOR NOT GIVEN /GE/ DATE- MAY 1965
GSFC-265

Coil springs wound with maximum initial tension in a three-truss, closed loop structure form a collapsible truss structure. The truss automatically expands and provides excellent rigidity and close dimensional tolerance when expanded.

B65-10130
COLLAR POSITIONS STRIP STOCK USED TO FORM COIL ON MANDREL
BLAZE, C. J. DATE- MAY 1965
JPL-198

Guide collar fastened to a mandrel helps form a coil of strip sheet metal stock. The collar maintains the strip stock in its proper position during winding of each turn of the coil.

B65-10131
APPARATUS FACILITATES PRESSURE-TESTING OF METAL TUBING
GYORGAK, C. A. DATE- MAY 1965
LEWIS-174

Burst-testing of refractory metal tubing is conducted in an apparatus in which tubular specimens are firmly gripped and test pressures and temperatures are applied. Porosity, flaw, and fatigue-stress rupture are also tested.

B65-10134
HIGH PERMEABILITY SEMICONDUCTORS PERMIT CLOSE-TOLERANCE SOLDERING
SPON- INNOVATOR NOT GIVEN /HUGHES AIRCRAFT CO./
DATE- MAY 1965
GSFC-319

High permeability semiconductors concentrate magnetic field energy in small areas to allow soldering of small components. This device can be used in microminiature parts in thin-film fabrication.

B65-10135
COILED SPRING MAKES SELF-LOCKING DEVICE FOR THREADED FASTENERS
SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- MAY 1965
MSC-149

Coiled spring device provides both easy self-locking and disassembly for screw-threaded fasteners. When the fastener turns in one direction the spring grips one of the fastener threads and releases when the fastener turns in the opposite direction.

B65-10141
INTEGRAL RIBS FORMED IN METAL PANELS BY COLD-PRESS EXTRUSION
BRADIE, P. R. SCHUERER, P. H. DATE- MAY 1965
M-FS-230

Metal panels with integral ribs are formed by the cold-press extrusion method without material loss. Integral ribs in aluminum-alloy panels are formed by this process.

B65-10144
LIGHTWEIGHT LOAD SUPPORT SERVES AS VIBRATION DAMPER
LAYMAN, W. E. DATE- MAY 1965
JPL-661

Omnidirectional antennas and solar panels can be supported by a thin-walled tubular strut. Silicon grease is used as the vibration-damping medium and a coil spring supports static loads.

B65-10147
IMPROVED FLUID CONTROL VALVE EXTENDS DIAPHRAGM LIFE
MAC GLASHAN, W. F. DATE- MAY 1965
JPL-345

Wear resistance of flexible diaphragms in fluid control valves is increased by incorporating a soft rubber washer at the bottom of the piston, a flexible buffer between the diaphragm and the valve seat, and a fluid feedback arrangement. The stress and wear of components at the valve seat

05 MECHANICAL

are minimized.

B65-10148

BIDIRECTIONAL TORQUE FILTER ELIMINATES
BACKLASH

BAKER, R. VEILETTE, L. WILLIAMS, S. DATE- MAY
1965

GSFC-335

Two elastic springs connecting a hub and two spur
gears absorb bidirectional step torque
differentials and provide antibacklash
characteristics between input and output shafts.
This device is used in precise control systems.

B65-10149

CANTILEVER SPRINGS MAINTAIN TENSION IN
THERMALLY EXPANDED WIRES

TERSELCIC, R. A. DATE- MAY 1965

LEWIS-136

Two deflected cantilever springs strung with wire
provide force displacement compensation to
maintain tension in the wires as they undergo
thermal expansion. This method of maintaining
tension in thermally expanded wires is used in
electric space heaters and residential heat
exchangers.

B65-10150

METAL BELLOWS CUSTOM-FABRICATED FROM TUBING
DATE- MAY 1965

LEWIS-192

Mandrel assembly mounted in a lathe chuck is used
with a forming wheel to roll-form bellows from
standard sheet metal tubing. Spacers and
mandrels of various sizes custom-fabricate bellows
of any desired dimensions.

B65-10153

TITANIUM TREATMENT IMPROVES BRAZED JOINTS

SPON- INNOVATOR NOT GIVEN /MIT/ DATE- MAY 1965

MSC-127

Pretreating metal with a thin coating of pure
titanium improves the wettability and flow of
brazing alloys. This can be used in the
manufacturing of aviation and aerospace components
where high strength-to-weight ratio must be
achieved.

B65-10154

SYSTEM MEASURES UNIDIRECTIONAL FORCES,
EXCLUDES EXTRANEOUS FORCES

BEHRENDT, D. R. HEGLAND, D. E. DATE- MAY 1965

LEWIS-170

System measures unidirectional force without
interference from other directional forces. The
measuring apparatus is mounted so that it only
moves vertically and is constrained from
horizontal and rotational movement. This system
can be used to accurately measure small forces in
one direction, or as an analytic balance.

B65-10160

LOW-COST SEAL COMPENSATES FOR SURFACE
IRREGULARITIES

SPON INNOVATOR NOT GIVEN /AEROJET-GEN. CORP./
DATE- JUN. 1965

NU-0016

Seal assembly consisting of a steel V ring and a
perforated tubular fluorocarbon polymer O ring
provides a barrier to gaseous and liquid hydrogen
under high pressure.

B65-10163

DEVICE DISCONNECTS SEVERAL COUPLINGS
SIMULTANEOUSLY

FORSYTHE, A. K. DATE- JUN. 1965

JPL-226

Actuator assembly disconnects electric cable and
fluid-line coupling from a rocket. The
disconnecter incorporates interconnected hydraulic
cylinders which effect an equal and simultaneous
displacement of pistons upon admission of
compressed air through a solenoid control valve.

B65-10166

SPlice PLATE DESIGN ASSURES STRUCTURAL
SEPARATION BY MILD EXPLOSIVE

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE-
JUN. 1965

MSC-137

Splice plate with mechanical joint is separated by
expanding gases of a mild detonating fuse. The
gas pressures of the low-yield explosive eliminate
component fragmentation and achieve excellent
control of the separation line.

B65-10168

LATHE ATTACHMENT USED TO MACHINE ELLIPTICAL
CONES

ALLEN, J. H., SR. WOBIG, O. A. DATE- JUN. 1965

MSC-100

Close-tolerance elliptical cones are fabricated by
cutting-tool guide assembly used with conventional
tracer cartridge on turret lathe accurately
produced in two machine operations.

B65-10170

METAL PARTS HYDROSIZED BY EXPLOSIVE FORCE

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE-
JUN. 1965

M-FS-289

Large metal parts are sized by a charge exploded
above a sealed container filled with evacuated die
and water. Explosive hydrosizing achieves close
dimensional tolerances, eliminates damage to the
surface, and allows longer force application and
more even pressure distribution.

B65-10174

PRESSURE TRANSDUCER SYSTEM IS FORCE-BALANCED,
HAS DIGITAL OUTPUT

SPON- INNOVATOR NOT GIVEN /MARSHALL/ DATE- JUN.
1965

M-FS-154

Forced-balanced pressure transducer and associated
circuitry controls pressure testing of space
equipment systems under actual operating
conditions. The transducer and circuitry
automatically converts the sensed pressure to
digital form.

B65-10176

DEVICE ENABLES MEASUREMENT OF MOMENTS OF
INERTIA ABOUT THREE AXES

CONN, J. DATE- JUN. 1965

GSFC-49

Device measures moments of inertia of an
irregularly shaped mass about three mutually
perpendicular axes by the standard pendulum and
torque methods. A fixture suspends the test mass
at one point and can be adjusted to allow
oscillation of the mass.

B65-10177

EPOXY-RESIN PATTERNS SPEED SHELL-MOLDING OF
ALUMINUM PARTS

SPON- INNOVATOR NOT GIVEN /ALABAMA UNIV./ DATE-
JUN. 1965

M-FS-303

Half patterns cast from commercial epoxy resin
containing aluminum powder are used for
shell-molding of aluminum parts. The half
patterns are cast in plastic molds of the original
wooden pattern. Ten serviceable sand resin molds
are made from each epoxy pattern.

B65-10180

NEW NUT AND SLEEVE IMPROVE FLARED CONNECTIONS

GARRARD, J. S. DATE- JUN. 1965

M-FS-194

Improved nut and sleeve of standard stainless
steel flared tube connection allows forces on the
mating surfaces to be uniformly applied. This can
be applied to pressurized fluid systems such as
refrigeration, air conditioning, and hydraulic
systems.

B65-10181

HAND TOOL BENDS COMPONENT LEADS ACCURATELY

SPON- INNOVATOR NOT GIVEN /CHRYSLER CORP./ DATE-
JUN. 1965

M-FS-308

Hand-operated die set bends, without damage,
electrical component leads to perfectly match
holes in printed circuit board. This tool speeds
up printed circuit fabrication and reduces the
number of component rejections.

B65-10185

DISPENSING SYSTEM ELIMINATES TORSION IN
DEPLOYED HOSESSPON- INNOVATOR NOT GIVEN /IIT RES. INST./ DATE-
JUN. 1965

MSC-80

Dispensing system uses a rotating drum, transfer arm, and stationary drum to deploy, reel in, and store an attached hose. This system which eliminates torsion and minimizes strain and wear of flexible hoses, is used for handling flexible cables that have one end permanently attached to an outlet or connector.

B65-10191

EXTENDIBLE COLUMN CAN BE STOWED ON DRUM

HOLTZ, G. M. HOWARD, E. A. DATE- JUN. 1965

JPL-686

Column formed from a series of segments held together by an internal spring or cable can be coiled on a drum or extended into a rigid structure. This storable coil is useful in boring for soil samples and supporting electrical and optical sensors.

B65-10192

SPIRAL HEATER COILS HAND-FORMED WITH FIXTURE

CHATTIN, J. H. DATE- JUN. 1965

LEWIS-208

Bench model jig and fixture used for hand fabricating spiral coils of various lengths from flat strip stock. This tool is used to make springs and coils to custom lengths.

B65-10198

SELF-ALIGNING FIXTURE USED IN LATHE CHUCK JAW

REFACING

LINN, C. C. DATE- JUN. 1965

FRC-21

Self-aligning tool positions and rigidly holds lathe chuck jaws for refacing and truing of the clamping surface. The jaws clamp the fixture in the manner of clamping a workpiece. The fixture can be modified to accommodate four-jawed checks.

B65-10201

ELECTRICAL CABLE CONNECTOR-CLAMP HAS SMOOTH

EXTERIOR SURFACE

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE-

JUN. 1965

MSC-154

Electrical cable connector-clamp fitted with a collet has a smooth exterior surface that can be easily gripped. The collet clamps a portion of the cable and provides for connecting it to a standard electrical connector.

B65-10205

BALL AND SOCKET JOINTS PROVIDE ACCURATE

BIAXIAL GIMBAL

ROUZE, E. R. DATE- JUL. 1965

JPL-658

Ball-and-socket joints are used to connect two rotating inputs to orthogonally pivoted outputs. This provides an accurate biaxial gimbal which will operate in continuous motion without backlash.

B65-10207

FLUID CHECK VALVE HAS FAIL-SAFE FEATURE

GAUL, L. C. DATE- JUL. 1965

JPL-0019

Check valve ensures unidirectional fluid flow and, in case of failure, vents the downstream fluid to the atmosphere and gives a positive indication of malfunction. This dual valve consists of a master check valve and a fail-safe valve.

B65-10210

FIBER GLASS DIES SPEED FORMING OF LARGE METAL

SHEETS

BROWN, R. L. SCHUERER, P. DATE- JUL. 1965

M-FS-214

Fiberglass tooling dies accelerate forming of large metal sheets. The dies, fabricated to fit over and fasten to the die bases, are lightweight, quickly replaced and have nongalling surfaces.

B65-10216

WIRE MESH ISOLATOR PROTECTS SENSITIVE
ELECTRONIC COMPONENTS

KERLEY, J. J., JR. DATE- JUL. 1965

GSFC-347

Sensitive electronic components are enclosed in wire mesh for protection. The wire mesh isolates the component from shock and vibration. It acts as a heat sink and as a screen against RF interference.

B65-10219

FLEXIBLE MAGNETIC PLANNING BOARDS ARE EASILY
TRANSPORTED

SPON- INNOVATOR NOT GIVEN /GEN. DYN.

/ASTRONAUTICS/ DATE- AUG. 1965

M-FS-340

Easily transportable preprinted magnetic planning boards are made by coating thin sheet steel with clear plastic. Flexible magnetic boards used with paper charts are constructed from close mesh steel screen.

B65-10222

INEXPENSIVE CHECK VALVE IS INSTALLED IN
STANDARD AN FITTINGS

MARTINEZ, J. S. DATE- AUG. 1965

JPL-2A

Check valve with a cylindrical flanged tube body is used in standard AN fittings. The valve also has an easily removable spring-loaded piston.

B65-10227

DIAPHRAGM ELIMINATES LEAKAGE IN CRYOGENIC
FLUID DUCT COUPLING

SPON- INNOVATOR NOT GIVEN /DOUGLAS AIRCRAFT CO./

DATE- AUG. 1965

WOO-142

Duct coupling with nickel steel diaphragm of low thermal expansivity is leakproof when used with cryogenic fluids. The diaphragm, located between the two flanges of the coupling, reduces axial shrinkage at the coupling flanges to a minimum.

B65-10229

SCOOP ATTACHMENT MAKES HELICOPTER RECOVERIES
EASIER AND SAFER

KOONS, W. E. DATE- AUG. 1965

MSC-130

Helicopter with rigid boom and net attachment performs rescue or recovery operations easily and safely. The attachment in the front of the helicopter scoops objects from difficult and otherwise inaccessible areas and pivots to the side hatch of the aircraft so that no crew member need leave the craft.

B65-10230

HYDRAULIC DEVICE PROVIDES ACCURATE

DISPLACEMENTS TO MICROINCHES

TSUTSUMI, K. /MIT/ DATE- AUG. 1965

MSC-112

Hydraulic drive device translates microinch deviation measurements into precise corrective displacements. The unit is driven by a servomotor activated by the output of an attitude sensing device.

B65-10231

HANDTOOL FACILITATES EXTRACTION OF CIRCUIT

MODULES

LUSBY, T. K., JR. DATE- AUG. 1965

LANGLEY-38

Compact handtool extracts electronic modules from circuit board socket. It is used on modules that have four small notches in the base of the plastic housing.

B65-10235

ANGULAR GLASS TUBING DRAWN FROM ROUND TUBING

SPON- INNOVATOR NOT GIVEN /DEBELL AND RICHARDSON/

DATE- AUG. 1965

HQ-20

Round glass tubing softened in a furnace is drawn over a shaped plug or mandrel to form shapes with other than a circular cross section. Irregularly shaped tubing is formed without limitations on tube length or wall thickness.

05 MECHANICAL

B65-10236

BURST DIAPHRAGM PROTECTS VACUUM VESSEL FROM INTERNAL PRESSURE TRANSIENTS

HOTZ, G. M. HOWARD, E. A. DATE- AUG. 1965
JPL-687

Supported dual-mode burst diaphragm protects vacuum vessels from transient internal pressures. It forms the interface between the vacuum in the vessel and an external pressure.

B65-10241

SHOCK ABSORBER OPERATES OVER WIDE RANGE

CREASY, W. K. JONES, J. C. DATE- AUG. 1965
MSC-168

Piston-type hydraulic shock absorber, with a metered damping system, operates over a wide range of kinetic energy loading rates. It is used for absorbing shock and vibration on mounted machinery and heavy earth-moving equipment.

B65-10245

CAPTIVE NUT FASTENER SECURELY JOINS BRITTLE MATERIALS

SACCOCIO, R. M. /WESTINGHOUSE ELEC. CORP./ DATE- AUG. 1965
NU-0008

Extension tube captive nut with a standard bolt joins assemblies with an inaccessible nut location. This fastener is excellent for joining brittle materials.

B65-10246

THERMOCOUPLE-TO-INSTRUMENTATION CONNECTOR FEATURES QUICK ASSEMBLY

HENSHAW, E. /WESTINGHOUSE ELEC. CORP./ DATE- AUG. 1965
NU-0022

Rigid thermocouple leads are connected to flexible instrumentation leads by a crimping and bridging process. This method eliminates the need for expensive transition sections and can be accomplished in about five minutes.

B65-10248

SYSTEM TRANSMITS MECHANICAL VIBRATION INTO HAZARDOUS ENVIRONMENT

ARMSTRONG, D. G. /WESTINGHOUSE ELEC. CO./ GAAL, A. E. DATE- AUG. 1965
NU-0025

Vibration transducers are tested in a hazardous environment using a single axis transmission system with an electromagnetic shaker table and vibrating wires which drive identical rocker arms, one in the test cell and the other outside. This system can be modified for a multiaxis configuration.

B65-10251

CONTROL OF COMPONENT DIFFERENTIAL HARDNESS INCREASES BEARING LIFE

ANDERSON, W. J. PARKER, R. J. ZARETSKY, E. V. DATE- AUG. 1965
LEWIS-190

Bearing fatigue life is maximized when the bearing ball or roller hardness is between one and two points greater than that of the bearing race as measured on the Rockwell C scale.

B65-10254

REMOTELY OPERATED CLAMPING TOOL HAS POSITIVE GRIP

ADUCCI, S. A. /WESTINGHOUSE ELEC. CORP./ SEWALD, A. W. DATE- AUG. 1965
NU-0020

Jaw-type clamping tool inserts or removes objects in a hazardous environment. It has a strong, positive gripping force which is remotely operated by means of a wedge-screw mechanism.

B65-10256

HOLLOW PLASTIC HOOPS PROTECT THERMOCOUPLE IN STORAGE AND HANDLING

OSMOND, L. H. /WESTINGHOUSE ELEC. CORP./ DATE- AUG. 1965
NU-0023

Thermocouples are shipped and stored in hollow plastic hoops. The hoop is an inexpensive but efficient method of protection.

B65-10262

ROTATING HOLDER PERMITS ACCURATE GRINDING OF METALLURGICAL MICROSAMPLES

CHAMER, D. L. DATE- SEP. 1965
LEWIS-131

Metallurgical microsamples are held in a fixture which rotates the sample across a rotating grinding wheel. The dual rotation results in a level, flat surface on the sample.

B65-10266

ONE-SHOT VALVE MAY BE REMOTELY ACTUATED

KAMI, S. /HUGHES AIRCRAFT CO./ DATE- SEP. 1965
WOO-195

One-shot valve, with spring-loaded plunger and sealing diaphragm, incorporates an emergency release actuated by a remote sensor. The plunger is released by the electrical melting of a fuse link and pierces the valve seal. The valve lowers fluid pressure in a container without losing the contained fluid.

B65-10285

DIFFERENTIAL PRESSURE GAUGE HAS FAST RESPONSE

WEBER, H. S. /ARMOUR RES. FOUND./ DATE- SEP. 1965
M-FS-358

Differential pressure gage with semiconductor type strain gage elements measures rapidly changing pressure. Output of the strain gage elements is a dc voltage that is directly proportional to the pressure difference being measured.

B65-10312

AIR BRAKE-DYNAMOMETER ACCURATELY MEASURES TORQUE

SPON- INNOVATOR NOT GIVEN /LEWIS/ DATE- OCT. 1965
LEWIS-163

Air brake-dynamometer assembly combines the principles of the air turbine and the air pump to apply braking torque. The assembly absorbs and measures power outputs of rotating machinery over a wide range of shaft speeds. It can also be used as an air turbine.

B65-10319

REFRACTORY METALS WELDED OR BRAZED WITH TUNGSTEN INERT GAS EQUIPMENT

WISNER, J. P. DATE- OCT. 1965
LEWIS-219

Appropriate brazing metals and temperatures facilitate the welding or brazing of base metals with tungsten inert gas equipment. The highest quality bond is obtained when TIG welding is performed in an inert atmosphere.

B65-10323

VOLUMETRIC SYSTEM CALIBRATES METERS FOR LARGE FLOW RATES

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- NOV. 1965
WOO-130

Volumetric system calibrates meters used for large liquid flow rates. The system employs trip probes and equipment to time the flow of liquid from a tare vessel into a calibrated vessel. This calibration system is used in the petroleum and chemical industries.

B65-10326

ROUGH SURFACE IMPROVES STABILITY OF AIR-SOUNDING BALLOONS

SCOGGINS, J. R. DATE- NOV. 1965
M-FS-320

Aerodynamic stability of balloons used for measuring the intensity and direction of atmospheric winds at various elevations is improved by incorporating a rough surface on the balloons. The rough-surfaced balloon is useful for collecting wind profiles and other meteorological data.

B65-10327

PRESSURE RESPONSIVE SEAL HANDLES STATIC AND DYNAMIC LOADS

MARSH, H. W. /N. AM. AVIATION/ DATE- NOV. 1965
GSPC-441

Ported ball valves are sealed under both static and dynamic load conditions by a line-pressure

responsive double-acting seal. The top of the seal engages the ported ball at the outer circumferential edge of the seal upper end, and the bottom of the seal seats on a flat circular land with a continuous wall.

B65-10334
FREQUENCY DIVIDER IS FREE OF SPURIOUS OUTPUTS
MC DERMOND, D. DATE- NOV. 1965
GSFC-308

Frequency divider provides sixteen output states free of spurious pulses from four input circuits. The input is binary coded, and a change of one in the input only changes the number of output states by one.

B65-10338
INERT-GAS WELDING AND BRAZING ENCLOSURE
FABRICATED FROM SHEET PLASTIC
WISNER, J. P. DATE- NOV. 1965
LEWIS-220

Custom-fabricated plastic bag maintains an inert-gas atmosphere for welding and brazing certain metals. The bag fits over part of the workpieces and the welding and brazing tools. It is also used for metal brazing and fusion plating which require an inert-gas atmosphere.

B65-10339
DISK CALCULATOR INDICATES LEGIBLE LETTERING
SIZE FOR SLIDE PROJECTION
HULTBERG, R. R. DATE- NOV. 1965
GSFC-409

Hand-operated disk calculator indicates the minimum size of letters and numbers in relation to the width and height of a working drawing. The lettering is legible when a slide of the drawing is projected.

B65-10342
ELECTROMAGNETIC HAMMER REMOVES WELD
DISTORTIONS FROM ALUMINUM TANKS
SCHWINGHAMER, R. J. DATE- NOV. 1965
M-FS-287

Distortions around weld areas on sheet-aluminum tanks and other structures are removed with a portable electromagnetic hammer. The hammer incorporates a coil that generates a controlled high-energy pulsed magnetic field over localized areas on the metal surface.

B65-10346
IMPROVED POPPET VALVE PROVIDES POSITIVE
DAMAGEPROOF SEAL
WALLACE, E. D. DATE- NOV. 1965
M-FS-293

Soft-seat poppet valve provides positive closure against fluid without damage to the seating surface on repeated cycling. It incorporates two compressible soft rings and a retaining ring of hard metal. Sealing is effected when the poppet seat is forced into intimate contact with a mating surface on one of the soft rings.

B65-10348
STANDOFF TOOL SPEEDS PLACEMENT OF FRICTION-FIT
ELECTRICAL TERMINALS
MOORE, D. J. SKIESTROM, W. W. /SPACE TECHNOL.
LABS./ DATE- NOV. 1965
WOO-029

Hand operated tool inserts terminals through compartment walls in electronic equipment. The tool is in the configuration of a modified pair of pliers with jaws consisting of a split chuck and anvil.

B65-10351
HYDRAULIC DRIVE SYSTEM PREVENTS BACKLASH
ACORD, J. D. DATE- NOV. 1965
JPL-371

Hydraulic drive system uses a second drive motor operating at reduced torque. This exerts a relative braking action which eliminates the normal gear train backlash that is intolerable when driving certain heavy loads.

B65-10358
FASTENER DISTRIBUTES STRESS EVENLY FROM
SANDWICH-PANEL-HUNG ITEMS

SHAPIRO, J. /N. AM. AVIATION/ DATE- NOV. 1965
MSC-236

Items are attached externally to cellular-core sandwich panels by a fastener anchored in the panel by a constant amount of adhesive. The changes caused to the core cells and skin sheets are minimized.

B65-10360
PORTABLE TOOL REMOVES BURRS FROM PIPE AND
TUBING
HEADLEY, C. A. PADILLA, V. E. SCHOPPMAN, R. A.
/MCDONNELL AIRCRAFT CORP./ DATE- NOV. 1965
MSC-237

Portable tool cleanly removes burrs that remain on tubing when it is cut. It restores the cut end to its original configuration, and carries away all chips and pieces. This tool is used in places of limited access where a larger tool could not be used.

B65-10367
FLEXIBLE PLASTIC RING ASSEMBLY MAKES DURABLE
SHAFT SEAL
SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE-
DEC. 1965
WOO-227

Stacked flexible rings interleaved with solid metal rings of smaller width provide a durable seal ring for rotating shafts used in vacuum or pressure pumps.

B65-10370
BRAZING METHOD PRODUCES SOLID-SOLUTION BOND
BETWEEN REFRACTORY METALS
SPON- INNOVATOR NOT GIVEN /AVCO CORP./ DATE- DEC.
1965
LEWIS-212

Brazing two refractory metals by diffusion bonding minimizes distortion and avoids excessive grain growth in the metals. This method requires the selection of an interface metal that forms intermediate low-melting eutectics or solid solutions with the metals to be brazed.

B65-10371
UNIVERSAL BELLOWS JOINT RESTRAINT PERMITS
ANGULAR AND OFFSET MOVEMENT
KUHN, R. F., JR. /N. AM. AVIATION/ DATE- DEC.
1965
WOO-102

Universal joint-type restraint that employs ball joints permits maximum angular and lateral offset movement in a bellows joint without danger of rupture or pressure drop in the line. It is used in high pressure and high temperature applications in refineries, steam plants, or stationary power plants.

B65-10375
PORTABLE TOOL CLEANS PIPES AND TUBING
HEADLEY, C. A. /MCDONNELL AIRCRAFT CORP./
HEADLEY, R. JONES, D. D. DATE- DEC. 1965
MSC-238

Portable tool cleans and polishes the external surfaces of tubes and pipes without contaminating the interior areas with loose particles. The tool is driven by an electric drill and is connected to a vacuum source that removes debris resulting from the cleaning and polishing action.

B65-10378
REINFORCEMENT CORE FACILITATES O-RING
INSTALLATION
SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE-
DEC. 1965
WOO-228

Reinforcement core holds O-ring in place within a structure while adjacent parts are being assembled. The core in the O-ring adds circumferential rigidity to the O-ring material. This inner core does not appreciably affect the sectional elasticity or gland-sealing characteristics of the O-ring.

B65-10383
THREADED SPLIT RING CONNECTOR SEPARATES
STRUCTURAL SECTIONS
MAYO, J. W. DATE- JUL. 1965

05 MECHANICAL

LANGLEY-145

Threaded split ring connector quickly and cleanly separates two structural members by remote control. The connector is retained in an expanded position by spring plates that are deflected and held by an explosive bolt. Ignition of the bolt effects the separation. This conceptual approach lends itself to various configurations and sizes of structures.

B65-10385

RACK MOUNT DEVICE QUICKLY INSERTS OR EXTRACTS CHASSIS UNITS

HAERTHER, L. W. ZIMMERMAN, P. A. /COLLINS RADIO CO./ DATE- DEC. 1965
MSC-244

Rack mounted chassis units are quickly inserted or extracted by a device which is driven in either direction by turning a simple hand crank. This device is used in aircraft and water craft.

B65-10386

DRILL BIT DESIGN ASSURES CLEAN HOLES IN LAMINATED MATERIALS

TILLOTSON, R. N. /DOUGLAS AIRCRAFT CO./ DATE- DEC. 1965
WOO-098

Drill bit eliminates delamination when drilling laminated material. It cuts or shaves the material as it progresses through it. The bit acts to hold down the material during drilling to prevent tearing or ripping and produces a clean, smooth and defect-free hole. It prevents chipping in stretched plastic windows for high-altitude, high-performance aircraft.

B65-10388

STRAINER FITS INSIDE FLARED-TUBE FITTINGS

PARKER, O. J. DATE- DEC. 1965

LANGLEY-180

Cylindrical wire-mesh strainer which fits inside flare-tube fittings is readily installed and easily replaced. It has a collar that seats on the tapered shoulder of the male fitting.

B65-10391

TUNGSTEN WIRE AND TUBING JOINED BY NICKEL

BRAZING

SPON- INNOVATOR NOT GIVEN /AUTO-CONTROLS LABS./ DATE- DEC. 1965
M-FS-394

Thin tungsten wire and tungsten tubing are brazed together using a contacting coil of nickel wire heated to its melting point in an inert-gas atmosphere. This method is also effective for brazing tungsten to tungsten-rhenium parts.

B65-10393

DIE AND TELESCOPING PUNCH FORM CONVOLUTIONS IN THIN DIAPHRAGM

SPON- INNOVATOR NOT GIVEN /HONEYWELL/ DATE- DEC. 1965

JPL-SC-135

Die and punch set forms convolutions in thin dished metal diaphragm without stretching the metal too thin at sharp curvatures. The die corresponds to the metal shape to be formed, and the punch consists of elements that progressively slide against one another under the restraint of a compressed-air cushion to mate with the die.

B65-10394

CENTRIFUGAL DEVICE SEPARATES LIQUID FROM GAS

HANDLEWICH, R. M. /UNITED AIRCRAFT CORP./

STROUP, K. E. DATE- DEC. 1965

MSC-282

Liquid-to-gas ratio is reduced from maximum efficiency of jet engine fuel by a centrifugal separator. The amount of liquid removed from the fuel is controlled by the separator-screen mesh size and its rotational speed.

B65-10401

PHOTOSENSORS USED TO MAINTAIN WELDING

ELECTRODE-TO-JOINT ALIGNMENT

BOWEN, J. B. /N. AM. AVIATION/ DATE- DEC. 1965

MSC-243

Photosensors maintain electrode-to-joint alignment in automatic precision arc welding. They detect

the presence and relative position of a joint to be welded and actuate a servomechanism to guide the welding head accordingly thus permitting alignment for more than straight line or true circle joints.

B65-10402

LIGHTWEIGHT DOOR SEALS CRYOGENIC CONTAINER AGAINST DIAPHRAGM TYPE LOADING

ENGLEHART, R. C., JR. /N. AM. AVIATION/ DATE- DEC. 1965

M-FS-476

Lightweight, removable, sealed joint access door for a spherical or semispherical pressure vessel containing cryogenic materials uses a joint overlock design to take the shear and moment loads. Oversize bolt holes are used so that the attaching bolts are in tension only.

B66-10001

FORMING TOOL IMPROVES QUALITY OF TUBING FLARES

SPON- INNOVATOR NOT GIVEN /GEN. DYN.

/ASTRONAUTICS/ DATE- JAN. 1966

WOO-231

Punch and die set improves the quality of tubing flares for use with standard flared-tube fittings in high-pressure systems. It forges a dimensionally accurate flare in the tubing and forces more tubing material into the high-stress areas to improve the strength and tightness of the tubing connection.

B66-10003

IMPROVED TOOL EASILY REMOVES BRAZED TUBE CONNECTORS

SCHOPPMAN, R. A. /MCDONNELL AIRCRAFT CORP./

DATE- JAN. 1966

MSC-263

Portable, compact tool quickly and cleanly removes brazed connectors from system tubes. The tool uses an induction coil to melt the braze and a compression spring to automatically separate the connection. An inert gas is force-fed about the heated area to prevent oxidation of the tube.

B66-10007

FLOATING DEVICE ALIGNS BLIND CONNECTIONS

RESEL, J. E. /N. AM. AVIATION/ DATE- JAN. 1966

MSC-256

Panel-mounted connectors overcome the misalignment of blind connectors in electronic rack mounted equipment. The connector is free to move in the vertical direction by the action of a parallelogram mount. This freedom of motion maintains the guide pin hole centerline parallel to the guide pin centerline at all times.

B66-10011

TORQUE WRENCH DESIGNED FOR RESTRICTED AREAS

FAGERBERG, E. B. /LOCKHEED MISSILES AND SPACE

CO./ DATE- JAN. 1966

LEWIS-246

Wrench with twisting handle grip applies torque to a fastener in a restricted area. The wrench handle may be any length without affecting output torque.

B66-10014

EXPLOSIVE FORCE OF PRIMACORD GRID FORMS LARGE SHEET METAL PARTS

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- JAN. 1966

REAN- SEE ALSO NASA-SP-5017

M-FS-316

Primacord which is woven through fish netting in a grid pattern is used for explosive forming of large sheet metal parts. The explosive force generated by the primacord detonation is uniformly distributed over the entire surface of the sheet metal workpiece.

B66-10018

COMPACT RETRACTOR PROTECTS CABLING LOOPS

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- JAN. 1966

M-FS-561

Core and swivel retractor mechanism combined with cable stiffeners provides compact, long-wearing protection for cabling loops in cabinet-mounted electronic equipment drawers.

B66-10019

**BUOYANT STOKES LITTER ASSEMBLY USED FOR SEA
RESCUE OPERATIONS**

 POLLARD, R. A. SHEWMAKE, G. A. DATE- JAN. 1966
MSC-131

Standard stokes litter is fastened to inflatable flotation units for sea rescue operations. The assembly keeps an injured person immobilized during transportation to a first aid station.

B66-10020

**O-RING TUBE FITTINGS FORM LEAKPROOF SEAL IN
HYDRAULIC SYSTEMS**

 SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE-
JAN. 1966
M-FS-481

Leakproof fittings for hydraulic systems are designed to be welded to the ends of the tubing to be joined and mated to form a seal with one o-ring at the joint. Since the fittings are coupled at only one joint, they tend to be more reliable than standard fittings coupled at two joints.

B66-10022

**RING VALVE RESPONDS TO DIFFERENTIAL PRESSURE
CHANGES**

 SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE-
JAN. 1966
WOO-247

Pressure valve has a moving annular ring seal that automatically reacts to differential pressure changes across the seat. This valve has good potential for the petroleum and chemical industries.

B66-10023

SIMPLE KEY LOCKS TURBINE ROTOR BLADES

 SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE-
JAN. 1966
WOO-103

Symmetrical, cruciform key has end tabs which bend up to lock turbine rotor blades against axial displacement. The key locks without introducing aerodynamic resistance or upsetting rotor balance.

B66-10030

**FRICTION DEVICE DAMPS LINEAR MOTION OF
ROTATING SHAFT**

 SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE-
JAN. 1966
WOO-214

Damping device checks the axial motion of a rotating shaft by exerting a controllable, radial frictional load to the outer race of the ball bearing in which the shaft is mounted. The device can be used as a soft bearing mount to damp resonant frequencies at critical shaft speed.

B66-10032

**SHEET METAL STRIP UNROLLS TO FORM CIRCULAR
BOOM**

 SPON- INNOVATOR NOT GIVEN /MELPAR, INC./ DATE-
JAN. 1966
GSPC-423

Preformed metal strip, coiled flat on a storage drum, unrolls to form a cylindrical boom. Tabs and slots on opposite sides of the strip interlock to form a continuous circular cross section. This retractable boom can be used as a spacecraft antenna, gravity gradient, or positioning device.

B66-10035

**RESILIENT CLAMP HOLDS FUEL CELL STACK THROUGH
THERMAL CYCLE**

 SHINN, B. H. /UNITED AIRCRAFT CORP./ DATE- FEB.
1966
MSC-313

Resilient clamping device holds a stack of fuel cells during thermal expansion and contraction periods. The clamp has torsion bar action which maintains seal integrity over a wide stress range.

B66-10040

**ASSEMBLY JIG ASSURES RELIABLE SOLAR CELL
MODULES**

 OFARRELL, H. O. /TRW SPACE TECHNOL. LABS./ DATE-
FEB. 1966
GSPC-455

Assembly jig holds the components for a solar cell

module in place as the assembly is soldered and bonded by the even heat of an oven. The jig is designed to the configuration of the planned module. It eliminates uneven thermal conditions caused by hand soldering methods.

B66-10047

HEATED DIE FACILITATES TUNGSTEN FORMING

 CHATTIN, J. H. HAYSTRICK, J. E. LAUGHLIN, J. C.
LEIDY, R. A. DATE- FEB. 1966
LEWIS-25A

Tungsten forming in a press brake employs a bottom die assembly with a heating manifold between two water-cooled die sections. The manifold has hydrogen-oxygen burners spaced along its length for even heat during forming.

B66-10052

**COMBUSTION CHAMBER INLET MANIFOLD SEPARATES
VAPOR FROM LIQUID**

 BAKER, D. I. /N. AM. AVIATION/ DATE- FEB. 1966
REAN- SEE ALSO B63-10251
M-FS-531

Circular manifold with tangential orifices at the inner circumference provides for the vapor constituent of a vaporized cryogenic propellant to enter a rocket combustion chamber before the liquid constituent. The vapor is separated from the liquid by centrifugal action and precedes it into the chamber through carefully positioned orifices.

B66-10054

**MODIFIED POWER TOOL RAPIDLY DRIVES SERIES
TORQUE BOLTS**

 SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE-
FEB. 1966
MSC-221

Feeder attachment, which fits on a standard power driver, drives a series of longitudinally attached torque bolts into place with great speed. It allows loading of a series of bolts and then positions individual bolts in the driving head for assembly. The attachment contains a socket gun which may be modified to accommodate different types and sizes of bolts.

B66-10055

**HYDROGEN-ATMOSPHERE INDUCTION FURNACE HAS
INCREASED TEMPERATURE RANGE**

 CAVES, R. M. GRESSLIN, C. H. DATE- FEB. 1966
LEWIS-153

Improved hydrogen-atmosphere induction furnace operates at temperatures up to 5,350 deg F. The furnace heats up from room temperature to 4,750 deg F in 30 seconds and cools down to room temperature in 2 minutes.

B66-10056

**BENCH VISE ADAPTER GRIPS TUBING SECURELY AND
SAFELY**

 HOWLAND, B. T. JONES, A. S., JR. /N. AM.
AVIATION/ DATE- FEB. 1966
MSC-279

Plastic self-compressing adapter with grooves, attached to the jaws of a bench vise, secures thin-wall tubing vertically or horizontally during cutting and flaring operations without marring or damaging it. Magnets incorporated in both sections of the adapter prevent detachment from the jaws when the vise is opened.

B66-10059

**CALIBRATED CLAMP FACILITATES PRESSURE
APPLICATION**

 SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE-
FEB. 1966
MSC-298

Spring-loaded clamp applies specific pressure to hold materials together during bonding, welding, and machining. The clamp has two adjustable legs terminating in suction cups for easy attachment to a surface.

B66-10061

**INSTRUMENT QUICKLY TRANSPOSES GROUND REFERENCE
TARGET TO EYE LEVEL**

 GREEN, B. E. VAN DEVENTER, E. L. /N. AM.
AVIATION/ DATE- FEB. 1966

05 MECHANICAL

MSC-275

Optical alignment of equipment is facilitated by a traverse target with a string suspending a plumb bob to transpose the ground level point to eye level operation. This instrument appreciably decreases the time required from the present method but achieves the same degree of precision.

B66-10063

TENSILE-STRENGTH APPARATUS APPLIES HIGH STRAIN-RATE LOADING WITH MINIMUM SHOCK
COTRILL, H. E., JR. MAC GLASHAN, W. F.
DATE- FEB. 1966
JPL-28 JPL-29

Tensile-strength testing apparatus employs a capillary bundle through which a noncompressible fluid is extruded and a quick-release valve system. This apparatus applies the test loads at relatively constant very high strain rates with minimal shock and vibration to the tensile specimen and apparatus.

B66-10065

T-HANDLE WRENCH HAS TORQUE-LIMITING ACTION
KEMPLE, S. B. /N. AM. AVIATION/ DATE- FEB. 1966
MSC-280

T-handle wrench can be preset to release when a certain torque value is exceeded by means of a spring-loaded roller and groove torque-limiting mechanism contained in the handle of the wrench. The wrench is also equipped with a push button in the handle that permits the operator to lock the handle to the spindle shaft, thus eliminating the torque-limiting function.

B66-10069

RUN-IN WITH CHEMICAL ADDITIVE PROTECTS GEAR SURFACE
HARTMAN, M. A. /N. AM. AVIATION/ DATE- FEB. 1966
M-FS-548

Run-in treatment provides a protective coating on turbopump gear surfaces so that they are capable of operation under marginal conditions in mineral oil and diester lubricants. This treatment protects highly loaded gears during relatively short-term operation.

B66-10071

MECHANISM ISOLATES LOAD WEIGHING CELL DURING LIFTING OF LOAD
HAIGLER, J. S. /N. AM. AVIATION/ DATE- FEB. 1966
MSC-297

Load weighing cell used in conjunction with a hoist is isolated during lifting and manipulation of the load. A simple mechanism, attached to a crane hook, provides a screw adjustment for engaging the load cell during weighing of the load and isolating it from lift forces during hoisting of the load.

B66-10073

CALCULATIONS ENABLE OPTIMUM DESIGN OF MAGNETIC BRAKE
KOSMAHL, H. G. DATE- FEB. 1966
LEWIS-251

Mathematical analysis and computations determine optimum magnetic coil configurations for a magnetic brake which controllably decelerates a free falling load to a soft stop. Calculations on unconventionally wound coils determine the required parameters for the desired deceleration with minimum electrical energy supplied to the stationary coil.

B66-10074

THREADED PILOT INSURES CUTTING TOOL ALIGNMENT
GOLDMAN, R. /N. AM. AVIATION/ SCHNEIDER, W. E.
DATE- FEB. 1966
M-FS-527

Threaded pilot allows machining of a port component, or boss, after the reciprocating hole has been threaded. It is used to align cutting surfaces with the boss threads, thus insuring precision alignment.

B66-10076

SHOULDER ADAPTER STEADIES SPOT WELDING GUN
LOVE, T. H. DATE- MAR. 1966

M-FS-321

Shoulder adapter fits on one end of a hand-held spot welding gun. With the adapter, the operator can hold the gun steadily at uniform pressure to ensure defect-free welds.

B66-10077

PLUGGED HOLLOW SHAFT MAKES FATIGUE-RESISTANT SHEAR PIN
HANKINSON, T. W. E. DATE- MAR. 1966
LANGLEY-195

Shear pin coupling with plugged hollow shaft provides required load capacity for shaft protection and has no groove to induce fatigue failure.

B66-10078

THERMAL MOTOR POSITIONS MAGNETOMETER SENSORS
KERNIN, W. J. SCOTT, S. G. DATE- MAR. 1966
ARC-51

Reversing, thermal, motor-driven device positions magnetometer sensors for checking zero offset. The device alternately positions two sensors at fixed positions 90 degrees apart. The thermal motor is fabricated completely of nonmagnetic materials.

B66-10080

NYLON SHOCK ABSORBER PREVENTS INJURY TO PARACHUTE JUMPERS
MANDEL, J. A. /GOODYEAR AEROSPACE CORP./ DATE- MAR. 1966
MSC-226

Nylon shock absorbers reduce the canopy-opening shock of a parachute to a level that protects the wearer from injury. A shock absorber is mounted on each of the four risers between the shroud lines and the harness. Because of their size and location, they pose no problem in repacking the chute and harness after a jump.

B66-10092

FINGERTIP CURRENT CONTROL FACILITATES USE OF ARC WELDING GUN
ROTH, B. /N. AM. AVIATION/ DATE- MAR. 1966
MSC-289

Fingertip-operated trigger accurately controls the current supplied to an arc welding gun. The trigger is mounted directly on the handle of the gun.

B66-10093

TOOL PROVIDES CONSTANT PURGE DURING TUBE WELDING
LANG, E. R. /N. AM. AVIATION/ DATE- MAR. 1966
M-FS-547

Tool provides a constant purge of inert gas during in-place welding of tubular components to prevent contamination and oxidation. It also permits self-jiggings of the tube and sleeve to be welded.

B66-10100

QUEUEING REGISTER USES FLUID LOGIC ELEMENTS
SPON- INNOVATOR NOT GIVEN /UNIVAC DIV. OF SPERRY RAND/ DATE- MAR. 1966
M-FS-317

Queueing register /a multistage bit-shifting device/ uses a series of pure fluid elements to perform the required logic operations. The register has several stages of three-state pure fluid elements combined with two-input NOR gates.

B66-10102

PIPE CUTTING TOOL IS USEFUL IN LIMITED SPACE
HEADLEY, C. A. /MCDONNELL AIRCRAFT CORP./
JONES, D. D. DATE- MAR. 1966
MSC-36

Portable pipe cutting tool is used in areas of limited space. The pipe is clamped in the tool and then cut by a rotating cutter assembly that is internally connected to a drive shaft engaged in the chuck of a portable electric drill. The tool is held in a fixed position during the cutting operation.

B66-10107

MECHANISM CONTINUOUSLY MEASURES STATIC AND DYNAMIC CABLE LOADS
SPON- INNOVATOR NOT GIVEN /HOUSTON/ DATE- MAR. 1966

MSC-217

Pulley mechanism measures the tensile loads on a cable under static and dynamic conditions, without disturbing the continuity of operation of the system. A set of takeoff pulleys are mounted on a pivoted frame that is linked to a strain gage which measures the frame displacement as a function of the static or dynamic tensile load on the cable.

B66-10115

SOLDERING TOOL HEATS WORKPIECES AND APPLIES
SOLDER IN ONE OPERATION

GUDKESE, V. W. DATE- MAY 1966

LEWIS-247

Fountain-pen type soldering iron heats workpieces and applies solder to joints in densely packed electronics assemblies. The basic soldering tool is used with different-sized orifice tips, eliminating the need for an assortment of conventional soldering guns.

B66-10116

TELESCOPING OF INSTRUMENTATION TUBING
ELIMINATES SWAGING

MC CLELLAN, E. L. /N. AM. AVIATION/ DATE- MAY 1966

M-FS-546

Short sections of stainless steel tubing of slide-fit sizes fitted together and silver-soldered at the junctions form small-diameter tubing assemblies with accurately stepped-down dimensions. This method of fabrication eliminates the costly swaging operations formerly used.

B66-10123

HAND DRILL ADAPTER LIMITS HOLES TO DESIRED
DEPTH

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- MAR. 1966

MSC-346

Adjustable adapter fastened to the shank of a drill bit limits the depth of bored holes. The adapter may be made in sizes appropriate for bits of different diameters.

B66-10124

ECONOMICAL AND MAINTENANCE-FREE GAS SYSTEM
OPERATES RAILROAD SWITCHES

VISSING, G. S. DATE- MAR. 1966

NU-0045

Remote control system that uses bottled nitrogen as a power source operates infrequently used railroad switches. This system is economical and maintenance free.

B66-10125

ALUMINUM OXIDE FILLER PREVENTS OBSTRUCTIONS
IN TUBING DURING WELDING

OKELLY, K. P. DATE- MAR. 1966

MSC-222

Granular aluminum oxide is used as filler in serpentine tubing while welding the tubing to a flat surface. The filler eliminates obstructions in the tubes formed by molten weld nuggets and is porous enough to allow gases to escape from the welding area.

B66-10132

EXPANDABLE INSERT SERVES AS SCREW ANCHOR

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- MAR. 1966

MSC-301

Expandable self-locking adapter secures components to panels having one accessible side. Mounting holes in the panels may not be threaded to accommodate screws, therefore, the adapter contains a female thread that will mate a mounting screw.

B66-10135

CHART CASE OPENS TO FORM BRIEFING EASEL

NELSON, R. A. /N. AM. AVIATION/ DATE- APR. 1966

MSC-349

Aluminum carrying case protects charts during transit and opens to form a rigid easel for their presentation. Looseleaf clamps hold the charts in place for both carrying and displaying them.

B66-10136

CRYOGENIC TRAP VALVE HAS NO MOVING PARTS

BRANUM, L. W. WELLS, G. /N. AM. AVIATION/ DATE- APR. 1966

M-FS-487

Aluminum-body trap valve with an invar stem keeps cryogenic materials in the liquid state while entering the final component of a system. The valve has no moving parts and is self-actuated and self-monitoring.

B66-10137

ROTATING MANDREL SPEEDS ASSEMBLY OF PLASTIC
INFLATABLES

MAC PADDEN, J. A. /SCHJELDAHL /G.T./ CO./

STENLUND, S. J. DATE- APR. 1966

LANGLEY-155

Rotating mandrel permits the accurate cutting, forming, and sealing of plastic gores for assembly of an inflatable surface of revolution. The gores remain on the mandrel until the final seam is reached. Tolerances are tightly controlled by the mandrel configuration.

B66-10145

PORTABLE POWER TOOL MACHINES WELD JOINTS IN
FIELD

SPIER, R. A. DATE- APR. 1966

M-FS-258

Portable routing machine for cutting precise weld joints required by nonstandard pipe sections used in the field for transfer of cryogenic fluids. This tool is adaptable for various sizes of pipes and has a selection of router bits for different joint configurations.

B66-10146

EXTENDABLE MAST USED IN ONE SHOT SOIL
PENETROMETER

HOTZ, G. M. HOWARD, G. A. DATE- APR. 1966

JPL-685

Penetrometer to test soil characteristics has a piercing head with soil instrumentation equipment attached to an expandable mast actuated by compressed air. The penetrometer gives continuous measurements as the mast pushes the piercing head through the soil.

B66-10149

DEPTH INDICATOR AND STOP AID MACHINING TO
PRECISE TOLERANCES

LAVERY, J. L. /N. AM. AVIATION/ DATE- APR. 1966

M-FS-553

Attachment for machine tools provides a visual indication of the depth of cut and a positive stop to prevent overcutting. This attachment is used with drill presses, vertical milling machines, and jig borers.

B66-10150

MOUNTING FACILITATES REMOVAL AND INSTALLATION
OF FLAME-DETECTOR RODS

CASTLE, F. /N. AM. AVIATION/ DATE- APR. 1966

M-FS-555

Flame-detector-rod holder is easily removed from the wall of a gas-fired furnace for maintenance or replacement of the detector rod without requiring shutdown of the furnace. The holder consists of an externally threaded outer bushing, a sleeve which is held inside the outer bushing with a set screw, and a detector rod assembly which screws into the sleeve.

B66-10151

SPLIT GLASS TUBE ASSURES QUALITY IN ELECTRON
BEAM BRAZING

KRESSIN, W. J. /N. AM. AVIATION/ DATE- APR. 1966

M-FS-564

Sealed enclosure of heat-resistant glass tubing and silicone rubber molds provide good visibility for electron beam brazing of metal tubes in an inert gas atmosphere. The glass tubing and rubber molds, which are bonded together, are easily applied to and removed from the brazing area by operation of a clamp.

B66-10152

NYLON BIT REMOVES CORK INSULATION WITHOUT
DAMAGE TO SUBSTRATE

05 MECHANICAL

CRANDALL, J. C. /N. AM. AVIATION/ DATE- APR. 1966
MSC-381

Nylon router bit in an electric hand-held drill removes small quantities of cork insulation from a metal or fiber glass surface without cutting or scratching the surface.

B66-10155
SIMPLE DEVICE FACILITATES INERT-GAS WELDING OF TUBES

CARRITHERS, K. V. /N. AM. AVIATION/ KELLEY, W. B. DATE- APR. 1966
M-FS-558

Metal Y-tube simultaneously directs argon streams over weld areas on both sides of tubes being joined along a line on their outer periphery. The device is advanced along the junction in step with the welding operation.

B66-10167
DUAL REGULATOR CONTROLS TWO GASES FROM A SINGLE REFERENCE

JACKSON, K. /GARRETT CORP./ DATE- APR. 1966
MSC-227

Dual-pressure regulator uses single reference for parallel control of two gases. The regulator uses an external fluid pressure to modulate the flow of one gas, and the regulated flow of the first gas to modulate the flow of the second.

B66-10168
SAFETY SWITCH PERMITS EMERGENCY BRIDGE CRANE SHUTDOWN

LONG, E. J. R. /N. AM. AVIATION/ DATE- APR. 1966
M-FS-549

Safety switch on a crane control pendant must be held closed to operate the crane. This provides for immediate power cutoff to the crane in an emergency or a pendant circuit failure.

B66-10169
MODIFIED DRILL PERMITS ONE-STEP DRILLING OPERATION

LIBERTONE, C. /N. AM. AVIATION/ DATE- APR. 1966
M-FS-559

Drill with modified cutting faces permits one-step drilling operation without chatter upon contact and premature wear. The modification of the drill, which has the same diameter as that of the desired hole, consists of a groove across the bottom of each of the cutting faces of the drill flutes.

B66-10171
MULTISURFACE FIXTURE PERMITS EASY GRINDING OF TOOL BIT ANGLES

JONES, C. R. /N. AM. AVIATION/ DATE- APR. 1966
M-FS-586

Multisurface fixture with a tool holder permits accurate grinding and finishing of right and left hand single point threading tools. All angles are ground by changing the fixture position to rest at various references angles without removing the tool from the holder.

B66-10172
FLEXIBLE COILED SPLINE SECURELY JOINS MATING CYLINDERS

COPPERNOL, R. W. /GEN. DYN./ASTRONAUTICS/ DATE- APR. 1966
WOO-270

Mating cylindrical members are joined by spline to form an integral structure. The spline is made of tightly coiled, high tensile-strength steel spiral wire that fits a groove between the mating members. It provides a continuous bearing surface for axial thrust between the members.

B66-10174
EPOXY-COATED CONTAINERS EASILY OPENED BY WIRE BAND

MC COY, J. W. /N. AM. AVIATION/ DATE- APR. 1966
M-FS-592

Epoxy coating reduces punctures, abrasions, and contamination of synthetic cellular containers used for shipping and storing fragile goods and equipment. A wire band is wound around the closure joint, followed by the epoxy coating. The

container can then be easily opened by pulling the wire through the epoxy around the joint.

B66-10175
DEVICE SPOT-LAPS SPHERES TO VERY CLOSE TOLERANCES

AVERY, H. W. /GE/ DATE- MAY 1966
JPL-SC-119

Device laps precise amounts of metal from high spots on a spherical body to correct minute surface imperfections. The device generates the lapped surface with reference to an existing true surface on the spherical workpiece. Lapping is performed by applying a rotary and oscillatory motion to the workpiece while the lapping tool is held on the workpiece high spot.

B66-10176
LIFTING CLAMP POSITIVELY GRIPS STRUCTURAL SHAPES

REINHARDT, E. C. DATE- MAY 1966
M-FS-593

Welded steel clamps securely grip structural shapes of various sizes for crane operations. The clamp has adjustable clamping jaws and screw-operated internal v-jaws and provides greater safety than hoisting slings presently used. The structural member can be rotated in any manner, angle, or direction without being released by the clamp.

B66-10188
CONTROL SYSTEM MAINTAINS COMPARTMENT AT CONSTANT TEMPERATURE

LINDBERG, J. G. /N. AM. AVIATION/ DATE- MAY 1966
JPL-SC-145

Gas-filled permeable insulating material maintains an enclosed compartment at a uniform temperature. The material is interposed between the two walls of a double-walled enclosure surrounding the compartment.

B66-10189
PNEUMATIC SHUTOFF AND TIME-DELAY VALVE OPERATES AT CONTROLLED RATE

HORNING, J. L. TOMLINSON, L. E. /N. AM. AVIATION/ DATE- MAY 1966
M-FS-602

Shutoff and time delay valve, which incorporates a metering spool that moves at constant velocity under pneumatic pressure and spring compression, increases fluid-flow area at a uniform rate. Diaphragm areas, control cavity volume, and bleed-orifice size may be varied to give any desired combination of time delay and spool travel time.

B66-10190
BELLows DESIGN FEATURES LOW SPRING RATE AND LONG LIFE

LUSIC, R. F. /N. AM. AVIATION/ DATE- MAY 1966
MSC-521

High pressure bellows has high strength rigid hoops for strength and stability and sheet stock for low spring rate effects. The simplicity of this bellows design facilitates mass production.

B66-10191
TOOL POST MODIFICATION ALLOWS EASY TURRET LATHE CUTTING-TOOL ALIGNMENT

FOOTS, L. /N. AM. AVIATION/ DATE- MAY 1966
M-FS-581

Modified tool holder and tool post permit alignment of turret lathe cutting tools on the center of the spindle. The tool is aligned with the spindle by the holder which is kept in position by a hydraulic lock in feature of the tool post. The tool post is used on horizontal and vertical turret lathes and other engine lathes.

B66-10195
SEGMENTED BALL VALVE IS EASY TO OPEN AND CLOSE

PRONO, E. SHINAULT, L. H. /N. AM. AVIATION/ SPEISMAN, C. DATE- JUN. 1966
WOO-248

Segmented ball valve and flowmeter in the same spherical housing provide a valve that will handle large fluid volume without bulkiness and weight of

blade valves or conventional ball valves. The valve is easily opened or closed and the flowmeter remains stationary, so errors are eliminated.

B66-10197

INTERMEDIATE ROTATING RING IMPROVES
RELIABILITY OF DYNAMIC SHAFT SEAL
MESNY, P. R. /N. AM. AVIATION/ DATE- MAY 1966
M-FS-575

Intermediate rotating ring improves the reliability of dynamic shaft seals whose rubbing surfaces wear down rapidly at high shaft speeds. The rotating ring is placed between the rotating shaft sealing surfaces and the stationary surface, and driven at one-half the shaft speed.

B66-10201

SELF-CONTAINED CLOTHING SYSTEM PROVIDES
PROTECTION AGAINST HAZARDOUS ENVIRONMENTS
SPON- INNOVATOR NOT GIVEN /GARRETT CORP./ DATE-
MAY 1965
M-FS-536

Self-contained clothing system protects personnel against hazardous environments. The clothing has an environmental control system and a complete protection envelope consisting of an outer garment, inner garment, underwear, boots, gloves, and helmet.

B66-10202

BODY-FITTED HARNESS PROVIDES SAFE AND EASY
COMPONENT HANDLING
MILLER, E. G. ROTHWELL, G. E. /IBM/ DATE- MAY
1966
M-FS-533

Body-fitted restraint harness enables workers to safely and conveniently handle critical components during their installation or removal. Since the harness supports the components, the worker is able to maneuver through restricted areas with his hands free. It is easily put on, adjusted, and removed, or comfortably worn without interfering with normal activities.

B66-10204

TORQUE WRENCH ALLOWS READINGS FROM
INACCESSIBLE LOCATIONS
DE BARNARDO, M. /N. AM. AVIATION/ DATE- MAY 1966
M-FS-598

Torque wrench with an adjustable drive shaft permits indicator to remain in view when used on sections of equipment with limited access. The shaft is capable of protruding from either side of the wrench head by means of spring loaded balls.

B66-10206

LOW POWER HEATING ELEMENT PROVIDES THERMAL
CONTROL DURING SWAGING OPERATIONS
CROWELL, J. W. /CHRYSLER CORP./ DATE- MAY 1966
M-FS-457

Low power, cylindrical heating element in a swaging anvil assembly heats the material being worked on. The increased ductility of heated material results in crack-free deformation.

B66-10208

TOOL ENABLES PROPER MATING OF ACCELEROMETER
AND CABLE CONNECTOR
STEED, C. N. /N. AM. AVIATION/ DATE- MAY 1966
M-FS-611

Tool supports accelerometer in axial alignment with an accelerometer cable connector and permits tightening of the accelerometer to the cable connector with a torque wrench. This is done without damaging the components or permitting them to work loose under sustained, high-level vibrations.

B66-10209

SPECIAL TOOL SEALS CONDUCTORS WITH COMBINATION
OF PLASTIC SLEEVES
YOUNG, S. /N. AM. AVIATION/ DATE- MAY 1966
M-FS-579

Special tool seals electrical conductors connecting instrumentation within space vehicle cryogenic fuel tanks and oxidizer tanks. An inner sleeve of fluorinated ethylene-propylene and an outer sleeve of tetrafluoroethylene enclose a bundle of conductors and are heated with the tool

to form a tight seal of the bundle and each individual wire.

B66-10210

ADJUSTABLE CUTTING GUIDE ALIGNS AND POSITIONS
STACKS OF MATERIAL
THIEL, A. M. DATE- MAY 1966
MSC-321

Adjustable guide tool aligns and positions stacks of material for cutting at various angles. The device adapts its shape to stacks of any corner angle, adjusts to any cutting angle, and quickly aligns the stacks for repeated cutting. With this device, an operator need not place his hands under the knife during alignment.

B66-10211

PRESSURE SEAL RING MAY BE EFFECTIVE OVER WIDE
TEMPERATURE RANGE
SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE-
MAY 1966
M-FS-486

Positive pressure seal rings seal bolted flange joints in pressure vessels containing fluids whose temperatures can vary over a wide range. The seal rings mate with grooves in the flanges and compensate for the excessive thermal expansion or contraction of a gasketed joint.

B66-10212

LIQUID TRAP SEALS THERMOCOUPLE LEADS
RUPPE, E. P. /N. AM. AVIATION/ DATE- MAY 1966
M-FS-688

Liquid trap seals thermocouple leads coming out of a brazing retort that operates with a controlled atmosphere so that air cannot enter the retort and hydrogen cannot escape. The trap is fastened to a duct welded to the retort. Thermocouple leads are led out through the duct and trap, with the fluid forming a gastight seal between the atmosphere and the retort.

B66-10213

CYLINDRICAL CLAW CLAMP HAS QUICK RELEASE
FEATURE
GOODWIN, G. D. /CHRYSLER CORP./ DATE- MAY 1966
M-FS-513

Claw clamp grasps cylindrical shapes by pressing its jaws around the object. The clamp is released by retraction of a release pin which extends beyond the clamp handle on both sides for better purchase.

B66-10214

COLLOIDAL SUSPENSION SIMULATES LINEAR
DYNAMIC PRESSURE PROFILE
MC CANN, R. J. /LOCKHEED MISSILES AND SPACE CO./
DATE- JUN. 1966
WOO-266

Missile nose fairings immersed in colloidal suspension prepared with various specific gravities simulate pressure profiles very similar to those encountered during reentry. Stress and deflection conditions similar to those expected during atmospheric reentry are thus attained in the laboratory.

B66-10215

ELECTRON BEAM WELDING OF COPPER-MONEL
FACILITATED BY CIRCULAR MAGNETIC SHIELDS
LAMB, J. N. /N. AM. AVIATION/ DATE- MAY 1966
M-FS-569

High permeability, soft magnetic rings are placed on both sides of electron beam weld seams in copper-Monel circular joint. This eliminates deflection of the electron beam caused by magnetic fields present in the weld area.

B66-10216

SOFT-SEAL VALVE HOLDS HAZARDOUS FLUIDS
SAFELY
DATE- MAY 1966 REAN- SEE ALSO NASA-TN-D-1727
LEWIS-275

Valve assembly allows transfer of hazardous or reactive fluids such as liquid fluorine without corrosion of valve face and seat material. The assembly consists of a plug to block bulk flow and a soft-seal outer seat to effect zero-leak stoppage.

B66-10217

FIBERGLASS CONTAINER SHELLS FORM
CONTAMINATION-FREE STORAGE UNITSKRAUS, H. M. /N. AM. AVIATION/ DATE- JUN. 1966
WOO-275

Interchangeable molded fiberglass shells are locked together to form storage units of various depths. These units can hold components weighing 1500 pounds, are easily transportable, and protect contents from contamination.

B66-10218

PRESSURE VESSELS FABRICATED WITH HIGH-STRENGTH
WIRE AND ELECTROFORMED NICKELROTH, B. /N. AM. AVIATION/ DATE- JUN. 1966
M-PS-580

Metal pressure vessels of various shapes having high strength-to-weight ratios are fabricated by using known techniques of filament winding and electroforming. This eliminates nonuniform wall thickness and unequal wall strength which resulted from welding formed vessel segments together.

B66-10219

TOOL PERMITS DAMAGE-FREE REMOVAL OF SOLAR CELL
BECKLEY, J. E., JR. /COMPREHENSIVE DESIGNERS/
DATE- MAY 1966

GSFC-467

Modified soldering iron extracts a wrap-around solar cell that is attached with solder or adhesive to a substrate without destroying the cell removed or damaging adjacent cells. Heat, vacuum, and compressed air, operated from a special head attached to the soldering iron, loosen, extract, and protect the cell.

B66-10226

A CONCEPTUAL DESIGN FOR SQUEEZE FILM BEARINGS
SPON- INNOVATOR NOT GIVEN /BENDIX CORP./ DATE-
JUN. 1966

M-PS-573

Squeeze film bearings which require at least one of two adjacent surfaces to oscillate at high frequency and low amplitude have the oscillating /strain-producing/ member on a double gas film. This means of support allows dynamic changing of the gap between the bearing surfaces without the disadvantages produced when the oscillator is affixed to the bearing base itself.

B66-10228

STUDIES REVEAL EFFECTS OF PIPE BENDS ON FLUID
FLOW CAVITATION

STONEMETZ, R. E. DATE- MAY 1966

M-PS-516

Incipient cavitation in liquids flowing in pipes curved in one plane are affected by the pipe bend radii and pipe diameters, but little by pipe bend angles ranging from 60 to 120 degrees. Critical cavitation indices decrease with higher Reynolds number and pressure ratio. Bulk liquid temperature increase lowers the mean critical velocity at which cavitation occurs.

B66-10229

EXPANDABLE RUBBER PLUG SEALS OPENINGS FOR
PRESSURE TESTING

DATE- MAY 1966

NU-0048

Plug assembly seals openings in piping systems, vessels, and chambers for low pressure leak testing. The assembly, which consists of a rubber sealing plug and the mechanism for expanding it into a pressure-tight configuration, adequately seals irregular diameters without damage to mating surfaces.

B66-10233

QUICK-CLOSING VALVE IS ACTUATED BY EXPLOSIVE
DISCHARGE

MAJESKI, S. J. DATE- JUN. 1966

ARC-55

Remotely controlled plug-type valve shuts off a high-pressure, high-temperature gas flow in a few milliseconds. The valve is actuated by a commercially available electrically initiated squib of low explosive power. More rapid closure is attainable with squibs containing heavier explosive charges.

B66-10235

KEY-LOCKED GUARD PREVENTS ACCIDENTAL SWITCH
ACTUATIONHAWTHORNE, K. C. /N. AM. AVIATION/ DATE- JUN.
1966

MSC-419

Switch guard, which locks in place on a panel, protects individual switches from accidental activation. The guard consists of a cup to cover the switch lever, a standard screw lock tumbler, and a stud that mates with a threaded adapter in the panel.

B66-10236

AUTOMATIC REEL CONTROLS FILLER WIRE IN
WELDING MACHINES

MILLET, A. V. /N. AM. AVIATION/ DATE- JUN. 1966

MSC-416

Automatic reel on automatic welding equipment takes up slack in the reel-fed filler wire when welding operation is terminated. The reel maintains constant, adjustable tension on the wire during the welding operation and rewinds the wire from the wire feed unit when the welding is completed.

B66-10237

ADJUSTABLE KNIFE CUTS HONEYCOMB MATERIAL TO
SPECIFIED DEPTH

RAUSCH, J. A. /N. AM. AVIATION/ DATE- JUN. 1966

MSC-475

Calibrated, adjustable knife cuts aluminum honeycomb or other soft materials to a desired depth. The frame of the device accommodates standard commercial blades. Since the blade is always visible to the operator, the device can be used on any straight or irregular layout line.

B66-10238

INSERT SLEEVE PREVENTS TUBE SOLDERING
CONTAMINATION

STEIN, J. /N. AM. AVIATION/ DATE- JUN. 1966

MSC-552

Teflon sleeve insert prevents contamination of internal tube surfaces by solder compound during soldering operations that connect and seal the tube ends. The sleeve insert is pressed into the mating tube ends with a slight interference fit.

B66-10239

HAND TOOL PERMITS SHRINK SIZING OF ASSEMBLED
TUBINGMILLET, A. ODOR, M. /N. AM. AVIATION/ DATE-
JUN. 1966

MSC-504

Portable tool sizes tubing ends without disassembling the tubing installation. The shrink sizing tool is clamped to the tubing and operated by a ratchet wrench. A gear train forces the tubing end against an appropriate die or mandrel to effect the sizing.

B66-10240

JIG PROTECTS TRANSISTORS FROM HEAT WHILE
TINNING LEADSPELLETIER, A. J. WILLIS, G. A. /N. AM. AVIATION/
DATE- JUN. 1966

MSC-515

In tinning transistor leads, an aluminum jig is used to dip the leads into the molten tin. The jigs mass shunts excess heat given off by the molten tin before it reaches and damages the transistor body.

B66-10241

BRAZING PROCESS USING AL-SI FILLER ALLOY
RELIABLY BONDS ALUMINUM PARTSBEUYUKIAN, C. S. JOHNSON, W. R. /N. AM.
AVIATION/ DATE- JUN. 1966

MSC-448

Brazing process employs an aluminum-silicon filler alloy for diffusion bonding of aluminum parts in a vacuum or inert gas atmosphere. This process is carried out at temperatures substantially below those required in conventional process and produces bonds of greater strength and reliability.

B66-10242

PORTABLE SANDBLASTER CLEANS SMALL AREAS

SEVERIN, H. J. /N. AM. AVIATION/ DATE- JUN. 1966
MSC-523

Portable sandblasting unit rapidly and effectively cleans localized areas on a metal surface. The unit incorporates a bellows enclosure, masking plate, sand container, and used sand accumulator connected to a vacuum system. The bellows is equipped with an inspection window and light for observation of the sanding operation.

B66-10243

LATHE CHUCK KEY INCORPORATES SAFETY FEATURE

CHRISTMAN, G. L. /N. AM. AVIATION/ DATE- JUN. 1966
MSC-506

Lathe chuck key with spring loaded plunger cannot inadvertently be left in the chuck when the lathe is started. The plunger automatically ejects the key from the chuck when hand pressure is released.

B66-10244

HOLLOW NEEDLE USED TO CUT METAL HONEYCOMB STRUCTURES

GREGG, E. A. /N. AM. AVIATION/ DATE- JUN. 1966
MSC-486

Hollow needle tool cuts metal honeycomb structures without damaging adjacent material. The hollow needle combines an electrostatic discharge and a stream of oxygen at a common point to effect rapid, accurate metal cutting. The tool design can be varied to use the hollow needle principle for cutting a variety of shapes.

B66-10246

MODIFIED SOLDERING IRON SPEEDS CUTTING OF SYNTHETIC MATERIALS

SCHAFER, W. G., JR. /N. AM. AVIATION/ DATE- JUN. 1966
M-FS-725

Modified soldering iron cuts large lots of synthetic materials economically without leaving frayed or jagged edges. The soldering iron is modified by machining an axial slot in its heating element tip and mounting a cutting disk in it. An alternate design has an axially threaded bore in the tip to permit the use of various shapes of cutting blades.

B66-10247

PRESSURE-WELDED FLANGE ASSEMBLY PROVIDES LEAKTIGHT SEAL AT REDUCED BOLT LOADS

MARTENSON, A. J. /GE/ DATE- JUN. 1966
M-FS-640

Vibration resistant flange-connector assembly provides a leaktight seal under reduced bolt loads. The assembly consists of ductile metal plates that are pressure welded between dies mounted in recessed flanges.

B66-10248

ELECTRICAL UPSETTING OF METAL SHEET FORMS WELD EDGE

SCHERBA, E. S. /N. AM. AVIATION/ DATE- JUN. 1966
M-FS-720

Electric gathering of sheet stock edges forms metal sheets in the shape of gore sections with heavier edge areas that can be welded without loss of strength. The edges are gathered by progressive resistance heating and upsetting, and are formed automatically. This process avoids disturbance of the metals internal structure.

B66-10249

FLUID DAMPING REDUCES BELLWS SEAL FATIGUE FAILURES

SPON- INNOVATOR NOT GIVEN /N. AM. AVIATION/ DATE- JUN. 1966
M-FS-565

Service life of a bellows-type seal in the presence of mechanical vibration is increased by a system of interconnected bellows with intervening cavities filled with a fluid which damps the amplitude of periodic deflection of the sealing bellows. Different damping fluids are used according to environmental conditions.

B66-10250

DIFFUSION BONDING MAKES STRONG SEAL AT FLANGED CONNECTOR

GITZENDANNER, L. G. LANIEWSKI, J. P. BATHBUN, F. O., JR. /GE/ DATE- JUN. 1966
M-FS-637

Copper strip seals a high pressure fluid system connector so that it is insensitive to relaxation of the bolt loads. The copper strip is diffusion bonded to the surfaces of the connector flange by application of high pressure and temperature.

B66-10253

TOOL SEPARATES SLEEVE-TYPE UNIONS WITHOUT HEAT

MILLETT, A. U. /N. AM. AVIATION/ DATE- JUN. 1966
MSC-497

Tool that uses conventional milling and cutting techniques separates sleeve type tubing unions and tubes without using heat. A selection of holders, associated bits, and cutting wheels permits preparation of varied diameter unions.

B66-10254

MILL PROFILER MACHINES SOFT MATERIALS ACCURATELY

RAUSCHL, J. A. /N. AM. AVIATION/ DATE- JUN. 1966
M-FS-692

Mill profiler machines bevels, slots, and grooves in soft materials, such as styrofoam phenolic-filled cores, to any desired thickness. A single operator can accurately control cutting depths in contour or straight line work.

B66-10255

FLOW RING VALVE IS SIMPLE, QUICK-ACTING

LINDFORS, J. A. /N. AM. AVIATION/ DATE- JUN. 1966
M-FS-752

Two porting rings, one within the other, control gas or liquid flow by using seal buttons as the sliding valve closers. Multiporting within the ring allows close control of the flow by the slight rotation of the outer porting ring.

B66-10258

CRITICAL PARTS ARE STORED AND SHIPPED IN ENVIRONMENTALLY CONTROLLED REUSABLE CONTAINER

RUMERFELD, K. R. /N. AM. AVIATION/ DATE- JUN. 1966
M-FS-703

Environmentally controlled, hermetically sealed, reusable metal cabinet with storage drawers is used to ship and store sensitive electronic, pneumatic, or hydraulic parts or medical supplies under extreme weather or handling conditions. This container is compatible with on-site and transportation handling facilities.

B66-10262

ALUMINUM/STEEL WIRE COMPOSITE PLATES EXHIBIT HIGH TENSILE STRENGTH

SPON- INNOVATOR NOT GIVEN /HARVEY ALUMINUM CO./ DATE- JUN. 1966
M-FS-401

Composite plate of fine steel wires imbedded in an aluminum alloy matrix results in a lightweight material with high tensile strength. Plates have been prepared having the strength of titanium with only 85 percent of its density.

B66-10265

COMPACT ACTUATOR CONVERTS ROTARY TO LINEAR MOTION

FORD, A. G. DATE- JUN. 1966
JPL-786

Compact motor mounted on a stationary base converts rotary to linear motion. The motor rotates a gear train assembly so that the end of an arm attached to the assembly moves in a linear path.

B66-10266

SEAL SURFACES PROTECTED DURING ASSEMBLY

RICHARDSON, G. L. /AEROJET-GEN. CORP./ DATE- JUN. 1966
NU-0067

Protection device for sealed surfaces is placed over the polished surface entrance of trapped bosses and removed when the seal fitting has been

05 MECHANICAL

engaged with the boss threads. This technique applies to various seal types used in close fitting, spring loaded, threaded fittings.

B66-10267

RADIAL COOLANT CHANNELS FABRICATED BY SIMPLIFIED METHOD

FREEMAN, A. /AEROJET-GEN. CORP./ DATE- JUN. 1966
NU-0070

Radial coolant channels for distributing a coolant over the inner wall of a circular section are fabricated by cold-rolling indentations on the inside circumference of the base section and covering the indentations with a rolled flange.

B66-10269

DIFFERENTIAL EXPANSION PROVIDES PRESSURE FOR DIFFUSION BONDING OF LARGE DIAMETER RINGS
SPON- INNOVATOR NOT GIVEN /BORING CO./ DATE- JUN. 1966
M-FS-588

External pressure band is used to bond aluminum alloy collars to large diameter, stainless steel rings. The band contracts while cooling and exerts pressure on the joint between the silver plated surfaces of the ring and collar which expand toward the band. This diffusion bonding by differential expansion minimizes aluminum deformation.

B66-10275

FASTENER PROVIDES FOR BOLT MISALIGNMENT AND QUICK RELEASE OF FLANGE

ENGLAND, C. /AEROJET-GEN. CORP./ DATE- JUN. 1966
NU-0074

Fastener enables two large flanges to be bolted together without close alignment between the bolt and bolt-hole diameters, and provides for a quick release of one of the flanges under emergency conditions. It contains a nut that is retained by a square head in a recess in one side of the removable flange and by a collar and snap ring on the other side of the flange.

B66-10276

REMOTELY CONTROLLED SYSTEM COUPLES AND DECOUPLES LARGE DIAMETER PIPES

GRIFFIN, P. A. /AEROJET-GEN. CORP./ DATE- JUN. 1966
NU-0062

Remote control, air-motor driven, chain-drive system engages and disengages a flange coupling from large-diameter, high pressure fluid lines.

B66-10277

DEVICE FACILITATES CENTERING OF WORKPIECES IN LATHE CHUCK

PRATER, L. /N. AM. AVIATION/ DATE- JUN. 1966
M-FS-685

Spring loaded device used in conjunction with a standard dial indicator facilitates centering a workpiece in an independent four-jaw lathe chuck.

B66-10278

O-RINGS WITH MYLAR BACK-UP PROVIDE HIGH-PRESSURE CRYOGENIC SEAL

FUNK, G. M. /N. AM. AVIATION/ DATE- JUN. 1966
M-FS-603

Mylar lip type back-up ring installed in combination with three rubber O-rings seal the junctions between a tube stub and an adapter during high pressure gas flow at cryogenic to room temperatures. Mylar seals should not be used with oxygen under pressure or in the liquid state.

B66-10279

MAGNETIC LATCHES PROVIDE POSITIVE OVERPRESSURE CONTROL

LOY, J. L. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- JUN. 1966
NU-0057

Louvers are used for overpressure safety venting in rooms or chambers where explosion hazards exist. The louvers have individually hinged closures that are held in locked position by commercially available magnets that quickly release them in an overpressure condition.

B66-10283

FIXED VACUUM PLATE CLAMPS STYROFOAM FOR MACHINING

RAUSCHL, J. A. /N. AM. AVIATION/ DATE- JUN. 1966
M-FS-683 M-FS-726

Aluminum plate holds styrofoam securely in place for machining operations. The styrofoam is clamped to rubber or cork pads on the plate surface by vacuum. Foam rubber tape provides the vacuum seal.

B66-10284

EXTENSOMETER AUTOMATICALLY MEASURES ELONGATION IN ELASTOMERS

HOOVER, C. D. DATE- JUN. 1966
M-FS-517

Extensometer, with a calibrated shaft, measures the elongation of elastomers and automatically records this distance on a chart. It is adaptable to almost any tensile testing machine and is fabricated at a relatively low cost.

B66-10285

HIGH PRESSURE TUBE COUPLING REQUIRES NO THREADS OR FLARES

STEIN, J. A. /N. AM. AVIATION/ DATE- JUN. 1966
MSC-600

High pressure tube coupling connects to any straight, unthreaded, and unflared tubing end without deforming or damaging the tubing. The coupling grips the tube wall tightly between an external compression sleeve and an internal hollow mandrel. It is adaptable to standard screw fittings for test stand attachment.

B66-10294

PNEUMATIC SEPARATOR GIVES QUICK RELEASE TO HEAVY LOADS

BUCHANAN, D. C. DAVIS, E. J. PHILLIPS, J. D. DATE- JUL. 1966
KSC-66-10

Pneumatic separator, using applied pressure, quickly releases restraining devices securing heavy loads. With minor modifications this separator can be used as a coupling device.

B66-10297

DIAPHRAGM SPRING GIVES CLUTCH OVER-CENTER TOGGLE EFFECT

ROSENBERG, H. W. /GE/ DATE- AUG. 1966
GSPC-499

Diaphragm spring clutch mechanism is used in testing the relative merits of eddy-current and hysteresis dampers. The dampers are alternately coupled to a single damping boom shaft. The floating clutch mechanism enables the inoperative damper to remain completely isolated from the damping boom shaft during test of the other damper.

B66-10301

TOOL PRE-TENSIONS COVERS PRIOR TO LACING

FORMAN, M. A. VOGEL, R. C. /N. AM. AVIATION/ DATE- JUL. 1966
MSC-631

In securing a bulky object in a storage compartment, a cinching or tightening tool is used to draw two opposing cover halves together at a predetermined tension to permit quick lacing to retain the stored object. This tool is also useful in fabrication industries to draw components together during assembly or treating.

B66-10302

SIMPLE SCALE INTERPOLATOR FACILITATES READING OF GRAPHS

FAZIO, A. HENRY, B. HOOD, D. DATE- JUL. 1966
LEWIS-92 LEWIS-93

Set of cards with scale divisions and a scale finder permits accurate reading of the coordinates of points on linear or logarithmic graphs plotted on rectangular grids. The set contains 34 different scales for linear plotting and 28 single cycle scales for log plots.

B66-10303

BYPASS ROD TRANSFERS HEAT DEVELOPED IN THERMIONIC DIODE

LAZARIDIS, L. J. /THERMO ELECTRON ENG. CORP./

DATE- JUL. 1966

JPL-SC-136

In a thermionic diode, a cesium tube joining the emitter-collector area and the cesium reservoir is fitted with a copper bypass rod held in place by two standoff brackets. The rod transfers heat from the emitter-collector to the reservoir without going through the ceramic seal structure which surrounds the cesium tube and cannot sustain large temperature gradients.

B66-10304

FLEXIBLE FASTENER EFFECTS AIRTIGHT MATERIAL CLOSURE

NAY, D. L. DATE- JUL. 1966

JPL-684

Flexible tube inserted into a 3/4-round strip receptacle inflates to form an airtight material fastener. Inflation is done with a carbon dioxide cartridge and deflation by a manually operated release valve. Device has potential use in space suits, underwater suits, and other protective clothing.

B66-10310

MODIFIED HYDRAULIC BRAKING SYSTEM LIMITS ANGULAR DECELERATION TO SAFE VALUES

BRIGGS, R. S. COUNCIL, M. GREEN, P. M. /COLLINS RADIO CO./ DATE- JUL. 1966

GSFC-476

Conventional spring actuated, hydraulically released, fail-safe disk braking system is modified to control the angular deceleration of a massive antenna. The hydraulic system provides an immediate preset pressure to the spring loaded brake shoes and holds it at this value to decelerate the antenna at the desired rate.

B66-10311

UNION WOULD FACILITATE JOINING OF TUBING, MINIMIZE BRAZE CONTAMINATION

TERRILL, A. E. /N. AM. AVIATION/ DATE- JUL. 1966

MSC-777

Union assembly provides a fluidtight joint between two lengths of tubing and minimizes introduction of braze contaminants into the tubing. The union contains two brazing preforms separated by a metal ring that serves as a dam for the molten brazing alloy.

B66-10317

FLEXIBLE ARMS PROVIDE CONSTANT FORCE FOR PRESSURE SWITCH CALIBRATION

CAIN, D. E. KUNZ, R. W. /GE/ DATE- JUL. 1966

HQ-38

In-place calibration of a pressure switch is provided by a system of radially oriented flexing arms which, when rotated at a known velocity, convert the centrifugal force of the arms to a linear force along the shaft. The linear force, when applied to a pressure switch diaphragm, can then be calculated.

B66-10318

TORUS ELEMENTS USED IN EFFECTIVE SHOCK ABSORBER

CUNNINGHAM, P. PLATUS, D. L. /AEROSPACE RES. ASSOC./ DATE- JUL. 1966

WOO-114

Energy absorbing device forces torus elements to revolve annularly between two concentric tubes when a load is applied to one tube. Interference forces can be varied by using torus elements of different thicknesses. The device operates repeatedly in compression or tension, and under problems of large onset rate tolerance or structural overload.

B66-10319

FIBER LENGTH AND ORIENTATION PREVENT MIGRATION IN FLUID FILTERS

REIMAN, P. A. /ARTHUR D. LITTLE/ DATE- JUL. 1966

M-PS-541

Stainless steel fiber web filter resists fiber migration which causes contamination of filtered fluids. This filter is capable of holding five times more particulate matter before arbitrary cutoff pressure drop and shows excellent retention in fuel flow at high rates.

B66-10321

SWIVELING LATHE JAW CONCEPT FOR HOLDING IRREGULAR PIECES

DAVID, J. /N. AM. AVIATION/ DATE- JUL. 1966

M-PS-783

Clamp holds irregularly shaped pieces in lathe chuck without damage and eliminates excessive time in selecting optimum mounting. Interchangeable jaws ride in standard jaw slots but swivel so that the jaw face bears evenly against the workpiece regardless of contour. The jaws can be used on both engine and turret lathes.

B66-10323

SPECIAL MANDREL PERMITS UNIFORM WELDING OF OUT-OF-ROUND TUBING

DOR, M. E. FUEG, L. B. WHIFFEN, E. L. /N. AM. AVIATION/ DATE- JUL. 1966

M-PS-706

Clamp holds irregularly shaped pieces in lathe chuck without damage and eliminates excessive time in selecting optimum mounting. Interchangeable jaws ride in standard jaw slots but swivel so that the jaw face bears evenly against the workpiece regardless of contour. The jaws can be used on both engine and turret lathes.

B66-10326

EXTERNAL LINKAGE TIE PERMITS REDUCTION IN DUCTING SYSTEM FLANGE THICKNESS

PFLEGER, R. O. /N. AM. AVIATION/ DATE- JUL. 1966

M-PS-823

External linkage tie reduces flange thickness and increases seal efficiency in high pressure ducting and piping systems. The linkage transmits the pressure separating load to the tube wall behind the flange allowing the flange to support only the seal.

B66-10338

LATCHING MECHANISM OPERATES IN LIMITED ACCESS AREA

HOLMAN, E. V. /N. AM. AVIATION/ DATE- JUL. 1966

MSC-230

Latching mechanism that is securely locked by the movement of the operating handle in one direction is used in limited access areas. This mechanism is operated by a force applied to the handle at small angles.

B66-10339

SIMULATOR EFFECTS PARTIAL GRAVITY CONDITIONS

JOHNSON, H. I. TRADER, A. G. DATE- JUL. 1966

MSC-152

Adjustable apparatus which simulates partial to zero gravity partially supports the weight of convalescing patients in rehabilitation exercises. This device is an ideal tool for physical therapy.

B66-10342

GAS DIFFUSER FACILITATES WITHDRAWAL OF CRYOGENIC LIQUIDS FROM TANKS

DUNN, J. D. /N. AM. AVIATION/ DATE- JUL. 1966

M-PS-915

Compact, cylindrical gas diffuser with radial exhaust slots and internal axial flow channels maintains the necessary pressure for the desired withdrawal rate of cryogenic liquids from tanks. The diffuser minimizes pressure loss which results from condensation of nitrogen gas in the liquid and prevents direct impingement of gas jets on liquid surface to reduce turbulence.

B66-10343

CONCEPT FOR PASSIVE SYSTEM TO CONTROL GAS FLOW INDEPENDENTLY OF TEMPERATURE

CHAVEZ, E. S. MILLEMAN, S. E. RICKEMAN, E. C. /N. AM. AVIATION/ DATE- JUL. 1966

M-PS-982

Volumetric flow rate of gas is maintained at a constant value independent of temperature by passing the gas through a parallel or series combination of turbulent flow and laminar flow restrictors. By proper combination of restrictors, the flow rate may be automatically made to vary as an increasing or decreasing function of temperature.

B66-10345

FRICTION LOADING DEVICE ENABLES ACCURATE TESTING OF BRITTLE MATERIALS
 HENGSTENBERG, T. F. ZIBRITOSKY, G. /WESTINGHOUSE
 ASTRONUCL. LAB./ DATE- JUL. 1966
 NU-0051

Friction loading device gives axial symmetry to test specimen of brittle materials during tensile testing. This axial alignment prevents bending stresses which hinder measurement of tensile strength.

B66-10346

TOOL FORMS RIGHT ANGLES IN COMPONENT LEADS
 GLENN, C. G. DATE- JUL. 1966
 M-PS-722

Hand tool forms right angles in electronic component leads so they fit the spaced holes of a printed circuit board. This tool firmly holds the leads at points near the component ends to prevent damage and provide accuracy.

B66-10352

BRAZING PROCESS PROVIDES HIGH-STRENGTH BOND BETWEEN ALUMINUM AND STAINLESS STEEL
 HUSCHKE, E. G., JR. NORD, D. B. /N. AM. AVIATION/ DATE- AUG. 1966
 M-PS-803

Brazing process uses vapor-deposited titanium and an aluminum-zirconium-silicon alloy to prevent formation of brittle intermetallic compounds in stainless steel and aluminum bonding. Joints formed by this process maintain their high strength, corrosion resistance, and hermetic sealing properties.

B66-10354

WELDS CHILLED BY LIQUID COOLANT MANIFOLD
 ODOR, M. E. WHIFFEN, E. E. /N. AM. AVIATION/ DATE- AUG. 1966
 M-PS-679 M-PS-680

Liquid coolant chill tool provides uniform cooling to materials adjacent to weld areas on long or contoured butt welds. This tool incorporates a manifold that clamps to the weld joint by vacuum and circulates liquid in direct contact with adjacent material.

B66-10357

SUPPRESSOR PLATE ELIMINATES UNDESIRABLE ARCING DURING ELECTRON BEAM WELDING
 HANCHEY, K. K. KUBIK, J. MAHON, J. C. /HAYES INTERN. CORP./ DATE- AUG. 1966
 M-PS-1126

Suppressor grid eliminates undesirable arcing during electron beam welding in one of two ways. A grid at ground potential collects secondary emission of ions and electrons produced by the beam as it strikes the workpiece, or a negatively energized grid repels the plasma arc back to the workpiece. This eliminates ground screens used to cover view ports.

B66-10360

ALUMINUM CORE STRUCTURES BRAZED WITHOUT USE OF FLUX
 SPON- INNOVATOR NOT GIVEN /AERONCA MFG. CORP./ DATE- AUG. 1966
 M-PS-659

Aluminum alloy face sheets are brazed to aluminum alloy honeycomb cores without using corrosive flux by means of one or three methods. The completed brazed structure has the high-strength characteristics of heat treated aluminum alloys.

B66-10364

VERSATILE MACHINE MILLS, SAWS LIGHT MATERIALS
 RAUSCHL, J. A. /N. AM. AVIATION/ DATE- AUG. 1966
 M-PS-827

Versatile milling/sawing machine performs angle cuts, flat and profile milling, machining of grooves and slots, and edge trimming of phenolic panels. The machine is mounted on rails above a table equipped with vacuum capability for holding workpieces.

B66-10365

DIAPHRAGM VALVE FOR CORROSIVE AND HIGH TEMPERATURE FLUID FLOW CONTROL HAS UNIQUE

FEATURES

EBIHARA, B. T. VARY, A. DATE- AUG. 1966
 LEWIS-304

Monometallic diaphragm valve is used for corrosive and high temperature fluid flow control. The body, diaphragm, and plug of the valve are welded together to form an integral leakproof unit for containing the fluid as it passes through the valve from inlet to outlet.

B66-10366

HOLLOW SPHERICAL ROTORS FABRICATED BY ELECTROPLATING
 AVERY, H. W. CONROY, T. F. /GE/ DATE- AUG. 1966
 JPL-SC-117

Equatorial bands are fabricated to provide a locating fit for the hemispheres of hollow spherical rotors which are then jointed by electroplating. Several nonmagnetic materials may be used to form the joint, such as aluminum, copper, iron, gold, platinum, and zinc.

B66-10367

DOT PATTERNS PROVIDE REPRODUCIBLE FLAW AREAS FOR STUDY OF ADHESIVE BONDS
 FRANK, L. SCHMITZ, G. /GEN. AM. TRANSPORTATION CORP./ DATE- AUG. 1966
 M-PS-862

Photographic production of a small-dot pattern of known geometry on the surface of a substrate for controlled area degradation enables a study of adhesive bond strengths. These dot patterns may also be applied to force-limiting devices which must depend on the adhesive bonding strength between mating surfaces.

B66-10369

AUTOMATIC PROTECTIVE VENT HAS FAIL-SAFE FEATURE
 DAMERON, C. E. DATE- AUG. 1966
 LANGLEY-218

Delayed vent valve system in a mechanical backing pump in a vacuum system allows the pneumatic foreline valve to seal before the pump vent opens. The system is designed to be fail-safe and operate even though there is loss of electrical power.

B66-10370

PORTABLE LIGHTWEIGHT CELL PROVIDES CONTROLLED ENVIRONMENT
 SHELTON, S. TARR, J. /N. AM. AVIATION/ DATE- AUG. 1966
 MSC-648

Inflatable, lightweight cell provides a separate, secondary environment for a spacesuited man in case of spacesuit damage or malfunction. The cell has a pressure-sealing zipper and is equipped to maintain a livable atmosphere.

B66-10371

BRAZING RETORT MANIFOLD DESIGN CONCEPT MAY MINIMIZE AIR CONTAMINATION AND ENHANCE UNIFORM GAS FLOW
 RUPPE, E. P. /N. AM. AVIATION/ DATE- AUG. 1966
 M-PS-707

Brazing retort manifold minimizes air contamination, prevents gas entrapment during purging, and provides uniform gas flow into the retort bell. The manifold is easily cleaned and turbulence within the bell is minimized because all manifold construction lies outside the main enclosure.

B66-10375

IMPACT AND PUNCTURE RESISTANT MATERIAL PROTECTS PARTS FROM DAMAGE
 SHERIFF, D. D. /N. AM. AVIATION/ DATE- AUG. 1966
 MSC-747

Uniform sized, laminated panels protect delicate parts and equipment from damage during storage and transportation. The panels consist of sheets of steel foil bonded between sheets of elastic foam. They are lightweight, impact and puncture resistant, and, when formed into an enclosure, provide a barrier against moisture and thermal shock.

B66-10378

NONHAZARDOUS ACID ETCHES WELD SAMPLES

ALLEN, B. C. ALLEN, B. C. /N. AM. AVIATION/
DATE- AUG. 1966
M-FS-975

Nonhazardous citric acid solution used with 24 volt dc power supply etches weld samples. This etching method is limited to 300 stainless steel and a small range of other high temperature alloys.

B66-10381

GAS-INJECTION VALVE OPERATES AT HIGH SPEED

HOB, F. C. LOWDER, R. S. /ADVANCED KINETICS,
INC./ DATE- AUG. 1966
HQ-49

Fast acting gas valve is used for injecting a short pulse of gas into a vacuum chamber during plasma acceleration experiments. It contains a lightweight closure disk that is forced away from the valve seat when an electromagnetic coil is momentarily energized and immediately rebounds from a stop back onto the seat.

B66-10383

GEAR DRIVE AUTOMATICALLY INDEXES ROTARY TABLE

JOHNS, M. F. /N. AM. AVIATION/ DATE- AUG. 1966
M-FS-753

Combination indexer and drive unit drills equally spaced circular hole patterns on rotary tables. It automatically rotates the table a distance exactly equal to one hole spacing for each revolution of a special idler gear.

B66-10384

UNIVERSAL TRANSLOADER MOVES DELICATE EQUIPMENT

WITHOUT STRESS

BARBOUR, J. R. KESSLER, P. N. /N. AM. AVIATION/
DATE- AUG. 1966
MSC-654

Transloader moves delicate or heavy items over irregular surfaces without transmitting stress to the load. The loader is supported on three pivot points which produce a wrap free base. The base is supported by an artificial four-wheel frame.

B66-10385

INFLATABLE O-RING SEAL WOULD EASE CLOSING OF

HATCH COVER PLATE

NEARY, K. J. /N. AM. AVIATION/ DATE- AUG. 1966
MSC-740

Inflatable O-ring seal provides positive sealing means that does not require the manual exertion of a large compressive force during opening or closing of a rotary type hatch cover plate. The O-ring is deflated during opening and closing and inflated after closure by a gas pressure source.

B66-10390

ONE-PIECE TRANSPARENT SHELL IMPROVES DESIGN OF

HELMET ASSEMBLY

JONES, R. L. OKANE, J. H. DATE- AUG. 1966
MSC-187

One-piece transparent helmet shell made of polycarbonate is equipped with a helmet protection pad, a visor assembly, a communications skull cap, and an emergency oxygen supply. This design offers improvements over previous designs in weight, visual field, comfort and protection.

B66-10399

EXPANDABLE TAKEUP REEL FACILITATES PAPER TAPE

REMOVAL

WESTERMAN, H. E. /DOUGLAS AIRCRAFT CO./ DATE-
SEP. 1966
WOO-271

Takeup reel receives continuous paper tapes from data recording machines. The roller is recessed to have four longitudinal members about its periphery which can be extended or retracted to change the overall diameter of the assembly to allow easy removal of the tapes.

B66-10402

ROTARY VALVE CONTROLS MULTIPLE HYDRAULIC

LEVELING CYLINDERS

SPON- INNOVATOR NOT GIVEN /BOEING CO./ DATE- SEP.
1966
M-FS-361

Single rotary valve controls a circular bank of hydraulic leveling cylinders that must maintain large loads within plus or minus three arc minutes of the true vertical. Since the position of the valve spool determines the flow rate of each bank of cylinders and hence cylinder position, different flow rates may be obtained by changing the spool shape.

B66-10403

SPECIAL TOOL KIT AIDS HEAVILY GARMENED WORKERS

HOLMES, A. E. /MARTIN CO./ DATE- SEP. 1966
MSC-163

Triangular aluminum tool kit, filled with polyurethane is constructed to receive various tools and hold them in a snug but quick-release fit as an aid to heavily gloved workers. The kit is designed to allow mounting within easily accessible reach and to provide protection of the tools during storage.

B66-10405

DESIGN RELIABILITY GOAL DEVELOPED FROM SMALL SAMPLE

BURROWS, D. L. HEATHCOCK, R. DATE- SEP. 1966
M-FS-403

Sampling distributions, constructed by Monte Carlo simulation are used in hardware development to establish a design reliability goal, to place a confidence coefficient on reliability estimates, and to determine whether sample stress/strength data demonstrate a specified reliability at a specified confidence level.

B66-10408

CLOSED LOOP OPERATION ELIMINATES NEED FOR

AUXILIARY GAS IN HIGH PRESSURE PUMPING

STATION

LANDY, D. G. /N. AM. AVIATION/ DATE- SEP. 1966
M-FS-893

Closed loop system for a liquid nitrogen high pressure pump feeds back gaseous nitrogen generated by heat leak into the reservoir to maintain the pressure in the storage tank. This safer, more efficient system eliminates the need for auxiliary gas to maintain the tank pressure and can be used on relatively high cryogenic pumping systems.

B66-10410

ALIGNMENT TOOL FACILITATES PIN PLACEMENT ON

IRREGULAR HORIZONTAL SURFACES

BOYLE, J. V. DATE- SEP. 1966
LANGLEY-219

Alignment tool facilitates spotting and cementing plastic pins on the true vertical to irregular concave and convex surfaces. The tool consists of a wood tripod with individually adjustable legs, a wood block with a hole for placing the pins and two spirit levels at a 90 degree angle for easy alignment.

B66-10411

HEAVY DUTY PRECISION LEVELING JACKS EXPEDITE

SETUP TIME ON HORIZONTAL BORING MILL

DELLENBAUGH, W. JONES, C. /N. AM. AVIATION/
DATE- SEP. 1966
M-FS-1084

Leveling jack is a precise alignment tool which expedites the setup of components or assemblies up to 2500 pounds on horizontal boring mills. This tool eliminates the necessity of wedges and blocks to shim the components to proper position.

B66-10415

ELECTROPLATING ELIMINATES GAS LEAKAGE IN

BRAZED AREAS

LEIGH, J. D. /N. AM. AVIATION/ DATE- SEP. 1966
M-FS-923

Electroplating method seals brazed or welded joints against gas leakage under high pressure. Any conventional electroplating process with many different metal anodes can be used, as well as the build up of layers of different metals to any required thickness.

B66-10416

MATCHING FLOW CHARACTERISTICS OF STANDARD

SHUTOFF VALVES ELIMINATES NEED FOR CUSTOM FABRICATED VALVES

BEVAN, A. P. /N. AM. AVIATION/ DATE- SEP. 1966
M-FS-1069

Standard high pressure valves are used in low pressure fluid system testing when a substantial system pressure increase is required. The flow-vs-valve stroke is matched with that of the valves being replaced. Some correction to the plug contour may be necessary.

B66-10417

MODIFIED PLIERS FACILITATE COUPLING OF BAYONET-TYPE CONNECTORS

HARRIS, F. /N. AM. AVIATION/ DATE- SEP. 1966
M-FS-1344

Modified single-tube hole punch or grommet-setting pliers couples or uncouples spring-loaded bayonet-type connectors quickly and easily. The anvil and tube or punch of the single-tube hole punch or pliers are removed and an open-end slot is machined in the tips of the jaws.

B66-10418

BEARING PULLER FACILITATES REMOVAL AND REPLACEMENT OF BEARING ASSEMBLIES

SCHAUS, R. B. /N. AM. AVIATION/ DATE- SEP. 1966
M-FS-1538

Bearing puller removes ball bearing assemblies, which carry the rotor, from turbine type flowmeters. It matches the bearing configuration to facilitate removal of the bearing assemblies from the support members.

B66-10422

LARGE DIAMETER METAL RING SEAL PREVENTS GAS LEAKAGE AT 5000 PSI

MIDDELKOOP, J. H. /N. AM. AVIATION/ DATE- SEP. 1966

M-FS-1064

Large metal ring seal prevents gas leakage in hydrogen, helium, or nitrogen storage bottles at pressures up to 5,000 psi. The grooved ring seal which contains elastomer O-rings is installed between the mating faces of the access cover and the storage bottle.

B66-10424

LABYRINTH-TYPE VALVE SEAT INCREASES VALVE LIFE BY DECREASING FLUID VELOCITY

HICKS, J. E. /N. AM. AVIATION/ DATE- SEP. 1966
M-FS-1051

Labyrinth-type valve seat and a moving piston with V-notch openings reduce the fluid velocity and thus, the erosion rate of regulator valves.

B66-10425

INTERIOR SERVICING PLATFORM SIMPLIFIES MAINTENANCE OF STORAGE TANKS

RANGER, C. S. /N. AM. AVIATION/ DATE- OCT. 1966
M-FS-1300

Rapid synchronization of phase-locked oscillators is best achieved by the swept-frequency acquisition technique, wherein the Voltage-Controlled Oscillator /VCO/ is linearly swept through the uncertainty band. The theoretically predicted sweep rates of this technique and the observed experimental results differ by less than seven percent.

B66-10428

FLEXIBLE DRIVE ALLOWS BLIND MACHINING AND WELDING IN HARD-TO-REACH AREAS

HARVEY, D. E. ROHRBERG, R. G. /N. AM. AVIATION/ DATE- OCT. 1966

MSC-524

Flexible power and control unit performs welding and machining operations in confined areas. A machine/weld head is connected to the unit by a flexible transmission shaft, and a locking-indexing collar is incorporated onto the head to allow it to be placed and held in position.

B66-10434

ROTATING MAGNETIC POLES USED TO PUMP MERCURY

EBIHARA, E. T. LOWDERMILK, W. H. VARY, A. DATE- OCT. 1966 REAN- SEE ALSO NASA-TN-D-2965

LEWIS-276

Rotating magnetic pump with redesigned pump cell

is used for pumping mercury. The modified pump has better electrical continuity, more efficient heat removal, and good wetting characteristics in the mercury flow channel.

B66-10443

NEW BACKUP-BAR GROOVE CONFIGURATION IMPROVES HELIARC WELDING OF 2014-T6 ALUMINUM

BLACK, F. J. /N. AM. AVIATION/ DATE- OCT. 1966
MSC-806

Backup chill bar with new grooved dimensions improve welding of 2014-T6 aluminum. This groove geometry affords optimum chilling characteristics, reduces shrinkage and the weld bead is narrower and consistently free from impurities or voids.

B66-10446

SEAL-OFF ASSEMBLY PERMITS RAPID EVACUATION OF AIR FROM CONTAINERS

DEMERS, R. R. /RCA/ DATE- OCT. 1966
GSFC-513

Seal-off assembly which permits rapid container evacuation using large diameter tubing has a vacuum valve that permits sealing plate transfer from the vacuum valve stem to the container after evacuation. The sealing plate can be reused repeatedly. This device can repump in case of a small leak without exposing the container to the atmosphere.

B66-10450

METAL TUBE CAN BE FOLDED FOR COMPACT STOWAGE, IS SELF-ERECTING

DATE- OCT. 1966 REAN- SEE ALSO NASA-TM-X-1187

LEWIS-288

Metal tube configuration reduces the section modulus to that of a thin plate, thus permitting the section to be bent into a coil for stowage in limited space without destructive yielding of the material. It is readily released to serve as a rigid fluid transportation conduit or structural member.

B66-10455

MYLAR FILM ELIMINATES SILK SCREENING OF EQUIPMENT PANELS

CONGER, D. R. /N. AM. AVIATION/ DATE- OCT. 1966
MSC-798

Equipment panel designs and nomenclature are photographed on clear Mylar film to permit fast and inexpensive panel redesigns and revisions and to eliminate the silk screen process. The film is coated with an adhesive and impressed on the panel. For revisions, the film is easily peeled off and replaced.

B66-10457

LOGIC SYSTEM AIDS IN EVALUATION OF PROJECT READINESS

MARIS, S. J. CBRIEN, T. J. /N. AM. AVIATION/ DATE- OCT. 1966

MSC-753

Measurement Operational Readiness Requirements /MORR/ assignments logic is used for determining the readiness of a complex project to go forward as planned. The system used logic network which assigns qualities to all important criteria in a project and establishes a logical sequence of measurements to determine what the conditions are.

B66-10459

IMPROVED METHOD FACILITATES DEBULKING AND CURING OF PHENOLIC IMPREGNATED ASBESTOS

GAINES, P. /N. AM. AVIATION/ DATE- OCT. 1966
MSC-949

Workpieces covered with phenolic impregnated asbestos tape and then wrapped with a specified thickness of nylon yarn under pressure, are debulked and cured in a standard oven. This method of debulking and curing is used in the fabrication of ablative chambers for the Gemini and Apollo attitude control engines.

B66-10460

CHART SYSTEM SIMPLIFIES IDENTIFICATION OF COMPLEX DESIGN ASSEMBLIES

MORIN, H. P. /N. AM. AVIATION/ DATE- OCT. 1966
MSC-752

Identification breakdown chart that lists the component parts required for any specific end item is used to identify rapidly and accurately, from numerous drawings, all the component parts of a complex design assembly. Cylindrical and complex configurations are depicted as continuous flat surfaces for ready identification.

B66-10463
MICROMINIATURE THERMOCOUPLE MONITORS OWN
INSTALLATION

GARRETT, A. J. SELLERS, J. P., JR. /N. AM. AVIATION/
 DATE- OCT. 1966
 M-PS-1111

Microminiature thermocouple makes precision gas sidewall temperature readings inside large thrust chambers. It is installed by a technique whereby the sensor monitors its own installation to insure against thermal damage to the thermocouple and ensure minimum disturbance to chamber surfaces.

B66-10464
LARGE SEALS FABRICATED FROM SMALL SEGMENTS
REDUCE PROCUREMENT LEAD TIME

DANIELS, C. M. HANES, V. D. /N. AM. AVIATION/
 DATE- OCT. 1966
 M-PS-1117

Large diameter seals are fabricated from narrow strip stock welded in segments to form a complete ring. This technique could be used to reduce the cost of critical, large diameter seals in the heating and ventilating industry, petrochemical industry, and marine fabrication industry.

B66-10470
INDICATOR SYSTEM PROVIDES COMPLETE DATA OF
ENGINE CYLINDER PRESSURE VARIATION

MC JONES, R. W. MORGAN, N. E. /VICKERS, INC./
 DATE- DEC. 1966
 LEWIS-291

Varying reference pressure used together with a balanced pressure pickup /a diaphragm switch/ to switch the electric output of the pressure transducer in a reference pressure line obtains precise engine cylinder pressure data from a high speed internal combustion engine.

B66-10471
COPPER-ACRYLIC ENAMEL SERVES AS LUBRICANT
FOR COLD DRAWING OF REFRACTORY METALS

BEANE, C. KARASEK, F. DATE- NOV. 1966
 ARG-54

Acrylic enamel spray containing metallic copper pigment lubricates refractory metal tubing during cold drawing operations so that the tubing surface remains free from scratches and nicks and does not seize in the die. Zirconium alloys, zirconium, tantalum alloys, niobium alloys, vanadium alloys and titanium alloys have been drawn using this lubricant.

B66-10472
RUBBER AND ALUMINA GASKETS RETAIN VACUUM
SEAL IN HIGH TEMPERATURE EMF CELL

HESSON, J. C. DATE- NOV. 1966
 ARG-17

Silicone rubber gasket and an alumina gasket retain a vacuum inside a high temperature EMF cell in which higher and lower density liquid metal electrodes are separated by an intermediate density fused salt electrolyte. This innovation is in use on a sodium bismuth regenerable EMF cell in which the fused salts and metals are at about 500 deg to 600 deg C.

B66-10473
MINIATURE VALVE ACCURATELY CONTROLS SMALL
VOLUME FLUID FLOW

GRUNWALD, A. DATE- NOV. 1966
 ARG-66

Hydraulic or pneumatic actuated valve accurately controls small volume flow of liquids or gases by expanding or relaxing an O-ring within an annular flow space. In one application, 2 such valves were used to accurately meter small volumes of helium under a pressure of 1000 psi.

B66-10477
CONCEPT OF PLANETARY GEAR SYSTEM TO CONTROL

FLUID MIXTURE RATIO

MC GROARTY, J. D. /N. AM. AVIATION/ DATE- DEC. 1966

M-PS-1785

Mechanical device senses and corrects for fluid flow departures from the selected flow ratio of two fluids. This system has been considered for control of rocket engine propellant mixture control but could find use wherever control of the flow ratio of any two fluids is desired.

B66-10484
BRAKING MECHANISM IS SELF ACTUATING AND
BIDIRECTIONAL

PIZZO, J. /N. AM. AVIATION/ DATE- OCT. 1966
 M-PS-1299

Mechanism automatically applies a braking action on a moving item, in either direction of motion, immediately upon removal of the driving force and with no human operator involvement. This device would be useful wherever free movement is undesirable after an object has been guided into a precise position.

B66-10485
COMBINATION SPACER AND GASKET PROVIDES
EFFECTIVE STATIC SEAL

JONES, F. B. /N. AM. AVIATION/ DATE- OCT. 1966
 M-PS-1397

Closely machined steel ring having narrow sealing lands on both faces and a thin coating of a commercially available halocarbon polymer combines the functions of a spacer and static seal ring or gasket having a minimum of potential leak paths. The device is effective over a wide range of temperatures down to minus 423 deg F and at pressure up to 180 psig.

B66-10489
PLUG REPLACES WELD FILLER AS SEAL IN COMPLEX
CASTING

GROUNDREY, R. L. HARRIS, C. L. /AEROJET-GEN. CORP./ DATE- OCT. 1966
 NU-0049

Expandable metal plug is inserted to provide a seal to support the mold core with small blocks, referred to as chaplets, during the casting of a complex volute. Weld-warpage and multiple X ray inspection are eliminated by use of this technique.

B66-10495
SPOOL VALVE CYCLES AT CONTROLLED FREQUENCY
CHARLTON, R. W. VAN ARMAN, D. E. /BECKMAN
INSTR./ DATE- NOV. 1966
MSC-143

Spool valve accurately controls the cycle of a pneumatically-actuated system over long periods. Regulation of pressure from the external source, positioning of the adjusting plugs, and magnet selection, together afford wide variation in cyclic timing and speed of closure in either direction.

B66-10498
QUICK-RESPONSE SERVO AMPLIFIES SMALL
HYDRAULIC PRESSURE DIFFERENCES

WIEGARD, D. E. DATE- NOV. 1966
 ARG-99

Hydraulic servo, which quickly diverts fluid to either of two actuators, controls the flow rates and pressures within a hydraulic system so that the output force of the servo system is independent of the velocity of the mechanism which the system actuates. This servo is a dynamic feedback control device.

B66-10513
OPPOSED ARCS PERMIT DEEP WELD PENETRATION
WITH ONLY ONE PASS

BUDDS, L. E. /N. AM. AVIATION/ DATE- NOV. 1966
 M-PS-1696

Arc welding technique uses opposed electrodes on either side of the workpiece, operated in right angles, out-of-phase, pulsating direct current. Complete penetration has been obtained with this technique in metals ranging from 0.062 to 1.0 inch thickness.

05 MECHANICAL

B66-10514

IN-TANK SHUTOFF VALVE IS PROVIDED WITH
MAXIMUM BLAST PROTECTION

HOLDEN, C. F. /N. AM. AVIATION/ DATE- NOV. 1966
M-PS-1529

In-tank shutoff valve is installed with the valve poppet and actuator inside the tank to provide maximum blast protection during rocket engine test operation. This valve design is applicable wherever explosive fuels are used and is currently being used in lox and liquid hydrogen tanks at a rocket engine test site.

B66-10522

SELF-ACTUATING GRAPPLE AUTOMATICALLY
ENGAGES AND RELEASES LOADS FROM OVERHEAD
CRANES

PROEHLICH, J. A. KARASTAS, G. A. DATE- NOV. 1966
ARG-81

Two-piece grapple mechanism consisting of a lift knob secured to the load and a grapple member connected to the crane or lift automatically disengages the load from the overhead lifting device when the load contacts the ground. The key feature is the sliding collar under the lift knob which enables the grapple latch to be stripped off over the lift knob.

B66-10523

HYDRAULIC FLUID SERVES AS MANDREL FOR SMALL
DIAMETER REFRACTORY TUBE DRAWING

MAYFIELD, R. M. DATE- DEC. 1966

ARG-44

Sealing hydraulic fluid within a tube and passing the tube through a reducing die produces high quality small diameter refractory metal tubing. The encased fluid eliminates the need for mandrel or ductile core removal and drawing can proceed with less handling operations.

B66-10530

PERFORATIONS IN JET ENGINE SUPERSONIC INLET
INCREASE SHOCK STABILITY

KEPPLER, C. R. /UNITED AIRCRAFT CORP./ DATE-
NOV. 1966
NEO-8

Modification of a conventional jet engine internal compression supersonic inlet results in increased shock stability and thus, engine instantaneous response to changes in inlet air properties. This technique provides a large amount of bleed near the maximum pressure recovery at the expense of minor bleed flow during critical operation.

B66-10537

GAGE TESTS TUBE FLARES QUICKLY AND
ACCURATELY

GRIFFIN, F. D. DATE- NOV. 1966
KSC-66-19

Flared tube gage with a test cone that is precisely made with a tapering surface to complement the tube flare is capable of determining the accuracy of a tube flare efficiently and economically. This device should improve the speed, efficiency, and accuracy of tube flare inspections.

B66-10545

HOIST IS AUTOMATICALLY STOPPED AT LOW
DECELERATION RATE

GEORGE, T. R. HESS, H. C. /N. AM. AVIATION/
DATE- DEC. 1966

M-PS-1639

In operating a hoist to transport delicate or fragile components, an automatic stopping device is adjusted to impose a predetermined deceleration rate during stopping.

B66-10546

INTERNAL MACHINING ACCOMPLISHED AT CONSTANT
RADII

GOLLIHUGH, T. E. /N. AM. AVIATION/ DATE- DEC.
1966

M-PS-1573

Device machines fluid passages in workpieces at constant radii through two adjacent surfaces that are at included angles up to approximately 120 degrees. This technique has been used extensively in fabricating engine parts where

close control of fluid flow is a requirement.

B66-10550

DAMPER REDUCES EFFECTS OF RESONANCE ON
FORCE TRANSDUCER

POSTMA, R. W. /N. AM. AVIATION/ DATE- NOV. 1966
WSO-321

Viscous-film damper eliminates response lag of resonance generated noise when inserted into the thrust measuring system. This technique can be applied to automated devices when pulsed force or low order impact is involved, and where signal noise is produced by stopping or reversal of mechanical travel or by water hammer.

B66-10562

METALLOGRAPHIC HOLDING FIXTURE PERMITS
POLISHING OF SOFT METALS ON VIBRATORY
LAPPING MACHINE

MATRAS, S. DATE- DEC. 1966

ARG-42

Circular fixture which mounts several specimens within a single turret prevents specimen smearing during grinding and polishing operations performed on a vibratory lapping machine. Each specimen is loaded individually with a weight small enough to prevent smearing but large enough to promote polishing.

B66-10567

HEAT EXCHANGER TUBES SUPPORTED IN HIGH
VIBRATION ENVIRONMENT

URQUIDI, R. /N. AM. AVIATION/ DATE- DEC. 1966
M-PS-1401

Cantilevered structure supports heat exchanger coils against vibration loading while allowing freedom for differential thermal growth. The support channels will accept a variety of coil angles with the same coil pitch, thus reducing the number of parts required. This design, with slight modification, could be used to support parallel rows of straight piping.

B66-10570

STATIONARY DEVICE PRODUCES HOMOGENEOUS
MIXTURE OF FLUIDS

BAKER, D. I. CALLISON, M. P. /N. AM. AVIATION/
DATE- DEC. 1966

M-PS-525

Stationary device produces a homogeneous mixture of two or more one-phase or two-phase fluids. The device contains two concentric flow guides with helical passageways through which the fluids are forced into turbulent flow by the system pressure differential.

B66-10571

DUCTILE MANDREL AND PARTING COMPOUND
FACILITATE TUBE DRAWING

BURT, W. R., JR. MAYFIELD, R. M. POLAKOWSKI, N.
H. DATE- DEC. 1966

ARG-43

Refractory tubing is warm drawn over a solid ductile mandrel with a powder parting compound packed between mandrel and the tubes inner surface. This method applies also to the coextrusion of a billet and a ductile mandrel.

B66-10573

ORTHOPEDIC STRETCHER WITH AVERAGE-SIZED
PERSON CAN PASS THROUGH 18-INCH OPENING

LOTHSCHUETZ, F. X. /MASON-RUST CO./ DATE- DEC.
1966

M-PS-811

Modified Robinson stretcher for vertical lifting and carrying, will pass through an opening 18 inches in diameter, while containing a person of average height and weight. A subject 6 feet tall and weighing 200 pounds was lowered and raised out of an 18 inch diameter opening in a tank to test the stretcher.

B66-10575

EMERGENCY ESCAPE SYSTEM USES SELF-BRAKING
MECHANISM ON FIXED CABLE

BILLINGS, C. R. MC DARIS, R. A. MC GOUGH, J. T.
NEAL, P. F. DATE- DEC. 1966

KSC-66-44

Slide-wire system with a twist level slide device

incorporates automatic descent and braking for the safe and rapid evacuation of personnel from tall structures. This device is used on any tall structure that might require emergency evacuation. It is also used to transfer materials and equipment.

B66-10582
COMPOSITE BULKHEAD FABRICATION DEVELOPMENT
ORR, J. DATE- DEC. 1966
M-PS-1264

Composite bulkhead is produced by a fabrication concept utilizing vacuum and/or autoclave pressure to hold preformed welded sandwich elements in place during bonding and aging.

B66-10585
ROTATIONAL FLUID COUPLING ELIMINATES HOSE ENTANGLEMENTS
AUBOL, P. B. /TRW/ DATE- DEC. 1966
MSC-312

Rotational fluid coupling mechanism circulates a temperature controlled fluid between a stationary heat exchanger and a coolant plate on a rotating platform. The mechanism consists of two concentric cylinders containing one or more flexible tubes which are controlled and positioned in such a way that it eliminates tubing entanglement.

B66-10587
QUALITY CONTROL CRITERIA FOR ACCEPTANCE TESTING OF CROSS-WIRE WELDS
BRYANT, R. D. /N. AM. AVIATION/ DATE- DEC. 1966
MSC-627

Visual inspection criteria assure the metallurgical integrity of spot welds joining nickel leads and nickel ribbon in a 90 degree cross-wire configuration.

B66-10588
PLASTIC TUBING PROTECTS FLEXIBLE COPPER HOSE
MELLEGREN, B. E. /N. AM. AVIATION/ DATE- DEC. 1966
M-PS-772

Flexible copper purge and coolant hoses is covered with a high-temperature shrinkable plastic for protection against severe vibration during rocket engine tests. This type of tubing is being used on all flexible water tubes used in F-1 engine tests.

B66-10589
POSITIVE DISPLACEMENT CYLINDER MEASURES CORROSIVE LIQUID VOLUME
MARIMAN, R. A. VENDI, C. J. /N. AM. AVIATION/ DATE- DEC. 1966
MSC-1038

Positive displacement cylinder accurately measures volumetric flow rates of corrosive liquids. The cylinder is compatible with corrosive liquids and handles flow rates from zero to 75 gpm at pressures to 900 psig with an accuracy of 0.25 per cent.

B66-10593
FLUID LOGIC CONTROL CIRCUIT OPERATES ROTATOR ACTUATOR MOTOR
SPON- INNOVATOR NOT GIVEN /BENDIX CORP./ DATE- DEC. 1966 REAN- SEE ALSO NASA-CR-54788
LEWIS-294

Fluid logic control circuit operates a pneumatic rotator actuator motor. It has no moving parts and consists of connected fluid interaction devices. The operation of this circuit demonstrates the ability of fluid interaction devices to operate in a complex combination of series and parallel logic sequence.

B66-10595
TREATMENT INCREASES STRESS-CORROSION RESISTANCE OF ALUMINUM ALLOYS
JACOBS, A. J. /N. AM. AVIATION/ DATE- DEC. 1966
M-PS-1840

Overaging during heat treatment of the aluminum alloys immediately followed by moderate plastic deformation, preferably by shock loading achieves near optimum values of both yield strength and resistance to stress corrosion. Similar results

may be obtained by substituting a conventional deformation process for the shock loading step.

B66-10597
GRIT BLASTING NOZZLE FABRICATED FROM MILD TOOL STEEL PROVES SATISFACTORY
MC FARLAND, J. E. TURBITT, B. DATE- DEC. 1966
M-PS-1420

Dry blasting with glass beads through a nozzle assembly descales both the outside and inside surfaces of tubes of Inconel 718 used for the distribution of gaseous oxygen. The inside of the nozzle is coated with polyurethane and the deflector with a commercially available liquid urethane rubber.

B66-10601
EQUATIONS PROVIDE TUBULAR INFORMATION ON EFFECTS OF UNIFORM AND VARIABLE LOADS ON THIN, FLAT, CIRCULAR PLATES
HEAP, J. C. DATE- DEC. 1966
ARG-151 ARG-152

Unit-mass system of derivation of equations determines the deflection, slope, and moments for thin, flat, circular plates subjected to either a uniform or a symmetrical variable load. The derived equations are computed, organized in tabular form, and graphically depicted.

B66-10604
HOLE SAW DRILL ATTACHMENT HAS ZERO FORCE REACTION
HOLMES, A. E. RILEY, R. H., JR. /BLACK AND DECKER MFG. CO./ DATE- DEC. 1966 HOLMES, A. E. /MARTIN CO./
MSC-543

Zero reaction tools require no force application by workers in space. The tool accomplishes hole cutting by holding the workpiece and feeding the cutting blade into and through it by forces entirely absorbed within the tool.

B66-10608
FRICTION BRAKE CUSHIONS ACCELERATION AND VIBRATION LOADS
FRASER, G. F. ZAWADSKI, G. Z. /N. AM. AVIATION/ DATE- DEC. 1966
MSC-715

Friction brake cushions an object in a vehicle from axially applied vibration and steady-state acceleration forces. The brake incorporates a doubly tapered piston that applies a controlled radial force to friction brake segments bearing against the walls of a cylinder.

B66-10610
SELECTIVE TUBE ROUGHENING INCREASES HEAT TRANSFER CAPABILITY
CARLSON, L. W. DATE- DEC. 1966
M-PS-599

Selectively roughening inside surfaces of tubes increases the heat transfer capabilities, but minimizes the pressure drop. This technique is used to construct roughened test sections for hydrogen heat transfer studies.

B66-10611
MULTILAYER REFRACTORY NOZZLES PRODUCED BY PLASMA-SPRAY PROCESS
BLITON, J. L. RAUSCH, J. L. /IIT RES. INST./ DATE- DEC. 1966
WOO-318

Multilayer rocket nozzles formed by plasma spraying have good thermal shock resistance and can be reheated in an oxidizing environment without loss of coating adherence. Suggested application of this process are for the production of refractory components, which can be formed as surfaces of revolution.

B66-10613
NEW WELDABLE HIGH STRENGTH ALUMINUM ALLOY DEVELOPED FOR CRYOGENIC SERVICE
SPON- INNOVATOR NOT GIVEN /ALUMINUM CO. OF AM./ DATE- DEC. 1966
M-PS-737

Wrought aluminum alloy has improved low temperature notch toughness and weldability. This alloy can be mill-fabricated to plate and sheet

05 MECHANICAL

without difficulty. Post-weld aging improves weld ductility and strength properties. A typical treatment is 8 hours at 225 deg F plus 16 hours at 300 deg F.

B66-10618

A DESIGN PROCEDURE FOR THE WEIGHT OPTIMIZATION OF STRAIGHT FINNED RADIATORS
BURIAN, R. J. HARRIS, D. W. KETCHMAN, J. J.
/BATTELLE MEM. INST./ DATE- DEC. 1966 REAN- SEE
ALSO NASA-TN-D-3489
GSFC-547

Design technique evaluates optimum weight of space radiator consisting of finned, right circular cylinder.

B66-10620

TURBINE BLADE ROOT DESIGN CONCEPT PROMISES SUPERIOR ALIGNMENT
KING, O. D. /N. AM. AVIATION/ DATE- DEC. 1966
M-PS-1685

Blade-to-hub mounting concept assures excellent alignment integrity and results in elimination of some welding problems associated with designs. With this design, if rework is required, blade removal and replacement may be readily accomplished without damage to blade positioning media on the wheel hub.

B66-10626

HYDRAULICALLY CONTROLLED FLEXIBLE ARM CAN BEND IN ANY DIRECTION
GRIFFIN, F. D. DATE- DEC. 1966
KSC-66-20

Arm assembly consisting of four flexible tubes controlled by a four-way hydraulic or pneumatic valve can bend in any direction. The flexible arm could be used for probing areas that cannot be reached by ordinary tools, handling hazardous materials, and for graph recording.

B66-10627

QUICK ATTACH AND RELEASE FLUID COUPLING ASSEMBLY IS SELF-ALIGNING, SELF-SEALING
HEROLD, C. P. STAHLEY, S. D. DATE- DEC. 1966
KSC-66-8

Fluid coupling assembly that is self-aligning, self-sealing and contains a bellow ball and socket coupling for quick attach and release is highly reliable and can handle cryogenic fluids where icing is encountered. The fluid coupling assembly is used in many fluid systems but is particularly applicable to cryogenic systems.

B66-10628

CONTROLLED RELEASE DEVICE PREVENTS DAMAGE FROM DYNAMIC STRESSES
BURCHAM, T. W. DATE- DEC. 1966
KSC-66-14

Controlled release device that retards motion by extruding or drawing a tapered ductile pin through a die will control launch vehicle motion at liftoff. The device prevents the damaging dynamic stresses that are imposed on the vehicle when it is instantaneously released at full thrust.

B66-10633

PREDICTING SURFACE HEATING RATES AND PRESSURES RESULTING FROM HOT EXHAUST GASES
PIESKI, E. T. SIMKIN, D. J. /N. AM. AVIATION/
DATE- DEC. 1966
MSC-971

Structural tests determine experimentally the amount of thermal protection required on the Apollo service module because of plume impingement heating. Exhaust flow field analysis correlates with flat plate heating rate and surface pressure in a vacuum.

B66-10634

EMERGENCY ESCAPE SYSTEM PROTECTS PERSONNEL FROM EXPLOSION AND FIRE
OFFIK, W. G. /MARTIN CO./ DATE- DEC. 1966
KSC-66-12

Elevator-type emergency escape system evacuates personnel from tall structures, especially when the possibility of explosion or fire exists. The system consists of a spike shaped rescue cabin

which descends along a vertical guide cable, penetrates the dome shaped roof of an underground blast shelter and stops in a deceleration bed of granular material.

B66-10635

LIGHTWEIGHT, ALL-METAL HOSE ASSEMBLY HAS HIGH FLEXIBILITY AND STRENGTH OVER WIDE RANGE OF TEMPERATURE AND PRESSURE
BESSING, L. L. /N. AM. AVIATION/ DATE- DEC. 1966
M-PS-1831

Lightweight flexible, metal braid reinforced hose assembly is used in high and low pressure oxygen, helium, and hydrogen systems. These hose assemblies have been successfully used on the Saturn-2 stage to provide joints of sufficient flexibility to absorb movement resulting from temperature variations.

B66-10641

POWER ARC WELDER TOUCH-STARTED WITH CONSUMABLE ELECTRODE
JEANNETTE, J. C. /AIR REDUCTION CO./ DATE- DEC. 1966
M-PS-1485

Power arc welder formed as a hand-held welding gun touch-starts, retracts a consumable electrode to create the desired arc, and then commences feeding of the consumable electrode at the rate required to form the intended bead or spot. This device achieves uniform spot welds repeatedly.

B66-10642

DEVICE MEASURES REACTION ENGINE THRUST VECTOR DEVIATIONS
LEONARD, K. SHIEBER, H. /TRW SPACE TECHNOL. LABS./ DATE- DEC. 1966
JPL-SC-163

Gimbal mounted test device measures thrust vector deviation of reaction engines in terms of angular displacement and thus precludes force interaction.

B66-10648

FUEL AND OXIDIZER VALVE ASSEMBLY EMPLOYS SINGLE SOLENOID ACTUATOR
SPON- INNOVATOR NOT GIVEN /PARKER AIRCRAFT CO./ DATE- DEC. 1966
MSC-1046

Valve assembly simultaneously starts or stops the flow of oxidizer and fuel from separate inlet channels to reaction control motors. The assembly combines an oxidizer shutoff valve and a fuel shutoff valve which are mechanically linked and operated by a single high-speed solenoid actuator.

B66-10655

CHECK VALVE INSTALLATION IN PILOT OPERATED RELIEF VALVE PREVENTS REVERSE PRESSURIZATION
OSWALT, L. /N. AM. AVIATION/ DATE- DEC. 1966
M-PS-1925

Two check valves prevent reverse flow through pilot-operated relief valves of differential area piston design. Title valves control pressure flow to ensure that the piston dome pressure is always at least as great as the main relief valve discharge pressure.

B66-10656

MECHANICAL GAUGE ACCURATELY CHECKS TUBING FLARE, ROUNDNESS, AND CONCENTRICITY
CLARK, L. K. /IBM/ DATE- DEC. 1966
M-PS-1822

Mechanical gage checks flare roundness and concentricity of metal tubing. The gage, which is available from off-the-shelf standard toolmaking supplies, provides the needed accuracy and is easily operated.

B66-10662

METHOD FOR PREDICTING FRICTIONAL LOSS IN METAL BELLOWS AND FLEXIBLE HOSE
CLEVELAND, J. R. DANIELS, C. M. /N. AM. AVIATION/ DATE- DEC. 1966
M-PS-883

Test data obtained concerning the frictional pressure loss to fluids flowing in unsleeved bellows and flexible hose. This data should be useful in the design of fluid systems where high

delivery velocities are involved and flexible hose or bellows must be employed.

B66-10663

LATERAL RING METAL ELASTIC WHEEL ABSORBS SHOCK LOADING
GALAN, L. /BENDIX CORP./ DATE- DEC. 1966
M-FS-1312

Lateral ring metal elastic wheel absorbs practically all shock loading when operated over extremely rough terrain and delivers only a negligible shock residue to associated suspension components. The wheel consists of a rigid aluminum assembly to which lateral titanium ring flexible elements with treads are attached.

B66-10665

SPHERICAL PIPE JOINT DELIVERS LOADS EQUALLY TO MATING FLANGE
PFLEGER, R. O. /N. AM. AVIATION/ DATE- DEC. 1966
M-FS-807

Oxidizer inlet duct with a ball joint pipe fitting incorporating two spherical bearing races and balls in contact with centering cage springs transmits an evenly distributed load to the mating flange. This design should find application in piping systems where unequal load distributions exist.

B66-10667

SILAZANE ELASTOMER REMAINS RESILIENT AT 400 DEG C
SPON- INNOVATOR NOT GIVEN /SOUTHERN RES. INST./ DATE- DEC. 1966
M-FS-1144

Smooth, unfoamed elastomer is unaffected by common acids, alkalis, and organic solvents. Its thermal stability, chemical resistance, and physical properties make it of interest for various applications.

B66-10672

RESONANT FREQUENCY CAN BE ADJUSTED ON VIBRATION MOUNT
HODGES, F. /RYAN AERON./ DATE- DEC. 1966
JPL-SC-134

Vibration mount allows adjustment of its resonant frequency and is insensitive to wide temperature variation. The concept is essentially a multidirectional, frictionally damped spring with an adjustable cap. The mount provides vibration isolation in both compression and shear and may be applicable to space use.

B66-10674

ELIMINATION OF ROCKET ENGINE ASYMMETRIC LOADS DURING TESTS AT SEA LEVEL
JOHNSON, J. R. /N. AM. AVIATION/ DATE- DEC. 1966
M-FS-1730

Secondary injection concept eliminates asymmetric loads and may increase thrust rocket engine loads during sea level tests. The concept uses either a tubular manifold with evenly spaced injection ports or secondary fluid injected at the turbine exhaust inlet to the thrust chamber.

B66-10676

STUDY MADE OF DESTRUCTIVE SECTIONING OF COMPLEX STRUCTURES FOR EXAMINATION
RILEY, T. DATE- DEC. 1966
LEWIS-341

Advances in destructive sectioning of very small or complex structures are discussed. Examination is made by filling the structure in a vacuum with a low viscosity potting compound and then cutting without danger of spatial disorientation.

B66-10677

STUDY MADE TO CONTROL DEPTH OF POTTING COMPOUND FOR HONEYCOMB SANDWICH FASTENERS
CUSHMAN, J. /GEN. DYN./CONVAIR/ DATE- DEC. 1966
LEWIS-370

Study determines optimum fastener insert size and shape, type of embedding cement, diameter, undercut and depth control by fiber glass plug in a honeycomb structure for maximum tensile strength. The best potting compound is 5-5-1 weight mixture of epoxy resin, curing agent, and milled glass fibers.

B66-10678

IMPROVED ROLLING ELEMENT BEARINGS PROVIDE LOW TORQUE AND SMALL TEMPERATURE RISE IN ULTRAHIGH VACUUM ENVIRONMENT
GLENN, D. C. DATE- DEC. 1966
LEWIS-359

Rolling element bearing with stainless steel races and rolling elements and a porous bronze cage successfully operates in ultrahigh vacuum environments at a low torque and with small temperature rise. All components are burnished in molybdenum disulfide.

B66-10683

VALVE EFFECTIVELY CONTROLS AMOUNT OF CONTAMINANT IN FLOW STREAM
SCHNITZER, T. E. DATE- DEC. 1966
M-FS-1771

Contaminant valve with a coaxial groove rotor uniformly deposits contaminant into a flow stream under full pressure and flow conditions. The valve tests filters and filter elements of hydraulic oil, fuel, or lubricant systems without any detrimental effect on the performance.

B66-10686

ACTUATOR DEVICE SCHEDULES RATE OF VALVE CLOSURE
SPON- INNOVATOR NOT GIVEN /WHITTAKER CORP./ DATE- DEC. 1966
M-FS-1556

Prevalve actuator schedules the closure rate of a valve. The actuator is spring loaded to produce a normally open valve and pneumatically powered to close the valve. The closure rate is controlled by means of pneumatic snubber and booster circuitry.

B66-10688

PREFORMED STIFFENERS USED TO FABRICATE STRUCTURAL COMPONENTS FOR PRESSURIZED TANKS
LEWIS, J. C. SHERBA, E. S. /N. AM. AVIATION/ DATE- DEC. 1966
M-FS-1796

Process of fabricating stiffened section components of pressurized tanks for aerospace use was developed. A potential use of the fabrication process is the production of gore and quarter-panel sections of hydrogen and oxygen tanks for space vehicle boosters.

B66-10694

MECHANICAL DEVICE ACCURATELY MEASURES RF PHASE DIFFERENCES IN VHF OR UHF RANGES
HOPE, L. A. /N. AM. AVIATION/ DATE- DEC. 1966
M-FS-1738

Dual range linear measurement device accurately measures RF phase differences in either VHF or UHF ranges. The device has a capability consisting of a coarse range extending to 30 cm readable to 1 mm and any fine range portion of 2.5 cm readable to .01 mm.

B66-10695

MOTION DRIVE SYSTEM IS ACCURATELY CONTROLLED IN THE 1-MICRON RANGE
MORECROFT, J. H. DATE- DEC. 1966
JPL-864

Motion drive system has been developed for use with interferometers where accurate control of minuscule distance in the 1-micron range is of prime importance. The drive system is applicable to any device that requires extremely accurate positioning control.

B66-10697

COMBINATION DOUBLE DOOR HIGH-VACUUM VALVE PROVIDES ACCESS TO VACUUM CHAMBER
YAGER, S. P. DATE- DEC. 1966
JPL-849

Double door provides an extreme high vacuum seal as well as access to a vacuum chamber for insertion of test devices into the vacuum environment. This arrangement is applicable to any vacuum chamber and could be of value in cryopumping or mechanically pumped chambers.

05 MECHANICAL

B66-10698

MECHANISM FACILITATES COATING OF INNER SURFACES OF METAL CYLINDERS

BILLINGSLEY, J. M. TAFT, A. R. DATE- DEC. 1966 GSFC-515

Cylinder is rotated about shielded hot filament to vapor deposit thin coatings of aluminum or other metallic substances on the inner surface of a cylinder while avoiding heat-producing high-density current flow which causes outgassing of the coating surface. This method is acceptable for glass or metal.

B66-10702

TEFLON SHEET PERMITS VALVE AND VALVE OPERATOR TO MOVE AS A SINGLE UNIT IN A CRYOGENIC PIPE LINE

KINDER, S. K. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- DEC. 1966 NU-0077

Free floating support system in cryogenic pipe lines maintains the valve and valve operator in alignment. A Teflon sheet that is placed between the slide support plate and the base permits the valve and valve operator to move freely, as a unit, when the pipe line moves.

B66-10703

SILVER PLATING TECHNIQUE SEALS LEAKS IN THIN WALL TUBING JOINTS

BLENDERMAN, W. H. /N. AM. AVIATION/ DATE- DEC. 1966 NU-0090

Leaks in thin wall tubing joints are sealed by cleaning and silver plating the hot gas side of the joint in the leakage area. The pressure differential across the silver during hydrostatic test and subsequent use forces the ductile silver into the leak area and seals it.

B66-10704

METAL BOOT PERMITS FABRICATION OF HERMETICALLY SEALED SPLICES IN METAL SHEATHED INSTRUMENTATION CABLES

CHAMBERS, G. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- DEC. 1966 REAN- SEE ALSO B66-10705 NU-0083

Metal boot splices hard sheathed instrumentation cables used with high temperature strain gages and thermocouples. Silver brazing the conductors together, hermetically seals the splice. This boot is a highly reliable sealed splice which is equally effective at cryogenic temperatures, high temperatures, nuclear environments, and combinations of the above.

B66-10707

PNEUMATIC WRENCH RETAINS OR DISCHARGES NUTS OR BOLTS AS DESIRED

BOUILLE, J. R. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- DEC. 1966 NU-0085

Pneumatic wrench grips, screws or unscrews, and discharges a nut or bolt as desired. The device consists of a standard pneumatic wrench modified with a special hex bolt head socket assembly and a diaphragm air cylinder.

B66-10708

AIR BEARING PROVIDES FRICTION-FREE SUPPORT FOR SHAKER SYSTEM SLIP TABLE

SKOFF, R. W. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- DEC. 1966 NU-0086

Air bearing system supports a shaker system slip table with minimum friction. At each corner of a square of grooves made on the table, a hole is drilled through the table and fitted with air connections. Air pressure is simultaneously fed to the four fittings forming an air bearing.

B66-10711

CARRIAGE SYSTEM REMOTELY MOVES DRAWER OVER EXTENDED DISTANCE

SALZANO, G. H. /PARSONS-JURDEN CORP./ DATE- DEC. 1966 NU-0092

In the transferring of material remotely through thick radiation shielding walls, a drawer is

mounted on rollers which operate on rails carried on a slide carriage to eliminate the feature of the slide hardware projecting beyond the drawer when the drawer is extended its full distance.

B66-10712

SIMPLE MOTOR DRIVE SYSTEM OPERATES HEAVY HINGED DOOR

PITKIN, R. G. /PARSONS-JURDEN CORP./ DATE- DEC. 1966 NU-0093

Motor drive system remotely operates heavy steel radiation shielding doors. The drive consists of a standard motor reducer unit which is mounted on the door. This reducer drives a sprocket which is linked by chain to a fixed sprocket of the same size on the door jamb.

B66-10713

SWING-OUT RAIL SYSTEM SEPARATES OVERHEAD CRANE RAILS

PITKIN, R. G. /PARSONS-JURDEN CORP./ DATE- DEC. 1966 NU-0094

Swing-out rail system separates and reconnects the overhead traveling crane rails of a building to provide for the passage of a thick concrete radiation shield sliding door through the rails. In the swing-out position, the rail cantilevered from an axial shaft.

B67-10004

MICROMANIPULATION TOOL IS EASILY ADAPTED TO MANY USES

SHLICHTA, P. J. DATE- JAN. 1967 JPL-129

A special micromanipulation tool equipped with a plunger mounted in a small tube can be easily adapted to such work operations as cutting, precision clamping, and spot welding of microscopic filaments or other parts. This tool is valuable where extreme steadiness of high magnification is required.

B67-10006

COMPLEX SURFACES PLATED BY THIN-FILM DEPOSITION IN ONE OPERATION

BUCKLEY, D. H. PRZYBYSEWSKI, J. S. SPALVINS, T. DATE- JAN. 1967 LEWIS-292

Ion plating deposits thin film on complex surface in one operation. The ionized materials follow electric lines of force to all points on the objects, uniformly plating the surface from all sides simultaneously.

B67-10010

PROCESS SEQUENCE PRODUCES STRONG, LIGHTWEIGHT REFLECTORS OF EXCELLENT QUALITY

READER, A. F. RUSSELL, W. E. WERNER, E. A. DATE- FEB. 1967 LEWIS-331

Large compound curved surfaces for collecting and concentrating radiation are fabricated by the use of several common machining and forming processes. Lightweight sectors are assembled into large reflectors. With this concept of fabrication, integrally stiffened reflective sectors up to 25 square feet in area have been produced.

B67-10011

ELASTIC GUIDES REDUCE HYSTERESIS EFFECT IN BELLEVILLE SPRING PACKAGE

MC GLASHAN, W. F., TOTI, L. R. DATE- JAN. 1967 JPL-910

Peripheral support guides that elastically flex with the slight breathing on radial displacement during actuation can greatly reduce the hysteresis present in a Belleville spring package. This technique provides a control device that enhances the precision of pressure regulating valves, pressure switches, and vacuum actuators.

B67-10018

TECHNIQUE CUTS TIME AND COST OF BENDING JACKETED PIPING

GARDNER, J. N. /N. AM. AVIATION/ DATE- FEB. 1967 WSO-333

Technique uses a stiff medium in the annular space between inner and outer pipes of jacketed piping in transfer lines. The process eliminates splitting and welding and makes possible the use of standard pipe-bending tools.

B67-10019

ORBITAL TUBE FLARING SYSTEM PRODUCES TUBING CONNECTORS WITH ZERO LEAKAGE

WILLIAMS, J. R. /DATE- FEB. 1967
M-PS-2016

An orbital tube flaring system produces tubing connectors with a zero-leak potential needed in high pressure hydraulic and pneumatic systems. The flaring system incorporates a rolling cone and rolling die to closely control flare characteristics.

B67-10023

TESTS SHOW THAT ALUMINUM WELDS ARE IMPROVED BY BEAD REMOVAL

HOOD, D. W. /BOEING CO./ DATE- FEB. 1967
M-PS-1817

Tests with 2218-T87 aluminum alloy plate indicate improvements in strength, ductility, fatigue properties, and burst pressure result when one or both of the top and bottom weld beads are removed. There is, however, a drop in yield strength. The consistency of test data is considerably improved by weld bead removal.

B67-10039

SIMPLE PUMP MAINTAINS LIQUID HELIUM LEVEL IN CRYOSTAT

BUCHHOLD, T. A. /GE/ DATE- MAR. 1967
M-PS-1763

Reciprocating pump maintains a precise level of liquid helium in a cryostat. The pump contains a niobium solenoid armature that is maintained in a superconductive state by the liquid helium.

B67-10043

HIGH SPEED BLOWDOWN SYSTEM PROVIDES RAPID PRESSURE LOSS

BRITTAN, H. C. /GEN. DYN./CONVAIR/ DATE- MAR. 1967

LEWIS-375

High speed blowdown takes advantage of discretely maintained differential pressures to vent a test chamber from high to ambient pressure with minimum time lag. This technique is advantageous where the use of pyrotechnics is undesirable.

B67-10045

RESISTANCE HEATING RELEASES STRUCTURAL ADHESIVE

GLEMSEY, N. N. /BOEING CO./ DATE- MAR. 1967
M-PS-1607

Composite adhesive package bonds components together for testing and enables separation when testing is completed. The composite of adhesives, insulation and a heating element separate easily when an electrical current is applied.

B67-10047

VISCO SEAL DESIGN OFFERS ZERO-LEAKAGE AND WEAR-FREE CHARACTERISTICS

KETOLA, H. N. MC GREW, J. M. /GE/ DATE- MAR. 1967 REAN- SEE ALSO NASA-TM-X-52245
WSO-329

Study provides specific design criteria in sealing applications for continuous duty pumps used in bulk liquid transfer. A basic sealing equation predicts visco seal performance in the turbulent regime.

B67-10048

TECHNIQUE FOR STRIPPING TEFLON INSULATED WIRE

BABB, B. D. /HAYES INTERN. CORP./ DATE- MAR. 1967

M-PS-1774

Cryogenic stripping of Teflon insulated wire leaves no residue and produces no physical damage. After the wire is immersed in liquid nitrogen, bent slightly, and returned to room temperature, the Teflon is removed by fingernails or flat-nosed pliers.

B67-10052

LABORATORY ARC FURNACE FEATURES INTERCHANGEABLE HEARTHES

ARMSTRONG, J. L. KRUGER, O. L. DATE- MAR. 1967
ARG-125

Laboratory arc furnace using rapidly interchangeable hearths gains considerable versatility in casting so that buttons or special shaped castings can be produced. It features a sight glass for observation.

B67-10059

VACUUM CHAMBER IS REMOTELY SEALED BY EUTECTIC METAL

CORDOVA, R. SAGOANE, G. H. /AEROJET-GEN. CORP./ DATE- APR. 1967

NU-0091

Vacuum chamber is remotely sealed by a design using metal seal blades which are inserted into a molten eutectic metal by pressurizing an expansion bellows. The process increases allowable manipulations by improving working space and safety factors.

B67-10063

FLUIDIC OSCILLATOR USED AS HUMIDITY SENSOR

PROKOPIUS, P. R. DATE- MAR. 1967

LEWIS-340

Fluidic oscillator measures the humidity of the hydrogen stream leaving a hydrogen-oxygen fuel cell. The instrument provides continuous readings with a certain speed of response.

B67-10064

NEGATIVE FEEDBACK SYSTEM REDUCES PUMP OSCILLATIONS

ROSENMAN, W. /N. AM. AVIATION/ DATE- MAR. 1967
M-PS-1852

External negative feedback system counteracts low frequency oscillations in rocket engine propellant pumps. The system uses a control piston to sense pump discharge fluid on one side and a gas pocket on the other.

B67-10066

HOLDING FIXTURE FACILITATES PIPE THREAD GAGE MEASUREMENTS

CUPPS, B. HILL, J. /N. AM. AVIATION/ DATE- MAR. 1967

M-PS-2009

Holding fixture that holds the thread gage and three wires in the proper relationship facilitates the measurement of the pitch diameter of the tapered threads of a pipe thread gage. Modified, this device can be used to hold involute spur gears.

B67-10067

ADJUSTABLE, SELF-LOCKING LADDER INCLUDES OPTIONAL WORK PLATFORM

WEBSTER, R. E. /N. AM. AVIATION/ DATE- APR. 1967
M-PS-1922

Height-adjustable ladder with a self-locking platform at its top makes elevated locations more accessible, increases the quantity and size of tools handled there, and decreases the risk of disturbance or damage to components. The retractable platform adapts the ladder to normal use.

B67-10073

COLDPLATE OF PIN FIN DESIGN MAKES EFFICIENT HEAT EXCHANGER

DYER, W. F. /N. AM. AVIATION/ DATE- APR. 1967
MSC-1093

Flat, hollow coldplate that permits the flow of coolant liquid removes heat from heat-generating electronic equipment. This coldplate solves usual problems of bulk, weight, and excessive pumping requirements.

B67-10081

RIGID-BODY MOTION EXTRACTED FROM TOTAL MOTION OF A FLEXIBLE BODY

HOWARD, J. C. DATE- APR. 1967
ARC-63

Control system eliminates or reduces flexibility effects on the manual and automatic control of large flexible vehicles. It extracts rigid-body

05 MECHANICAL

and flexible-body motion and adapts well when a flexible-body frequency coincides or nearly coincides with the control mode frequency.

B67-10094

ULTRASONICS PERMITS BRAZING COMPLEX STAINLESS STEEL ASSEMBLY WITHOUT FLUX

BAKER, W. H. /WESTINGHOUSE ASTRONUCL. LAB./

DATE- APR. 1967

NU-0115

Ultrasonic vibration of an assembly of stainless steel instrumentation tubes ensures brazing without flux. Vibration with an ultrasonic transducer permits the brazing material to flow down each tube in contact with a seal plug installed in a pressure vessel wall.

B67-10096

UNDERCOAT PREVENTS BLISTERING OF SILVER

PLATING AT ELEVATED TEMPERATURES

KUSTER, C. A. /N. AM. AVIATION/ DATE- APR. 1967

M-FS-2049

Gold undercoat prevents blistering in the silver plating of Inconel 718 seals from steam at high temperatures. The undercoat is diffused into the surface of the parent metal by baking prior to silver plating.

B67-10098

TOROIDAL RING PREVENTS GAS IGNITION AT

VENT STACK OUTLET

SPRING, T. R. /N. AM. AVIATION/ DATE- APR. 1967

M-FS-2042

Toroidal ring welded to the vent stack outlet prevents static discharges which ignite combustible gases in a venting system. The ring inhibits the flow of current by removing the cause of turbulence characteristics of a sharply defined vent exit.

B67-10105

TOOL FACILITATES INSTALLATION OF MARMON

CLAMPS

PETERS, G. A. WARMING, K. /N. AM. AVIATION/

DATE- MAY 1967

M-FS-2039

Adjustable tool facilitates the installation of Marmon clamps. It provides sufficient mechanical advantage to force the clamps into place, permitting one man operation. Two handles provide the major leverage, and a pivoting arm with a slot enables snap-out action.

B67-10107

COMPOSITE WELD ROD CORRECTS INDIVIDUAL

FILLER WEAKNESSES

GRIMALDO, S. /N. AM. AVIATION/ DATE- MAY 1967

M-FS-1923

Composite filler wire welds together an assembly made from components of Rene 41 nickel base alloy. Using equal parts of Rene 41 and Hastelloy W weld wire in the filler reduces the cracking and weaknesses of the individual parent metals.

B67-10117

INVESTIGATION OF PRESSURIZED TOROIDAL SHELLS

SPON- INNOVATOR NOT GIVEN /MARTIN CO./ DATE- MAY

1967 REAN- SEE ALSO NASA-CR-261

HQ-27

The effect of internal pressure and external load on thin-walled toroidal shells was investigated. The result of the analysis agreed with experimental results on a 54-inch-diameter toroidal shell subjected to both pressurization and axial loading.

B67-10123

LOCK-DISCONNECT MECHANISM GIVES POSITIVE

RELEASE TO JOINED BODIES

BEAVER, C. E. /BORING CO./ DATE- MAY 1967

M-FS-2147

Umbilical system mechanism locks and unlocks through an internal collet device that is controlled by a single reciprocating shaft. The reduction in the number of operational parts results in higher reliability.

B67-10154

ASPIRATOR INCREASES RELIEF VALVE POPPET

STROKE

BIDDLE, M. E. /N. AM. AVIATION/ DATE- MAY 1967

HQ-77

Addition of an aspirator to a relief valve increases the valve poppet stroke under dynamic flow conditions. The aspirator allows poppet inlet dynamic forces to overcome relief valve spring force. It reduces the fluid pressure in the skirt cavity by providing a low pressure sense probe.

B67-10158

SINGLE WRENCH SEPARATES NUTS FROM

FREE-FLOATING BOLTS

THOMPSON, C. /WESTINGHOUSE ASTRONUCL. LAB./

DATE- MAY 1967

NUC-10013

Pneumatic impact wrench removes the nuts from freely turning bolts when the heads cannot be reached or the shafts anchored. It uses a fixed screwdriver blade that fits a slot cut into the threaded end of the bolt shaft.

B67-10167

HYDROSTATIC FORCE USED TO HANDLE OUTSIZED,

HEAVY OBJECTS

CRAFT, G. W. STARKEY, A. W. /BELLCOMM. INC./

DATE- JUN. 1967

HQ-90

Specially fitted barge is used to load and transport large, heavy objects to a dock side site. There the barge itself can lift, rotate, and position the objects. Typical functions are economically accomplished by water buoyancy.

B67-10174

SCANNING MEANS FOR CASSEGRAINIAN ANTENNA

GIANDOMENICO, A. RUSCH, W. V. T. DATE- JUN. 1967

JPL-946

Mechanical antenna beam switching device detects weak signals over atmospheric and equipment noise sources in microwave antennas. It periodically nutates the paraboloidal subdish in a Cassegrainian reflector system.

B67-10177

EFFECT OF WELDING POSITION ON POROSITY

FORMATION IN ALUMINUM ALLOY WELDS

HARYUNG, J. WROTH, R. S. /DOUGLAS AIRCRAFT/

DATE- JUN. 1967

M-FS-2318

Program investigates the effects of varied welding positions on weld qualities. Progressive changes in bead geometry occur as the weld plane angle is varied from upslope to downslope. The gravitational effect on the weld puddle varies greatly with welding position.

B67-10178

FIXTURE FACILITATES HELIUM LEAK TESTING OF

PIPE WELDS

RONEY, J. A. /HAYES INTERN. CORP./ DATE- JUN.

1967

M-FS-2167

Fixture facilitates inspection testing of circumferential pipe welds for vacuum tightness, using helium gas as a leakage tracer in conjunction with a mass spectrometer. It consists of a split rubber torus and a mating clamping ring with a vacuum hose fitting.

B67-10180

WORK PLATFORM IS SUPPORTED BY SELF-LOCKING

BLADES

RUDDEROW, T. /N. AM. AVIATION/ DATE- JUN. 1967

M-FS-2297

Work platform has a supporting plate to engage the deck edge of the supporting structure when lowered into place. The plate is attached to blades hinged to the platform, rigidly supporting the platform when latched, and allowing the platform to be moved away when unlatched.

B67-10183

CONTINUOUS INTERNAL CHANNELS FORMED IN

ALUMINUM FUSION WELDS

GAULT, J. SABO, W. /N. AM. AVIATION/ DATE- JUN.

1967

M-FS-2399

Process produces continuous internal channel systems on a repeatable basis in 2014-T6 aluminum. Standard machining forms the initial channel, which is filled with tungsten carbide powder. TIG machine fusion welding completes formation of the channel. Chem-mill techniques enlarge it to the desired size.

B67-10195

WELD PROCEDURE PRODUCES QUALITY WELDS FOR THICK SECTIONS OF HASTELLOY-X

FLENS, F. J. FLETCHER, C. W. GLASIER, L. F., JR. /AEROJET GEN./ DATE- JUN. 1967

NUC-10048

Welding program produces premium quality, multipass welds in heavy tube sections of Hastelloy-X. It develops semiautomatic tungsten/inert gas procedures, weld wire procurement specifications material weld properties, welder-operator training, and nondestructive testing inspection techniques and procedures.

B67-10198

GLASS BEAD SHOT PEENING RETARDS STRESS CORROSION FAILURE OF TITANIUM TANKS

BALES, T. T. LISAGOR, W. B. MANNING, C. R. SEYFORTH, M. B. DATE- JUN. 1967

LANGLEY-319

Rigidly controlled shot peening retards the incompatibility between titanium alloys and nitrogen tetroxide in rocket-propellant storage tanks. This sets up a residual compressive stress in the surface of a material which reduces tensile stresses in the material fibers, alleviating stress corrosion.

B67-10200

WORKMANSHIP STANDARDS FOR FUSION WELDING

PHILLIPS, M. D. /AEROJET GEN./ DATE- JUN. 1967

NUC-10050

Workmanship standards manual defines practices, that adhere to rigid codes and specifications, for fusion welding of component piping, assemblies, and systems. With written and pictorial presentations, it is part of the operating procedure for fusion welding.

B67-10202

APPARATUS FOR FABRICATION OF AMERICIUM-BERYLLIUM NEUTRON SOURCES PREVENTS CAPSULE CONTAMINATION

MOHR, W. C. VAN LOON, J. A. DATE- JUN. 1967

ARG-184

Modified gloved enclosure is used to fill a capsule with a mixture of americium and beryllium radioactive powders to seal weld the opening, and to test it for leaks. It contains a horizontal partition, vortex mixer, mounting press, welder, test vessel, and radiation shielding to prevent surface contamination.

B67-10210

ENVIRONMENTAL STUDY OF MINIATURE SLIP RINGS

RADNIK, J. L. /IIT RES. INST./ DATE- JUN. 1967

M-FS-2443

Investigation studied the long term operation of miniature slip ring assemblies in high vacuum of space and included the influence of ring, brush, and insulator materials on electrical noise and mechanical wear. Results show that soft metal vapor plating and niobium diselenide miniature slip rings are beneficial.

B67-10211

HIGH-STRENGTH BRAZE JOINTS BETWEEN COPPER AND STEEL

KUHN, R. F. /N. AM. AVIATION/ DATE- JUN. 1967

M-FS-2519

High-strength braze joints between copper and steel are produced by plating the facing surface of the copper with a layer of gold. This reduces porosity in the braze area and strengthens the resultant joint.

B67-10212

DESIGN CONCEPT TO DECREASE RELATIVE SPEED

OF BALL BEARINGS

JESMAN, S. /N. AM. AVIATION/ DATE- MAY 1967

M-FS-2003

Intermediate ring decreases the rolling speed of a ball bearing relative to the rotational speed of the shaft. It has raceways on its inner and outer peripheries and an additional row of balls. The modification permits operation at much higher shaft speeds than usual.

B67-10214

SYSTEM ENABLES DIMENSIONAL INSPECTION OF VERY LARGE STRUCTURES

SIMPSON, R. R. /BOEING CO./ DATE- JUN. 1967

M-FS-2477

Precision rotary table with an integrated optical tooling bar system enables accurate and rapid measurement of linear and angular dimensions on very large structures of any configuration. The structure is mounted on the turntable, which can be rotated to expose any desired surface.

B67-10219

SOLENOID VALVE DESIGN HAS ONE MOVING PART

ANDERSON, J. W. DATE- JUL. 1967

NPO-10039

Solenoid valve structure has only one moving part, a ball and spring assembly. This eliminates wear caused by sliding motion contact between stationary and moving parts or between moving parts.

B67-10225

TEMPERATURE RESPONSIVE VALVE WITHSTANDS HIGH IMPACT LOADING

GRAM, M. B. DATE- JUL. 1967

NPO-10186

Valve regulates the flow of a reactant to a chemical heater used in a space application and withstands extreme impact loading. The valve has an upper and a lower housing, the lower containing an inlet and an outlet port, and upper containing a cavity.

B67-10237

POST-STRESSED CONCRETE FOUNDATION MAY REDUCE MACHINERY VIBRATION

FISTEDIS, S. H. DATE- JUL. 1967

ARG-130

Post-stressing concrete mat foundation reduces excessive vibrations in machinery. The mat is stressed in compression after the machinery is mounted, thus closing any cracks in it, altering the distribution of the soil subgrade reaction on the mat, and changing the mat-subgrade natural frequency.

B67-10238

TRAVELING WIRE ELECTRODE INCREASES PRODUCTIVITY OF ELECTRICAL DISCHARGE

MACHINING /EDM/ EQUIPMENT

KOTORA, J., JR. SMITH, S. V. DATE- AUG. 1967

ARG-136

Traveling wire electrode on electrical discharge machining /EDM/ equipment reduces the time requirements for precision cutting. This device enables cutting with a minimum of lost material and without inducing stress beyond that inherent in the material. The use of wire increases accuracy and enables tighter tolerances to be maintained.

B67-10241

A SIMPLIFIED PERT SYSTEM

DUNCAN, J. G. MEYER, H. I. WHITE, G. R. /DOUGLAS AIRCRAFT CO./ DATE- JUL. 1967

M-FS-2267

Modified PERT technique processes the input data and arranges it in familiar graphic form in a booklet which is issued at periodic intervals. The tabulated data provides readily available information to management personnel concerned with monitoring the progress of a program.

B67-10244

CABLE CLAMP BOLT FIXTURE FACILITATES ASSEMBLY IN CLOSE QUARTERS

SUNDERLAND, G. H. /BOEING CO./ DATE- JUL. 1967

KSC-67-80

05MECHANICAL

Cable clamp bolt holding fixture facilitates forming of electrical cable runs in limited equipment space. The fixture engages the threads of the short clamp bolt through the clamp and maintains tension against clamp tendency to open while the operator installs the nut without difficulty.

B67-10256

LINE ADAPTER PROVIDES QUICK DISCONNECT UNDER MODERATE SIDE LOADING

WOLFRAM, E. A. /N. AM. AVIATION/ DATE- JUL. 1967
M-FS-2159

Line adapter acts as quick and simple disconnect system. It quickly separates upon the application of a side load of 15 pounds with standing line pressure at 100 psig.

B67-10271

PIPE JOINTS REINFORCED IN PLACE WITH FITTED ALUMINUM SLEEVES

CORTEZ, I., JR. SIEGFRIED, J. WOBIG, O. DATE- AUG. 1967
MSC-11109

Installation of an aluminum sleeve, using specially designed tools, reinforces solder-sealed ferrule joints in installed small-diameter aluminum tubing. Tubing joints reinforced by this method withstand considerable torsional, tensional, and vibrational stresses at moderately elevated temperatures.

B67-10272

PORTABLE MACHINE WELDING HEAD AUTOMATICALLY CONTROLS ARC

OLEKSIAK, C. E. ROBB, M. A. /N. AM. AVIATION/ DATE- AUG. 1967
M-FS-12763

Portable weld tool makes weld repairs out-of-station and on the side opposite the original weld. It provides full automatic control of the arc voltage, current, wire feed, and electrode travel speed in all welding attitudes. The device is readily adaptable to commercially available straight polarity dc weld packs.

B67-10273

SPHERICAL JOINT CONNECTS AXIALLY MISALIGNED FLANGES

MC GROARTY, J. D. /N. AM. AVIATION/ DATE- AUG. 1967
M-FS-2238

Interconnecting straight tube connects axially misaligned flanges in a duct assembly. It adjusts to accommodate variations in relative location of the flanges by pivoting. Adjustment is by spherical mating faces and a spherical-faced indexing swivel flange for bolting backup.

B67-10283

CONCEPT FOR MODIFYING DRAFTING INSTRUMENTS TO MINIMIZE SHEARING

RENNIE, T. A. /BCEING CO./ DATE- AUG. 1967
KSC-10056

Ball bearing standoffs added to drafting instruments enable the instruments to be moved about, with their surfaces out of contact with the drawing paper. This provides a safeguard against smearing of the lines.

B67-10285

STATIC SEAL CONCEPT TO ACCOMMODATE SEAT TOLERANCES

HARDY, J. F., III /N. AM. AVIATION/ DATE- AUG. 1967
M-FS-1854

Static seal permits compensation for flange separation and flange-groove tolerances without large seal-leg deflections.

B67-10291

REMOTELY OPERATED HIGH PRESSURE VALVE PROTECTS TEST PERSONNEL

HOWLAND, B. T. /N. AM. AVIATION/ DATE- AUG. 1967
MSC-11010

High pressure valve used in testing certain spacecraft systems is safely opened and closed by a remotely stationed operator. The valve is

self-regulating in that if the incoming pressure drops below a desired value the valve will automatically close, warning the operator that the testing pressure has dropped to an undesired level.

B67-10292

WELDING OF AM350 AND AM355 STEEL

DAVIS, R. J. WROTH, R. S. /DOUGLAS AIRCRAFT CO./ DATE- AUG. 1967
M-FS-2314

A series of tests was conducted to establish optimum procedures for TIG welding and heat treating of AM350 and AM355 steel sheet in thicknesses ranging from 0.010 inch to 0.125 inch. Statistical analysis of the test data was performed to determine the anticipated minimum strength of the welded joints.

B67-10293

SQUARE TUBING REDUCES COST OF TELESCOPING BRIDGE CRANE HOIST

BERNSTEIN, G. GRAAE, J. SCHRAIDT, J. DATE- AUG. 1967
ARG-13

Using standard square tubing in a telescoping arrangement reduces the cost of a bridge crane hoist. Because surface tolerances of square tubing need not be as accurate as the tubing used previously and because no spline is necessary, the square tubing is significantly less expensive than splined telescoping tubes.

B67-10308

JACKETED CRYOGENIC PIPING IS STRESS RELIEVED

BOWERS, W. M. /N. AM. AVIATION/ DATE- AUG. 1967
M-FS-985

Jacketed design of piping used to transfer cryogenic fluids, relieves severe stresses associated with the temperature gradients that occur during transfer cycles and ambient periods. The inner /transfer/ pipe is preloaded in such a way that stress relief takes place automatically as cycling occurs.

B67-10321

APPLICATION OF DISTORTED MODELS IN DEVELOPING SCALED STRUCTURAL MODELS

WHITE, R. W. /WYLE LABS./ DATE- SEP. 1967
M-FS-2540

In the design and development of dynamically similar structural models a distorted model of the panel is used. The panel thickness is made larger than that dictated by geometric scaling, and the mass of the panel is decreased by adding mass to the surface of the panel to counteract the additional stiffness obtained by the thickness increase.

B67-10325

SEGMENTED, ARCH-BOUND CARBON SEAL IS PRESSURE LOADED

BURCHAM, R. E. /N. AM. AVIATION/ DATE- SEP. 1967
M-FS-12777

Conventional segmented carbon seal has a low leakage rate and minimum loading requirements for a high pressure, large diameter fluid impeller shaft with large axial and radial movements. Modifications in the segments allow part of the load to be carried in hoop stress.

B67-10341

DEVELOPMENT OF TECHNOLOGY FOR HOT-DRAPE FORMING OF LARGE TORUS SECTIONS

SPON- INNOVATOR NOT GIVEN /FAIRCHILD HILLER CORP./ DATE- OCT. 1967
M-FS-12141

Compound-contoured sheet metal structure development is aided by hot-drape forming, a method combining hot-stretch forming, die quenching, and age forming. It permits in-process control of material gage thin-out through a flexible process of heat zone control.

B67-10353

ULTRASONIC WRENCH PRODUCES LEAKTIGHT CONNECTIONS

BLAISE, H. T. MAROPIS, N. /TECHNIDYNE/ DATE-

OCT. 1967
M-FS-12561

Ultrasonic wrench system produces leaktight seals in flared tubing connections. It induces a flexural vibration mode in the coupling nut. The system consists of a frequency converter, a junction box, and wrench assembly.

B67-10355

EXTRUSION OF SMALL-DIAMETER, THIN-WALL
TUNGSTEN TUBING

BLANKENSHIP, C. P. GYORGAK, C. A. DATE- AUG.
1967 REAN- SEE ALSO NASA-TN-D-3772
LEWIS-90335

Small-diameter, thin-wall seamless tubing of tungsten has been fabricated in lengths of up to 10 feet by hot extrusion over a floating mandrel. Extrusion of 0.50-inch-diameter tubing over 0.4-inch-diameter mandrels was accomplished at temperatures ranging from 3000 degrees to 4000 degrees F.

B67-10358

STEEL TEST PANEL HELPS CONTROL ADDITIVES IN
PYROPHOSPHATE COPPER PLATING

HOLLAR, W. T. /GEN. DYN./CONVAIR/ DATE- OCT.
1967

LEWIS-10101

Test panel helps control maximum tolerance level for plating solution contaminants. It provides low, medium, and high current density areas such as exist in production plating, and plating is examined for uniformity of texture and ductility.

B67-10360

PRESSURE LEVELS AND PULSATION FREQUENCIES
CAN BE VARIED ON HIGH PRESSURE/FREQUENCY
TESTING DEVICE

ROUTSON, J. W. /GEN. DYN./CONVAIR/ DATE- OCT.
1967

LEWIS-10205

Hydraulic system components test device obtains a pulsating pressure from a hydraulic actuator that is being driven by a vibration exciter of sufficient force and displacement. Input to the exciter controls the frequency of pressure variation.

B67-10364

RESILIENT BEARING SUPPORTS ARE GAS
CONTROLLED

SIX, L. D. /GARRETT CORP./ DATE- OCT. 1967
REAN- SEE ALSO NASA-CR-706

LEWIS-10109

Self-acting, partial-arc, pivoted-pad bearings in which the bearing-to-journal applied load is pneumatically controlled are used in the operation of a radial flow gas generator where shaft speeds are on the order of 38,500 rpm.

B67-10373

ECCENTRIC DRIVE MECHANISM IS ADJUSTABLE
DURING OPERATION

DENISON, O. J., JR. KUEHNE, B. J. DENISON, O. J.
/GE/ DATE- OCT. 1967
M-FS-2576

Eccentric drive mechanism can be adjusted throughout its off-center range while in the operating mode to change the width of a weld weaving pattern. No associated tooling need be removed.

B67-10377

STABILIZING STAINLESS STEEL COMPONENTS FOR
CRYOGENIC SERVICE

HOLDEN, C. F. /N. AM. AVIATION/ DATE- OCT. 1967
M-FS-13127

Warpage and creep in stainless steel valve components are decreased by a procedure in which components are machined to a semifinish and then cold soaked in a bath of cryogenic liquid. After the treatment they are returned to ambient temperature and machine finished to the final drawing dimensions.

B67-10379

MACHINE TESTS SLOW-SPEED SLIDING FRICTION IN
HIGH VACUUM

SKYRUS, J. /DOUGLAS AIRCRAFT/ WILKINSON, C.

DATE- OCT. 1967
M-FS-12341

Testing machine that operates without any lubrication of the machine elements within the vacuum chamber measures static friction and sliding friction at very low speeds. Moving parts are held to a minimum to simplify operation in the vacuum chamber.

B67-10380

SINGLE-SOURCE MECHANICAL LOADING SYSTEM
PRODUCES BIAXIAL STRESSES IN CYLINDERS

FLOWER, J. P. /DOUGLAS AIRCRAFT CO./ STAFFORD,
R. L. DATE- OCT. 1967
M-FS-12530

Single-source mechanical loading system proportions axial-to-hoop tension loads applied to cylindrical specimens. The system consists of hydraulic, pneumatic, and lever arrangements which produce biaxial loading ratios.

B67-10385

WELDING TORCH AND WIRE FEED MANIPULATOR

WILLIAMS, R. T. /N. AM. AVIATION/ DATE- OCT.
1967

M-FS-13102

Welding torch and wire feed manipulator increase capability for performing automatic welding operations. The manipulator rotates on its horizontal axis to avoid obstacles as they approach the torch. The initial individual attitudes of the torch and wire guide are set with respect to the general configuration of the part.

B67-10393

STUDY MADE TO ESTABLISH PARAMETERS AND
LIMITATIONS OF EXPLOSIVE WELDING

POLHEMUS, F. C. /PRATT AND WHITNEY AIRCRAFT/
DATE- OCT. 1967

M-FS-13006

It is theorized that metal jetting must be present for welding to occur, therefore an explosive weld interface may indicate the relation between the metal jet velocity and shock wave velocity in welding. Parameters for effecting explosive welding in patches of 3 or 4 inches in diameter were established, and found applicable to explosive welding of patches of various sizes.

B67-10400

STANDARD SURFACE GRINDER FOR PRECISION
MACHINING OF THIN-WALL TUBING

JONES, A. KOTCRA, J., JR. REIN, J. SMITH, S. V.
STRACK, D. STUCKEY, D. DATE- OCT. 1967
ARG-10014

Standard surface grinder performs precision machining of thin-wall stainless steel tubing by electrical discharge grinding. A related adaptation, a traveling wire electrode fixture, is used for machining slots in thin-walled tubing.

B67-10401

METAL TUBE REDUCER IS INEXPENSIVE AND
SIMPLE TO OPERATE

MAYFIELD, R. M. DATE- OCT. 1967 REAN- SEE ALSO
ANL-7127, ANL-7176

ARG-49

Low-cost metal tube reducer accepts tubing up to 1 inch outer diameter and can reduce this diameter to less than 1/2 inch with controlled wall thickness. This device can reduce all of the tube without waste. It produces extremely good surface finishes.

B67-10403

WEAR STUDIES MADE OF SLIP RINGS AND GAS
BEARING COMPONENTS

FURR, A. K. /VIRGINIA POLYTECH. INST./ DATE-
NOV. 1967

M-FS-12882

Neutron activation analysis techniques were employed for the study of the wear and performance characteristics of slip ring and rotor assemblies and of the problems arising from environmental conditions with special reference to surface contamination. Results showed that the techniques could be successfully applied to measurement of wear parameters.

05MECHANICAL

B67-10418

HYDRAULIC SYSTEM PROVIDES SMOOTH CONTROL OF
LARGE TRACKING AND ANTENNA DRIVE SYSTEMS
AT VERY LOW TRACKING RATES

PARKER, G. L. DATE- NOV. 1967

NPO-10316

Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates. This configuration modifies a series connection of the drive motors with compensating orifices to offset the effects of drain line loss. Linearization of response by eliminating cogging or cyclic operation is thus obtained.

B67-10419

COAXIAL CABLE STRIPPING DEVICE FACILITATES
RF CABLE FABRICATION

HUGHES, R. S. TOBIAS, R. A. DATE- NOV. 1967

NPO-10315

Coaxial cable stripping device assures clean, right angled shoulder for RF cable connector fabrication. This method requires minimal skill and creates a low voltage standing wave ratio and mechanical stability in the interconnecting RF cables.

B67-10423

PRECISION METAL MOLDING

TOWNHILL, A. /N. AM. AVIATION/ DATE- OCT. 1967

M-FS-13305

Method provides precise alignment for metal-forming dies while permitting minimal thermal expansion without die warpage or cavity space restriction. The interfacing dowel bars and die side facings are arranged so the dies are restrained in one orthogonal angle and permitted to thermally expand in the opposite orthogonal angle.

B67-10427

HEAVY-GAGE BONDED HONEYCOMB SANDWICH AS
PRIMARY LOAD-BEARING STRUCTURE

SPON- INNOVATOR NOT GIVEN /GEN. DYN./ DATE- OCT. 1967

M-FS-12060

Heavy-gage bonded honeycomb sandwich is used as a primary load-bearing structural material in large-diameter boosters. Theoretical investigations based on a small deflection theory for prediction of stress fields and buckling loads, and structural testing were made. This structure is a potential weight saver for compression load-critical components.

B67-10445

SAFETY YOKE WOULD PROTECT CONSTRUCTION
WORKERS FROM FALLING

GOPFORTH, O. H. /TRANS WORLD AIRLINES/ DATE- NOV. 1967

KSC-10075

Simple dismountable yoke protects construction workers on narrow steel I beams at high levels. The yoke engages the upper flat of the I beam and slides freely along it to permit freedom of movement to the worker while limiting his ability to fall by a harness attached to the yoke.

B67-10453

PUMP SIMULATOR PROVIDES VARIABLE
PRESSURE-FLOW CHARACTERISTICS

PACKE, D. R. /PRATT AND WHITNEY AIRCRAFT/ DATE- NOV. 1967

LEWIS-10122

Pump simulator with variable pressure flow characteristics permits ready experimental determination of optimum pump-load matching. It has been successfully used to investigate the effect of feed pump characteristics on the stability of a Rankine system boiler.

B67-10464

TUBE-TO-HEADER JOINT FOR BIMETALLIC
CONSTRUCTION

LESSMANN, G. G. STONER, D. R. /WESTINGHOUSE CORP./ DATE- NOV. 1967

LEWIS-10282

Design advantages of bimetallic construction enables an all-welded bimetallic joint to be made

from the accessible header side of the tube-to-header joint. In the two-piece header design the weld joints completely seal the tube-header plate crevice and prevent crevice and stringer corrosion.

B67-10466

HAND-OPERATED PLUG INSERTION VALVE

JONES, R. G. HONEY, J. A. /HAYES INTERN. CORP./ DATE- NOV. 1967

M-FS-12019

Hand-operated plug insertion valve seals an evacuated insulation system for upper stage liquid hydrogen tanks on the launch pad. It is light in weight, demountable, and permits evacuation of the system plus sealing after evacuation.

B67-10472

ALUMINUM AND STAINLESS STEEL TUBES JOINED
BY SIMPLE RING AND WELDING PROCESS

TOWNHILL, A. /N. AM. AVIATION/ DATE- NOV. 1967

M-FS-13120

Duranel ring is used to join aluminum and stainless steel tubing. Duranel is a bimetal made up of roll-bonded aluminum and stainless steel. This method of joining the tubing requires only two welding operations.

B67-10473

TOOL SAMPLES SUBSURFACE SOIL FREE OF
SURFACE CONTAMINANTS

KEMMERER, W. W. WOOLEY, B. C. DATE- NOV. 1967

MSC-10988

Sampling device obtains pure subsurface soil that is free of any foreign substance that may exist on the surface. It is introduced through a contaminated surface area in a closed condition, opened, and a subsurface sample collected, sealed while in the subsurface position, and then withdrawn.

B67-10483

CONCEPT FOR DESIGN OF VARIABLE STIFFNESS
DAMPER

LOHR, J. J. DATE- DEC. 1967

ARC-11225

Damping mechanism, containing polymeric-like materials is applicable to a wide range of shock and vibration. The polymeric-like material changes from a relatively stiff material to a relatively soft, rubbery material in the region of their glass transition temperatures. The energy absorption characteristics and stiffness are controllable with temperature.

B67-10488

COMBINED ACTUATOR AND LATCH FOR
CARTRIDGE POWERED ACTUATOR

MURPHY, D. W. /N. AM. AVIATION/ DATE- DEC. 1967

MSC-11242

Combined attenuator and latch stops and latches in place a given mass which is to be moved a discrete distance to effect a desired condition. This device is used in a retraction actuator driven by a pyrotechnic thruster, and can be tailored to meet specific design requirements.

B67-10498

ROCK ANCHORS RESTORE BROKEN SWAMP ANCHORS
ECONOMICALLY

MC ALLISTER, J. W. DATE- DEC. 1967

WLF-10004

Swamp anchors, used to convey power lines across marshes, are restored economically by installing a rock anchor in the upper portion of the pipe that remains attached to the original swamp anchor.

B67-10512

FLOW LINER EXTENDS OPERATING LIFE OF
HIGH-ANGULATION BELLONS

RUMPH, D. G. /BOEING CO./ DATE- DEC. 1967

M-FS-12023

Liner extends the service life of high-angulation /26-degree/ bellows used as ducts for high-velocity fluid flow in a liquid oxygen fill and drain system. It consists of a conical frustum or nozzle on the upstream side and a cylindrical section or catcher on the down-stream

side.

B67-10518

STUDY MADE OF THIN-WALLED PIPE RESPONSE TO
TURBULENT FLUIDS
CLINCH, J. M. /IIT RES. INST./ DATE- DEC. 1967
M-FS-1321

Report summarizes the experimental and theoretical data on the vibrational response of thin-walled pipe sections to the wall pressure field applied within them by a fully developed turbulent fluid flow. The predicted responses were in good agreement with previous data obtained.

B67-10525

VARIABLE-SPEED, PORTABLE ROUTING SKATE
PESCH, W. A. /HAYES INTERN. CORP./ DATE- DEC. 1967
M-FS-13772

Lightweight, portable, variable-speed routing skate is used on heavy metal subassemblies which are impractical to move to a stationary machine. The assembly, consisting of the housing with rollers, router, and driving mechanism with transmission, weighs about forty pounds. Both speed and depth of cut are adjustable.

B67-10526

DYNAMIC VALVE SEAL IS RELIABLE AT CRYOGENIC
TEMPERATURES
MOXLEY, H. E. /N. AM. AVIATION/ DATE- DEC. 1967
M-FS-12987

C-shaped PTFE /polytetrafluorethylene/ seal ring provides a reliable seal in cryogenic fluids over a fluid pressure range of 0 to 2000 psig. It is interference-fitted internally with a metal expander ring and a metal compressor ring.

B67-10528

ACCUMULATOR ISOLATOR PREVENTS
MALFUNCTIONING OF FAULTY HYDRAULIC SYSTEM
WALSH, G. D. /BOEING CO./ DATE- DEC. 1967
M-FS-1415

Special isolator valve prevents malfunction of a closed hydraulic system by converting the initial accumulator-reservoir to a reservoir function only when the system loses oil, or gaseous nitrogen precharge, or has a jammed piston. This permits near-normal operation until the defect is corrected.

B67-10529

DEVELOPMENT OF LUNAR DRILL TO TAKE CORE
SAMPLES TO 100-FOOT DEPTHS
SPON- INNOVATOR NOT GIVEN /WESTINGHOUSE DEFENSE
AND SPACE CENTER/ DATE- DEC. 1967
M-FS-13015

Lunar drill takes lunar surface cores to depths of 100 feet and is being developed to the samples at greater depths. The wireline drill system has been adapted to operate in the lunar environment by providing a sealed dc motor and solid metallic base lubricants.

B67-10539

LEAD PLATED ALUMINUM RING PROVIDES STATIC
HIGH PRESSURE SEAL FOR LARGE DIAMETER
PRESSURE VESSEL
LOCKE, J. N. /AEROJET-GEN. CORP./ DATE- DEC. 1967

NUC-10008

Lead plated aluminum ring provides a positive static seal for a large diameter pressure vessel for use in a hazardous environment at cryogenic temperatures with high pressure fluid flow. This design can be used in high and low pressure lines of any diameter for any fluid, with appropriate material modification.

B67-10541

PRECISION TRIMMER AIDS IN PREPARING
BIOMEDICAL SPECIMEN BLOCKS FOR ULTRATHIN
SECTIONING
TAHMISIAN, T. N. DATE- DEC. 1967
ARG-242

Precision trimmer, which neatly trims biomedical specimen blocks for ultrathin sectioning, eliminates the risk of human error. Four inches in diameter and 3 inches in height, it supports

the block and serves as a support for a cutting tool and can be adjusted in three dimensions.

B67-10547

POWER TORQUE WRENCH CONCEPT FOR PRECISION
TORQUE APPLICATION
PETERS, G. A. /N. AM. AVIATION/ WARNING, K.
DATE- DEC. 1967
M-FS-13546

Precision electromechanical power wrench applies a given amount of torque to a series of fasteners. It uses a commercially available dc permanent magnet torque motor with a current-controllable torque output and torque value indicator designed to the principles of human engineering.

B67-10555

STUDY MADE OF HEAT TRANSFER AND PRESSURE
DROP THROUGH TUBES WITH INTERNAL
INTERRUPTED FINS
NAMKOONG, D., JR. DATE- DEC. 1967 REAN- SEE ALSO
NASA-TN-X-1428
LEWIS-10280

Argon gas flow through an internal interrupted finned tube was investigated to obtain heat transfer and frictional pressure drop data. The results were plotted against the same data for corresponding louvered plate-finned surfaces.

B67-10563

INSTRUMENT ACCURATELY MEASURES WELD ANGLE
AND OFFSET
BOYD, W. G. /N. AM. AVIATION/ DATE- DEC. 1967
M-FS-12849

Weld angle is measured to the nearest arc minute and offset to one thousandth of an inch by an instrument designed to use a reference plane at two locations on a test coupon. A special table for computation has been prepared for use with the instrument.

B67-10567

BUTTERFLY VALVE WITH METAL SEALS CONTROLS
FLOW OF HYDROGEN FROM CRYOGENIC THROUGH
HIGH TEMPERATURES
JOHNSON, L. D. /AEROJET-GEN. CORP./ DATE- DEC. 1967
NUC-10034

Butterfly valve with metal seals operates over a temperature range of minus 423 degrees to plus 440 degrees F with hydrogen as a medium and in a radiation environment. Media flow is controlled by an internal butterfly disk which is rotated by an actuation shaft.

B67-10581

FLAT CABLE INSULATION STRIPPING MACHINE
SCHAEFER, J. H. /VIKING IND./ DATE- DEC. 1967
M-FS-13776

Flat cable insulation stripping machine operates on a principle of variable parameters of abrasive wheel speed, wheel pressure on the flat cable, and flat cable feed speed into the abrasive wheel. Application of connectors is handled efficiently with this flat terminal termination technique.

B67-10588

HIGH ENERGY FORMING FACILITY
CIURLIONIS, B. /N. AM. AVIATION/ DATE- DEC. 1967
M-FS-14026

Watertight, high-explosive forming facility, 25 feet in diameter and 15 feet deep, withstands repeated explosions of 10 pounds of TNT equivalent. The shell is fabricated of high strength steel and allows various structural elements to deform or move elastically and independently while retaining structural integrity.

B67-10591

FLUOROCARBON SEAL REPLACES METAL PISTON RING
IN LOW DENSITY GAS ENVIRONMENT
MORATH, W. D. /VICKERS, INC./ MORGAN, N. E.
DATE- DEC. 1967
LEWIS-10277

Reinforced fluorocarbon cupseal, which provides an integral lip-type seal, replaces the metal piston rings in piston-cylinder configurations used in the compression of low density gases. The

05 MECHANICAL

fluorocarbon seal may be used as cryogenic compressor piston seals.

B67-10594

SELF-ALIGNING ROD PREVENTS ECCENTRIC LOADING OF TENSILE SPECIMENS
VANDERGRIFF, E. F. /WESTINGHOUSE ASTRONUCI.
LAB./ DATE- DEC. 1967
NUC-10525

Tensile specimens can be tested in liquid nitrogen without subjecting the cryostat to tilting during assembly of the specimen in the liquid nitrogen-filled cryostat. A universal joint with a semielliptical head and socket reduces misalignment and permits only limited side travel.

B67-10607

HONEYCOMB SEAL BACKING RING INCREASES TURBOPUMP DISK LIFE
BROOKS, W. S. /N. AM. AVIATION/ LARSON, E. W.
DATE- DEC. 1967
M-FS-13303

Turbopump disk life increased by thin, relatively rigid metal backing ring installed to the honeycomb seal. The aerodynamic and friction damping provided by this modification eliminates first-stage disk cracking.

B67-10611

ROLAMITE - A NEW MECHANICAL DESIGN CONCEPT
WILKES, D. F. DATE- DEC. 1967
SAM-10001

Rolamite, a mechanical suspension system, provides substantial reductions in friction in the realm of extremely low bearing pressures. In addition, rolamite devices are easily microminiaturized, are extremely tolerant of production variations and are inherently capable of virtually all functions to construct most electromechanical devices.

B67-10619

FEED-THRU CONDUIT MINIMIZES HEAT PICKUP
YAGER, S. P. DATE- DEC. 1967
JPL-847

Insulated feed-thru conduit minimizes heat pickup by a cryogenic fluid passing through the walls of a double high-vacuum chamber, and is capable of expansion and contraction with the walls of the chamber. It uses a bellows and rigid cylinder to provide a low-loss feed-thru for the cryogenic liquid.

B67-10622

FIRE EXTINGUISHER CONTROL SYSTEM PROVIDES RELIABLE COLD WEATHER OPERATION
BRANUN, J. C. /N. AM. AVIATION/ DATE- DEC. 1967
M-FS-13031

Fast acting, pneumatically and centrally controlled, fire extinguisher /firex/ system is effective in freezing climates. The easy-to-operate system provides a fail-dry function which is activated by an electrical power failure.

B67-10623

FERROMAGNETIC CORE VALVE GIVES RAPID ACTION ON MINIMUM ENERGY
LARSON, A. V. /GEN. DYN./CONVAIR/ TINKHAM, J. P.
DATE- DEC. 1967
LEWIS-10135

Miniature solenoid valve controls propellant flow during tests on a coaxial plasma accelerator. It uses an advanced ferromagnetic core design which meets all the rapid-acting requirements with a minimum of input energy.

B67-10628

TENSILE TESTING GRIPS ARE EASILY ASSEMBLED UNDER LIQUID NITROGEN
SKALKA, R. J. /WESTINGHOUSE ASTRONUCI. LAB./
VANDERGRIFF, E. F. DATE- DEC. 1967
NUC-10524

Split-screw grips for tensile testing provide uniform loading on the specimen shoulders. Holes in the heads enable the screws and specimen to be threaded as an assembly into a grip body, closely controlled guides and seats afford positive seating, and precision machining of mating surfaces minimizes misalignment effects.

B67-10638

EDDY CURRENT DISK VALVE
LARSON, A. V. /GEN. DYN./CONVAIR/ TINKHAM, J. P.
DATE- DEC. 1967
LEWIS-10123

Quick-opening, intermittent flow valve requires a small amount of electrical energy to open and which closes by the restoring action of a rubber stop. This eddy current disk valve opens in less than 100 microseconds and takes only 10 joules of energy.

B67-10639

SOLENOID HAMMER VALVE DEVELOPED FOR QUICK-OPENING REQUIREMENTS
WRENCH, E. H. /GEN. DYN./CONVAIR/ DATE- DEC. 1967
LEWIS-10134

Quick-opening lightweight solenoid hammer valve requires a low amount of electrical energy to open, and closes by the restoring action of the mechanical springs. This design should be applicable to many quick-opening requirements in fluid systems.

B67-10655

DEVELOPMENT OF HELICAL SEAL FOR HIGH TEMPERATURE /2000 DEGREES F/ APPLICATION
HELD, C. /N. AM. AVIATION/ DATE- JAN. 1968
M-FS-13304

Helical seal is used to seal bolted flange joints in a high temperature environment. The seal design incorporates a new cross-sectional shape, a metal strip with a slight radius, and the use of premolded asbestos. It provides equal load distribution under compression loads, allows for minimum loss and recovery values, and increases the temperature range.

B67-10664

PNEUMATIC PRESSURE WAVE GENERATOR PROVIDES ECONOMICAL, SIMPLE TESTING OF PRESSURE TRANSDUCERS
GAAL, A. E. /WESTINGHOUSE ASTRONUCI. LAB./
WELDON, T. P. DATE- DEC. 1967
NUC-10024

Testing device utilizes the change in pressure about a bias or reference pressure level produced by displacement of a center-driven piston in a closed cylinder. Closely controlled pneumatic pressure waves allow testing under dynamic conditions.

B67-10667

SOLENOID VALVE DESIGN MINIMIZES VIBRATION AND SLIDING WEAR PROBLEM
GILLON, W. A., JR. /N. AM. AVIATION/ DATE- JAN. 1968
M-FS-14079

Two-way cryogenic solenoid valve resists damage from vibration and metallic interfacial sliding. The new system features a flat-faced armature guided by a flexure disk which eliminates sliding surfaces and is less subject to contamination and wear.

B67-10670

RECONNECT MECHANISM
MOORE, D. L. /BOEING CO./ DATE- JAN. 1968
M-FS-12968

Mechanism remotely controls de-mating of two bodies by unlock and withdrawal of one body from the other and, upon command, extends, locates, remates and relocks the two bodies. The system is designed to transfer fluids from a dispensing body to a receiving body.

B67-10673

CRYOGENIC SEAL CONCEPT FOR STATIC AND DYNAMIC CONDITIONS
DE GAETANO, E. A. /N. AM. AVIATION/ DATE- JAN. 1968
M-FS-12986

Seal rings reduce cryogenic pump seal leakage under static and dynamic conditions. The rings are fitted into annular diaphragms, which are affected by cryogenic pressure and temperature, to move against a mating ring, to increase seal-bearing loads under static conditions.

B67-10677

IMPROVED CONTROL SYSTEM POWER UNIT FOR
LARGE PARACHUTESCHANDLER, J. A. GRUBBS, T. M. DATE- JAN. 1968
MSC-12052

Improved control system power unit drives the control surfaces of very large controllable parachutes. The design features subassemblies for determining control surface position and cable loading, and protection of the load sensor against the possibility of damage during manipulation.

B68-10004

DEVELOPMENT OF MECHANIZED ULTRASONIC
SCANNING SYSTEMEVANS, R. MAC DONALD, J. A. DATE- JAN. 1968
REAN- SEE ALSO NASA-TM-X-53598

M-FS-13638

Mechanized ultrasonic scanning system inspects the flaw content in the welds of space vehicle booster stages and propellant tanks. It is capable of scanning welds at speeds greater than 1 inch per second.

B68-10011

PNEUMATIC RAFT AUTOMATICALLY REFORMS AFTER
RUPTURE OF BUOYANT MEMBERRADNOSKY, M. I. SHERMAKE, G. A. DATE- JAN. 1968
MSC-11562

Unique, inflated, expandable socks are attached within the inflated chamber of a raft or a float in such a way that collapse of the chamber wall through damage, causes the adjacent sock to expand and restore the original configuration.

B68-10014

VENT AND RELIEF VALVE MAINTAINS LOW
LEAKAGE RATE OVER BROAD TEMPERATURE RANGE

WEITENBECK, R. G. /PARKER AIRCRAFT CO./ DATE- JAN. 1968

M-FS-12807

Low leakage rate, large diameter vent and relief valve operates satisfactorily over a large temperature range by a design that accommodates waviness and distortions due to thermal gradients. It is based on a fixed sealing member having an inclined lapped surface to which a flexible flow gate conforms.

B68-10022

MECHANICAL SHIELDING REDUCES WELD SURFACE
CRACKING IN 6061 T6 ALUMINUMHILL, J. E. /N. AM. AVIATION/ DATE- FEB. 1968
MSC-11494

Mechanical shield of high melting point material protects 6061-T6 aluminum welded with high frequency ac tungsten arc equipment. It is held in place around the weld bead area and eliminates heat check cracks.

B68-10024

LOCATING AND SEALING AIR LEAKS IN
MULTIROOMED BUILDINGS

BRITTON, J. M. /AEROJET-GEN. CORP./ DATE- FEB. 1968

NUC-10304

Industrial, nontoxic smoke bombs are used in multiroomed buildings to locate and fill discovered leak areas with polyurethane foam. All obvious air escape routes are sealed and the room is then pressurized to a minimum of 0.1 inch water above the pressure of adjoining rooms.

B68-10026

PREDICTING FATIGUE LIFE OF METAL BELLOWS

DANIELS, C. M. /N. AM. AVIATION/ DATE- FEB. 1968
M-FS-14096

Classical method of presenting fatigue data in plots of alternating stress vs number of deflection cycles is applied to bellows formed of various metals, including corrosion-resistant steel, nickel alloys, and aluminum alloys. The expected life of a new bellows design can then be determined before fabrication and testing.

B68-10035

COMPUTER MAGNETIC TAPE REHABILITATION STUDY

BYRD, V. H. DATE- FEB. 1968
GSFC-10283

Study determines the most efficient method for magnetic tapes rehabilitation and storage for reuse. Investigated were the physical changes taking place in the tape during the rehabilitation process, measure of quality of the processed tapes, and the level of quality required to achieve sufficient yield.

B68-10036

TUBE DIMPLING TOOL ASSURES ACCURATE
DIP-BRAZED JOINTSBEUYUKIAN, C. S. HEISHAN, R. M. /N. AM. AVIATION/ DATE- FEB. 1968
MSC-533

Portable, hand-held dimpling tool assures accurate brazed joints between tubes of different diameters. Prior to brazing, the tool performs precise dimpling and nipple forming and also provides control and accurate measuring of the height of nipples and depth of dimples so formed.

B68-10037

SWING ARM CARRIER PROTECTS FLEXIBLE LINES
DURING TEST ITEM ROTATIONWARD, D. P. /N. AM. AVIATION/ DATE- FEB. 1968
MSC-11464

Swing arm carrier provides protection for flexible lines /fluid, electrical, RF/ connected to a test item that must be rotated through 360 degrees during test. It uses five gates riding on pivots to permit rotation of flexible lines through arcs of plus 180 degrees and minus 180 degrees.

B68-10038

CONCEPT TO STANDARDIZE SPACE VEHICLE
PIGGYBACK EXPERIMENT MODULES

CUMMINGS, A. DOWDY, W. MORITA, W. H. /N. AM. AVIATION/ DATE- APR. 1968

M-FS-1697

Study investigates the use of spent launch vehicle stages and modules to support earth orbital operations and functions after successful completion of the primary mission. Emphasis is placed primarily on determination of those uses that afford the greatest utility with minimum possibility of degradation to the primary mission.

B68-10039

FUEL TRANSFER SYSTEM PERMITS RAPID
COUPLING

WEST, A. M. /LOCKHEED MISSILES AND SPACE CO./ DATE- FEB. 1968

M-FS-91326

Docking and fuel transfer system provides an efficient method for transferring fuel from a tanker to another vehicle. With this system, no triggering operation is required prior to docking, the support system can be rigidized by simply locking the rams of shock absorbers, and no separate fuel line coupling action is required.

B68-10040

HEAT-SHRINK PLASTIC TUBING SEALS JOINTS IN
GLASS TUBINGDEL DUCA, B. DOWNEY, A. DATE- FEB. 1968
LEWIS-10329

Small units of standard glass apparatus held together by short lengths of transparent heat-shrinkable polyolefin tubing. The tubing is shrunk over glass O-ring type connectors having O-rings but no lubricant.

B68-10041

IMPROVED TORCH INCREASES WELD QUALITY IN
REFRACTORY METALS

LESSMAN, G. G. SPRECKACE, R. /WESTINGHOUSE ELEC. CORP./ DATE- FEB. 1968

LEWIS-324

Specially designed torch welds refractory metals in a vacuum purged, inert gas backfilled welding chamber /weld box/ with practically zero contamination resulting from its use. Included in the torch design is a radiation shield to protect the operators hands when welding at high amperages.

B68-10042

SUSPENDED CHAINS DAMP WIND-INDUCED
OSCILLATIONS OF TALL FLEXIBLE STRUCTURES

05MECHANICAL

REED, W. H., III DATE- FEB. 1968
LANGLEY-10193

Hanging-chain system, which is a form of impact damper, suppresses wind-induced bending oscillations of tall cylindrical antenna masts. A cluster of chains enclosed in a neoprene shroud is suspended inside the tip of the antenna mast, forming a simple method of damping structural vibrations.

B68-10047
FAST METHOD FOR OBTAINING SCALE DIMENSIONS
ON TAPE-CONTROLLED MILLING MACHINE
THOMPSON, L. J. /N. AM. AVIATION/ DATE- MAY 1968
MSC-11609

Calculator obtains the Rail and Z Scale dimensions on the tape-controlled Sundstrand milling machine. It provides computer with depth information required to process numerical control programs which, in turn, provide the tapes for operation of M/C milling machines.

B68-10052
MULTICHANNEL WIREWAY ADAPTER BOX
BLAKE, W. /N. AM. AVIATION/ DATE- MAR. 1968
MSC-90645

Adapter box provides continuous separation of different electrical leads at points where their runs must intersect. Thus, multichannel conduits of standard commercial design may be used in a manner that prevents crossing of wire leads carrying different currents where the runs intersect and change direction.

B68-10053
REMOVELY INSTALLED PIPE PLUG PROVIDES
EFFECTIVE SEAL IN HAZARDOUS ENVIRONMENT
CLIFTON, R. P. /AEROJET-GEN. CORP./ DATE- MAR. 1968
NUC-10303

Pipe plug for remote installation in an open-ended pipe used in a hazardous environment provides a gastight seal by expanding a rubber seal against the inside surface of the pipe opening, with mechanical clamps contacting the pipe flange for positive retention of the plug.

B68-10057
SYNCHRONIZED CIRCUIT IMPROVES ACCURACY OF
FLUID TRANSFER MEASUREMENTS
VENDL, C. J. /N. AM. AVIATION/ DATE- MAR. 1968
MSC-11167

Shut-off valve at the destination of a transferred fluid, improves the accuracy of measurements determining the quantity of liquid transferred from a storage source to a remote location. By synchronizing this valve with the measuring device /totalizer/, the inaccuracies resulting from unfilled transfer lines can be reduced.

B68-10064
FLEXIBLE RING BAFFLES FOR DAMPING LIQUID
SLOSH
BROOKS, G. W. STEPHENS, D. G. DATE- FEB. 1968
REAN- SEE ALSO NASA-TN-D-3878
LANGLEY-90194

Slosh damping, obtained through the use of small, less massive, flexible baffles, provides a relatively lightweight system for damping the motions of liquid propellants in launch vehicles, missiles, and other tankage systems.

B68-10072
CLAMP FOR DETONATING FUZE
HOLDERMAN, E. J. /DOUGLAS AIRCRAFT CO./ DATE- MAR. 1968
M-FS-13399

Quick acting clamp provides physical support for a closely confined detonating fuse in an application requiring removal and replacement at frequent intervals during test. It can be designed with a base of any required strength and configuration to permit the insertion of an object.

B68-10075
MAINTAINABILITY METHODOLOGY AND
MAINTENANCE ANALYSES
BEACH, R. E. ELLIS, G. F. GRALOW, F. H.
HORSEMAN, J. J. KOZLOWSKI, F. J. /BOEING CO./

DATE- MAR. 1968
M-FS-14134 M-FS-14221

Initial approach in performing maintainability studies involves detailed description of methodology used. Maintenance analyses are formulated for system, subsystem, and component levels. These are performed to ensure that complete, integrated, logistics system support elements are identified.

B68-10078
DEVICE DAMPS FLUID PRESSURE OSCILLATIONS IN
VENT VALVE
NEIN, H. J. DATE- MAY 1968
M-FS-13290

Device, containing a tuned series arrangement of two plenum chambers and two orifices, damps high pressure fluid oscillations in a vent valve. Used in conjunction with vent valves, it relieves gas pressure that develops in liquid hydrogen and liquid oxygen tanks used on a space vehicle.

B68-10080
NUMERICAL CONTROL MACHINE DATA MANUAL
MACKAY, R. T., SR. /N. AM. ROCKWELL CORP./
DATE- MAY 1968
M-FS-14342

Numerical Control Machine Data Manual provides programmers with specific information for various types and sizes of numerical control machine tools and auxiliary equipment.

B68-10082
DEPLOYABLE LATTICE COLUMN
MAUCH, H. R. /ASTRO RES. CORP./ DATE- MAY 1968
NPO-10228

Lattice column, made up of many individually collapsible sections connected in tandem, rapidly raises measuring instruments to a level appreciably above that where data is to be recorded and evaluated. The column may be collapsed by collapsing each section in sequence and is deployed by extending each section in sequence.

B68-10099
SYSTEM FOR MEASURING ROUNDNESS AND
CONCENTRICITY OF LARGE TANKS
MELTON, R. E. /SPACO/ DATE- MAY 1968 REAN- SEE
ALSO B67-10214
M-FS-13362

Equipment measures the roundness and concentricity of large, massive tanks. The equipment includes a 34-foot rotary table, a variable reluctance displacement transducer, an electronics console, a digital computer, and a 5-foot plotter used for final data display.

B68-10107
ELECTROFORMED SCREENS WITH UNIFORM HOLE
SIZE
SCHAER, G. R. /BATTELLE MEM. INST./ DATE- APR. 1968
LEWIS-10117

Efficient method electroforms fine-mesh nickel screens, or plaques, with uniform hole size and accurate spacing between holes. An electroformed nickel mandrel has nonconducting silicone rubber projections that duplicate the desired hole size and shape in the finished nickel screen.

B68-10110
VISCOS DAMPER
DEAN, W. C. /UNITED AIRCRAFT CORP./ DATE- APR. 1968
MSC-12072

Damping device exhibiting no hysteresis effect and capable of preload is used in place of a preload spring in an aneroid bellows to provide viscous damping. It operates about the action of a pressure sensing outer bellows attached to an active header above and a static header below.

B68-10111
SLEEVED DAMPER LIMITS SPRING SURGING
DEAN, W. C. /UNITED AIRCRAFT CORP./ DATE- APR. 1968
MSC-12071

Damping device limits spring surging in delicate

instrumentation subjected to shock loading to tolerable limits. The device consists of a spiral formed plastic member interleaved between the spring coils in the same helix configuration.

B68-10115

METHOD FOR REINFORCING TUBING JOINTS

KINZLER, J. LEE, W. S. DATE- APR. 1968

MSC-11108

Joint repair technique uses a longitudinally split aluminum shield over the joint ferrule and immediately adjacent tubing to reseal or reinforce leaking or weak joints in small tubing. Epoxy resin coating on inside surfaces of the two shield halves provides a tightly sealed bond between shield and tubing.

B68-10117

TOGGLE OPERATED DOUBLE LATCH

BARBOUR, R. T. NECKER, D. E. /N. AM. AVIATION/ DATE- APR. 1968

MSC-11377

Double hook latch provides preloading and support capability up to 80,000 pounds and opens self-energizingly when restraint linkage is released. It incorporates a double hook latch held closed by a toggle linkage attached to a flexible cable rigged in tension.

B68-10120

PRESSURE VARIABLE ORIFICE FOR HYDRAULIC CONTROL VALVE

AMHERMAN, R. L. /N. AM. AVIATION/ DATE- APR. 1968

MSC-11323

Hydraulic valve absorbs impact energy generated in docking or joining of two large bodies by controlling energy release to avoid jarring shock. The area of exit porting presented to the hydraulic control fluid is directly proportional to the pressure acting on the fluid.

B68-10122

MEASURING THERMAL EXPANSION OF MULTIPLE SPECIMENS AT HIGH TEMPERATURE

GAAL, P. S. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- MAY 1968

NUC-10153

Furnace capable of heating 10 specimens to a uniform temperature simultaneously, aids in the measuring of the thermal expansion of each specimen. The specimens are measured with a telescope unit consisting of two microtelescopes. Overall accuracy of the system is estimated to be plus or minus 2 percent at 2000 degrees C.

B68-10123

IMPROVED ACTIVE VIBRATION ISOLATOR

DIXON, G. V. LEATHERWOOD, J. D. STEPHENS, D. G. DATE- APR. 1968

LANGLEY-10106

Active vibration isolator simultaneously isolates a flexible structure or payload from disturbances, attenuates the response of a flexible structure to transient disturbances, and maintains the equilibrium position of the payload within predetermined limits over a wide range of steady loads and accelerators.

B68-10125

VACUUM-JACKETED TRANSFER LINE INSTALLATION TECHNIQUE

BOWERS, W. M. /N. AM. ROCKWELL CORP./ DATE- APR. 1968

M-FS-14496

Rolling-type spacers in the form of steel balls retained in appropriate sleeves affixed at intervals to the exterior of the transfer line facilitate the installation of a vacuum-jacketed line. They act as standoffs to position the transfer line concentrically within the vacuum jacket line.

B68-10132

IMPROVED MOLDING PROCESS ENSURES PLASTIC PARTS OF HIGHER TENSILE STRENGTH

HEIER, W. C. DATE- APR. 1968

LANGLEY-10033

Single molding process ensures that plastic parts

/of a given mechanical design/ produced from a conventional thermosetting molding compound will have a maximum tensile strength. The process can also be used for other thermosetting compounds to produce parts with improved physical properties.

B68-10134

SHALLOW GROOVES IN JOURNAL IMPROVE AIR

BEARING PERFORMANCE

ANDERSON, W. J. CUNNINGHAM, R. E. FLEMING, D. P. DATE- APR. 1968

LEWIS-10396

Bearing designs, which shape the surface to create artificial fluid-film wedges in the absence of any applied radial load, generate radial restoring forces to keep journals from whirling. Helical- or herringbone-grooved journals or rotors show most promise of stable operation, with no sacrifice in load capacity.

B68-10161

ROLL DIFFUSION BONDING OF TITANIUM ALLOY

PANELS

BENNETT, J. DE WITT, T. E. JONES, A. G.

KOLLER, F. MUSER, C. /N. AM. ROCKWELL CORP./

DATE- MAY 1968

M-FS-14743

Roll diffusion bonding technique is used for fabricating T-stiffened panel assemblies from titanium alloy. The single unit fabrication exhibits excellent strength characteristics under tensile and compressive loads. This program is applied to structures in which weight/strength ratio and integral construction are important considerations.

B68-10162

ASBESTOS AND INCONEL COMBINED TO FORM

HOT-GAS SEAL

WOOSTER, C. W., JR. /N. AM. AVIATION/ DATE- MAY 1968

M-FS-14004

Hot-gas seal prevents warpage tendencies in large flange joints exposed to high temperatures, such as those present in large space vehicle engine exhausts. Two Inconel wire mesh cores are held in place by an asbestos cloth cover that acts as a spacer to form the seal.

B68-10165

BEARINGS USE DRY SELF-LUBRICATING CAGE

MATERIALS

ANDERSON, W. J. GLENN, D. C. SCRIBBE, H. W.

DATE- MAY 1968

LEWIS-10432

Rolling element bearings in spacecraft mechanical systems use solid lubricant composites of polytetrafluoroethylene in the bearing cage which functions as the lubricant reservoir. The cage spaces the rolling elements equally and provides the lubricant at the bearing load-carrying surface.

B68-10168

BALLAST BARGE CONCEPT FOR UNDERWATER

STRUCTURES

PAYNE, V. E. DATE- JUN. 1968

KSC-10196

Ballast barge for underwater structure consists of a reinforced concrete structure partitioned into watertight compartments. The barge structure includes a 3-way venting valve, a compressed air manifold, a master valve for connecting the manifold to an air line, and an open port in each compartment for admitting and expelling sea water.

B68-10176

HIGH-TEMPERATURE BEARING-CAGE MATERIALS

ANDERSON, W. J. ZARETSKY, E. V. DATE- JUN. 1968

LEWIS-10403

Evaluation tests conducted at temperatures of 500 and 700 degrees F reveal that S-Monel and AISI M-1 steel are suitable as high temperature cage materials for precision bearings. The area of the wear scar in the cage pocket that developed during the test was used as the measure of wear.

B68-10180

SQUEEZE-FILM GAS BEARING TECHNOLOGY

05 MECHANICAL

PAN, C. H. T. /MECH. TECHNOL./ DATE- JUN. 1968
 REAN- SEE ALSO B66-10226
 M-FS-14821

Squeeze-film bearing is studied to develop a low-friction suspension for the output-axis gimbal of a single-degree-of-freedom gyroscope. Included are a review of pertinent literature, the theory of squeeze-film lubrication, and design elements.

B68-10209
 MAGNETICALLY CONTROLLED TORQUE WRENCH
 PREVENTS OVERTORQUING
 ROHRER, J. A. DATE- JUN. 1968
 SAN-10002

Magnetically controlled torque wrench produces the required torque values accurately, and prevents overtightening. The force between a magnet and a soft iron bar on the arms of the wrench constitutes a predetermined maximum torque that cannot be exceeded. So long as the magnetic flux remains constant, the torque remains the same.

B68-10211
 PROPOSED GAS GENERATION ASSEMBLY WOULD
 RECOVER DEEPLY SUBMERGED OBJECTS
 SPRAGUE, C. W. DATE- JUN. 1968
 SAN-10007

Gas generation system, used for recovery of submerged objects, generates hydrogen gas by the reaction of sodium with sea water. The assembly consists of flooded flotation tanks cabled together, equipped with relief valves to equalize pressure as the array ascends and hydrostatic pressure diminishes, and carrying remotely activated welding units.

B68-10219
 PACKAGING CRITERIA FOR TRANSPORTATION AND
 HANDLING SHOCK AND VIBRATION
 SPON- INNOVATOR NOT GIVEN /MARSHALL/ DATE- JUN. 1968
 M-FS-13007

Information compiled on the shock and vibration environment encountered by items and equipment during shipment shows the distribution of drop heights for particular packages, distribution systems, and handling operations. Applications of the data to typical package design problems are discussed.

B68-10222
 ASSEMBLY, CHECKOUT, AND OPERATION
 OPTIMIZATION ANALYSIS TECHNIQUE FOR
 COMPLEX SYSTEMS
 SPON- INNOVATOR NOT GIVEN /MARSHALL/ DATE- JUN. 1968
 M-FS-14105 M-FS-14132 M-FS-14137

Computerized simulation model of a launch vehicle/ground support equipment system optimizes assembly, checkout, and operation of the system. The model is used to determine performance parameters in three phases or modes - /1/ systems optimization techniques, /2/ operation analysis methodology, and /3/ systems effectiveness analysis technique.

B68-10225
 LASER SYSTEM USED FOR DYNAMIC BALANCING OF
 GYROSCOPES
 POPICK, H. ROBERTS, D. L. /KORAD CORP./ DATE-
 JUN. 1968
 M-FS-12218

System using a pulsed ruby laser balances or trims gyro rotors spinning at speeds of up to 24,000 rpm. It is designed to detect high spots on the spinning rotor and to focus a precisely timed laser beam on these detected spots.

B68-10229
 EFFECT OF SURFACE IRREGULARITIES ON BELLOWS
 FATIGUE LIFE
 SCHMIDT, E. H. SHEAFFER, E. P. TURNER, J. D.
 ZEIMER, R. I. /N. AM. ROCKWELL CORP./ DATE- JUL.
 1968
 M-FS-14480

Report presents test data on the bending fatigue life of notched sheet specimens. The influence of a surface irregularity on the fatigue life of a metal bellows is evaluated, with emphasis on accidental defects in ducting bellows which are impossible to avoid short of completely

eliminating human contact.

B68-10235
 TUBE SWAGING DEVICE USES EXPLOSIVE FORCE
 MC SMITH, D. G. DATE- JUL. 1968
 LANGLEY-10092

Tool joins a sleeve to a tube by explosive swaging, thus providing a leakproof, lightweight, and strong assembly. No new or different material is used in this method and therefore the thermal and galvanic properties are maintained.

B68-10237
 DUAL RATE PRESSURE RELIEF VALVE
 STEENEKEN, J. /GARRETT CORP./ DATE- JUL. 1968
 MSC-11606

Pressure relief valve vents at a slow bleed rate at one pressure level and at a higher bleed rate at a higher pressure level. The valve housing contains a sleeve, inlet port, outlet port, an orifice, a ball and seat arrangement, and a Belleville spring diaphragm.

B68-10239
 MANUAL OF INDUSTRIAL DIAMONDS PLUS DRESSING
 AND GRINDING CRITERIA FOR MACHINING
 SUPERALLOYS
 CARR, W. L. /N. AM. ROCKWELL CORP./ DATE- JUL.
 1968
 M-FS-14582

Manual combines the important and controlling factors for the proper selection and use of diamond stones for cutting and dressing grinding wheels. This manual is a compilation of empirical data and incorporates an original companion treatise on the physical descriptions of the diamond stones, their grading, and their applications.

B68-10247
 DYNAMICALLY STABLE CHECK VALVE CONCEPT FOR
 WIDE FLOW RANGE
 ABSALOM, J. G. /N. AM. ROCKWELL CORP./ DATE-
 JUL. 1968
 M-FS-14579

Poppet-type check valve design accommodates a wide flow range without the usual chatter problem at low flow conditions. This pressure isolation check valve is proposed for the J-2 rocket pneumatic package.

B68-10248
 TENSILE TESTING GRIPS ENSURE UNIFORM LOADING
 OF BIMETAL TUBING SPECIMENS
 DRISCOLL, S. D. HUNT, V. /AEROJET-GEN. CORP./
 DATE- SEP. 1968
 LEWIS-10267

Tensile testing grip uniformly distributes stresses to the internal and external tube of bimetal tubing specimens. The grip is comprised of a slotted external tube grip, a slotted internal tube grip, a machine bolt and nut, an internal grip expansion cone, and an external grip compression nut.

B68-10249
 HIGH-TEMPERATURE BEARING LUBRICANTS
 ANDERSON, W. J. PARKER, R. J. ZARETSKY, E. V.
 DATE- SEP. 1968
 LEWIS-10408

Synthetic paraffinic oil lubricates ball bearings at temperatures in the 600 degrees F range. The lubricant contains antiwear and antifoam additives, is thermally stable in the high temperature range, but requires protection from oxygen.

B68-10250
 QUICK-ATTACH CLAMP
 VANO, A. E. DATE- JUL. 1968
 XFR-05421

Clamp of the slideable jaw type can be applied to moving lines such as cables or ropes. The clamp has a trigger-operated jaw that can be attached to a redrop parachute on a moving tow cable. The trigger mechanism maintains the jaws retracted in the housing until they are released for clamping.

B68-10257

INSPECTION CRITERIA ENSURE QUALITY CONTROL
OF PARALLEL GAP SOLDERING
BURKA, J. A. /SPACO, INC./ DATE- JUL. 1968
M-FS-14530

Investigation of parallel gap soldering of electrical leads resulted in recommendation on material preparation, equipment, process control, and visual inspection criteria to ensure reliable solder joints. The recommendations will minimize problems in heat-dwell time, amount of solder, bridging conductors, and damage of circuitry.

B68-10261

DYNAMIC-RESERVOIR LUBRICATING DEVICE
PICKEN, W. H. SCHULIEN, H. E. /BENDIX CORP./
DATE- JUL. 1968
M-FS-14652

Dynamic-reservoir lubricating device supplies controlled amounts of lubricating oil to ball bearings during operation of the bearings. The dynamic reservoir lubricating device includes a rotating reservoir nut, a hollow cylinder filled with lubricating oil, flow restrictors and a ball bearing retainer.

B68-10266

SHOCK-ABSORBING CASTER WHEEL IS SIMPLE AND
COMPACT
KINDLEY, R. J. DATE- JUL. 1968
SAN-10019

Compact shock-absorbing caster wheel mitigates or absorbs shock by a compressible tire which deforms into a cavity between its inner edge and the wheel hub. A tee-shaped annular ring embedded in the tire distributes loads more uniformly throughout both wheel and tire.

B68-10270

SPIRAL-GROOVED SHAFT SEALS SUBSTANTIALLY
REDUCE LEAKAGE AND WEAR
ALLEN, G. P. JOHNSON, R. L. LUDWIG, L. P.
STROM, T. N. DATE- JUL. 1968
LEWIS-10397

Rotating shaft seals used in space power systems have spiral grooves in one or both of the opposing seal faces. These grooves induce a pumping action which displaces the intervening fluid radially inward toward the shaft and counters the centrifugal forces which tend to displace the fluid outward.

B68-10277

THERMAL PROTECTIVE VISOR FOR ENTERING
HIGH TEMPERATURE AREAS
BURGETT, F. A. DATE- AUG. 1968
MSC-10285

Chamber observer suit visor protects the eyes and ears of the wearer while he is performing rescue operations during a fire. The visor is a simple curved sandwich of selected glass plates, gold coated polyester plastic film, and a dead air space, all mounted in an aluminum frame.

B68-10284

FABRICATION TECHNIQUES DEVELOPED FOR SMALL-
DIAMETER, THIN-WALL TUNGSTEN AND TUNGSTEN
ALLOY TUBING
BRILLHART, D. C. BURT, W. R. KARASEK, F. J.
MAYFIELD, R. M. DATE- AUG. 1968 REAN- SEE ALSO
ANL-7151
ARG-10100

Report describes methods for the fabrication of tungsten and tungsten alloys into small-diameter, thin-wall tubing of nuclear quality. The tungsten, or tungsten alloy tube blanks are produced by double extrusion. Plug-drawing has emerged as an excellent secondary fabrication technique for the reduction of the overall tube dimensions.

B68-10286

BETWEEN-BEARING SHAFT SEAL, A CONCEPT
FURST, R. B. /N. AM. ROCKWELL CORP./ DATE- AUG.
1968
M-FS-18179

Placing the shaft seals, in an oxidizer pump, between the pump bearings, reduces the shaft overhang length and overall turbopump length.

This arrangement of the components in the pump removes the seals from the hot turbine region.

B68-10288

ADVANCES IN LIGHT-GAS GUN TECHNOLOGY
COWAN, P. L. MURPHY, J. R. /COMPUTING DEVICES OF
CANADA/ DATE- AUG. 1968
M-FS-14270

Constant-area accelerator used with light-gas guns increases the velocity of accelerating projectiles. A disposable accelerator on the muzzle of the gun uses the energy and momentum of a primary projectile, launched by the gun, to achieve high velocities of a light secondary projectile accelerated from rest in the accelerator.

B68-10295

VENTURI METER WITH SEPARABLE DIFFUSER
DUDZINSKI, T. J. JOHNSON, R. C. KRAUSE, L. N.
DATE- AUG. 1968
LEWIS-10483

The diffuser and nozzle of venturi meters are made as separate pieces for easier fabrication. Venturi meter efficiency is affected by the diffuser inlet diameter being greater than two percent larger than the throat diameter, by Reynolds number and by Mach number.

B68-10297

PREPARING ROCK POWDER SPECIMENS OF
CONTROLLED SIZE DISTRIBUTION
BLUM, P. /NORTON RES. CORP./ DATE- AUG. 1968
NPO-10007

Apparatus produces rock powder specimens of the size distribution needed in geological sampling. By cutting grooves in the surface of the rock sample and then by milling these shallow, parallel ridges, the powder specimen is produced. Particle size distribution is controlled by changing the height and width of ridges.

B68-10299

HIGH-TORQUE POWER WRENCH, A CONCEPT
COX, E. F. /N. AM. ROCKWELL CORP./ DATE- AUG.
1968
M-FS-18194

High-torque power wrench is small enough to be handled by one or two men yet has sufficient torque to remove 1-1/2- to 4-inch nuts from high-pressure tanks and valves. The action can be made automatic by use of solenoid-operated valves and suitable switches.

B68-10300

CONCEPTUAL HERMETICALLY SEALED ELBOW
ACTUATOR
WUENSCHER, H. F. DATE- AUG. 1968
M-FS-14710

Electrically or hydraulically powered, hermetically sealed angular or rotary actuator deflects mechanical members over a range of plus or minus 180 degrees. The actuator design provides incremental flexures which keep the local deflection rate within elastic limits.

B68-10318

COMPRESSIBLE SLEEVE PROVIDES AUTOMATIC
CENTERING FOR GRINDING OR TURNING OF
CYLINDERS
ROHRER, J. A. DATE- AUG. 1968
SAN-10021

Elastomeric sleeve supported on a threaded mandrel automatically centers cylindrical castings for grinding or turning. By expanding the diameter of the sleeve with pressure against the ends, the casting becomes rigidly supported and the surfacing operation can be completed.

B68-10331

ELECTRON BEAM SELECTIVELY SEALS POROUS METAL
FILTERS
SNYDER, J. A. /HUGHES AIRCRAFT CO./ TULISIAK, G.
DATE- SEP. 1968
LEWIS-10162

Electron beam welding selectively seals the outer surfaces of porous metal filters and impedances used in fluid flow systems. The outer surface can be sealed by melting a thin outer layer of the

05MECHANICAL

porous material with an electron beam so that the melted material fills all surface pores.

B68-10332

DUAL WIRE WELD FEED PROPORTIONER

NUGENT, R. E. /N. AM. ROCKWELL CORP./ DATE- SEP. 1968

M-FS-18037

Dual feed mechanism enables proportioning of two different weld feed wires during automated TIG welding to produce a weld alloy deposit of the desired composition. The wires are fed into the weld simultaneously. The relative feed rates of the wires and the wire diameters determine the weld deposit composition.

B68-10338

TWO-FLUID, IMPINGING-SHEET INJECTOR

RIEBLING, R. W. DATE- SEP. 1968

NPO-10547

Two-fluid, impinging-sheet propellant injector reduces the severe erosion found to occur when ejector elements are directly exposed during throttling without the benefits of a cooling flow of the propellant liquids. It greatly improves combustion efficiency by venting the secondary stream of combustion gases generated by backspray reaction.

B68-10343

X-RAY FILM HOLDER PERMITS SINGLE

CONTINUOUS PICTURE OF TUBING JOINT

DIAMOND, J. W. HUNT, V. MIKESSELL, C.

/AEROJET-GEN. CORP./ DATE- SEP. 1968

LEWIS-10382

X ray technique produces a clear continuous picture of a welded brazed tubing joint on a single film with one exposure. A stationary Xray source located in the plane of the joint to be inspected, a means of rotating the tube, and a unique internal film holder and positioning fixture are used.

B68-10352

MACHINING TECHNIQUE PREVENTS UNDERCUTTING IN TENSILE SPECIMENS

MOSCATER, R. E. ROYSTER, D. M. DATE- SEP. 1968

LANGLEY-10281

Machining technique prevents undercutting at the test section in tensile specimens when machining the four corners of the reduced section. Made with a gradual taper in the test section, the width of the center of the tensile specimen is less than the width at the four corners of the reduced section.

B68-10353

SHOCK AND VIBRATION RESPONSE OF MULTISTAGE STRUCTURE

LEE, S. Y. LIYEOS, J. G. TANG, S. S. /N. AM.

ROCKWELL CORP./ DATE- SEP. 1968

M-FS-14972

Study of the shock and vibration response of a multistage structure employed analytically, lumped-mass, continuous-beam, multimode, and matrix-iteration methods. The study was made on the load paths, transmissibility, and attenuation properties along a longitudinal axis of a long, slender structure with increasing degree of complexity.

B68-10359

REMOTELY OPERATED GRIPPER PROVIDES VERTICAL

CONTROL ROD MOVEMENT

HUTTER, E. KOCH, L. J. DATE- SEP. 1968

ARG-10160

Remote actuation of a gripper shaft affects vertical engagement between a drive shaft and control rod. A secondary function of the gripper is to provide remote indication of positive completion of the gripping or ungripping operation.

B68-10371

VERSATILE IMPACT HAND TOOL

HODIL, E. R. /OLIN WINCHESTER/ DATE- OCT. 1968

M-FS-20140

Improved cartridge-actuated impact hand tool includes a common power head and four attachments

to punch holes, drive forced entry fasteners, hammer, and shear. The attachments are self-contained and easily fitted to the power head assembly.

B68-10372

IMPROVED ELECTROMECHANICAL MASTER--SLAVE MANIPULATOR

FORSTER, G. GOERTZ, R. GRIMSON, J. MINGESZ, D.

POTTS, C. DATE- OCT. 1968

ARG-10027

Electric master-slave manipulator uses force multiplication and allows the operator to remotely control the slave arm. Both the master and slave arms execute seven distinct motions by a specially designed force-reflecting servo having a one to one correspondence between the motion at the master and slave.

B68-10383

EFFECTS OF HIGH FREQUENCY CURRENT IN WELDING ALUMINUM ALLOY 6061

FISH, R. E. /N. AM. ROCKWELL CORP./ DATE- OCT. 1968

M-FS-18337

Uncontrolled high frequency current causes cracking in the heat-affected zone of aluminum alloy 6061 weldments during tungsten inert gas arc welding. Cracking developed when an improperly adjusted superimposed high frequency current was agitating the semimolten metal in the areas of grain boundary.

B68-10387

MINIATURE PAINT-SPRAY GUN FOR RECESSED AREAS

VANASSE, M. A. /N. AM. ROCKWELL CORP./ DATE- OCT. 1968

MSC-13060

Miniature spray gun regulates paints and other liquids to spray at close range, facilitating spraying of remote or recessed areas. Individual valves for regulating air pressure and paint maximizes atomization for low pressure spraying.

B68-10393

DETERMINING GAS LEAKAGE FROM BUBBLE FORMATIONS

DECASTRA, J. E. WELLS, F. E. DATE- OCT. 1968

M-FS-14841

Gas leakage rates are quantitatively estimated using threaded and flanged fittings by standardizing bubble appearance. Three classes of bubble formations have been proposed.

B68-10395

DESIGN OF FLUID-DUCT BENDS WITH LOW PRESSURE LOSS

GERLACH, R. /SOUTHWEST RES. INST./ DATE- OCT. 1968

M-FS-20176

Duct bends are designed in which pressure losses and velocity profile distortions due to centrifugal force gradients are significantly reduced. The correction is achieved by properly changing the cross sectional area through the bend without affecting the shape of the duct at the upstream and downstream sides.

B68-10398

BATTERY-PACKAGE DESIGN PROVIDES FOR CELL COOLING AND CONSTRAINT

GROSS, S. /BOEING CO./ DATE- OCT. 1968

MSC-11839

Lightweight battery-package provides for even cooling of individual alkaline cells, constraint against cell expansion, and convenient placement of cells. The battery package also provides for venting of the cells and includes instrumentation to measure cell temperature, pressure, and voltage.

B68-10401

COMPACT MONITORING AND CONTROL CONSOLE FOR PRESSURIZED GAS BOTTLES

FREEMAN, B. PILICHI, C. A. /N. AM. ROCKWELL

CORP./ DATE- NOV. 1968

M-FS-14874

Compact monitoring and control console dispenses

gas over a range of pressures from conventional compressed-gas cylinders. It incorporates in a single assembly the necessary equipment for a portable pressurization system that can be used in welding and other operations requiring a controlled gas supply.

B68-10407

AN INVESTIGATION OF PARTICLE MIXING IN A GAS-FLUIDIZED BED

CARLSON, R. E. GABOR, J. D. DATE- DEC. 1968
ARG-10182

Mechanism for particle movement in gas-fluidized beds was studied both from the theoretical and experimental points of view. In a two-dimensional fluidized bed particle trajectories were photographed when a bubble passed through.

B68-10417

HAND-TIGHTENED, HIGH-PRESSURE SEAL

MEYER, W. A. /N. AM. ROCKWELL CORP./ DATE- DEC. 1968

M-FS-18416

To provide flared tubing and hose connections for high-pressure hand tightened cryogenic service, a 1/4-inch male AN seal was modified by machining to receive a special, double-truncated-cone-shaped Kel-F washer between it and the flared flex hose connector.

B68-10439

HYDROSTATIC TESTING OF POROUS ASSEMBLIES

BIGELOW, W. L. /N. AM. ROCKWELL CORP./ DATE- DEC. 1968

M-FS-18298

Pores of the material were plugged with dust particles suspended in water. The plugging material used was a standard test dust prepared as a slurry in distilled water. This technique provides a permanent high-integrity seal for porous material without affecting its physical properties, yet permitting pressure testing to verify structural adequacy.

B68-10440

LOW FRICTION SERVO VALVE

DUSTIN, M. O. DATE- NOV. 1968
LEWIS-10574

Valve was developed using air bearings which provide frictionless operation. The servo valve is of the flat plate type with rectangular meter openings. Fluid bearings support the metering plate. The overlap is adjustable by means of a variable hinge block support.

B68-10441

LOW COST TECHNIQUES FOR FABRICATING LOBED BEARINGS

SCHULLER, F. T. DATE- NOV. 1968
LEWIS-10296

New low cost technique utilizes shims to create the lobes in bearing. Conventional methods of manufacture require accurate off-center grinding of the inside diameter of a bearing in a housing at various arc lengths depending on the number of lobes required.

B68-10444

COAXIAL CABLE STRIPPER FOR CONFINED AREAS

BROWN, J. D. LIPSCOMB, W. G. /BOEING CO./ DATE- NOV. 1968

KSC-10167

Manual coaxial cable stripper quickly and accurately prepares a coaxial cable in a confined area. With this tool, preparation time is greatly reduced, and a completely inexperienced technician can perform the operation.

B68-10503

FLUID POWER-TRANSMITTING GAS BEARING

COLLINS, D. DE FURIA, R. EZEKIEL, F. YANG, P. DATE- NOV. 1968

ERC-10097

Fluid power-transmitting gas bearing was designed that is essentially frictionless, stable, and highly efficient. The two basic components of this design are the base assembly and the upper plate. System could be a fluidic control system,

a momentum exchange or reaction jet device.

B68-10507

ELECTRONIC COMPONENT RELIABILITY ANALYSIS BY DATA REDUCTION SYSTEM

DIMM, R. M. HUNT, D. G. /BOEING CO./ DATE- NOV. 1968

NPO-10243

Mechanized data reduction system has been designed to take advantage of the data handling capacity of computers and to reduce voluminous and unrelated test and performance data to a format useful for the rapid analysis of electronic component reliability.

B68-10509

ROTARY-KNIFE STRIPPER FACILITATES REMOVAL OF X-RAY FILM FROM PACK

MITCHELL, D. K. /BOEING CO./ DATE- NOV. 1968
M-FS-14837

Rotary-knife stripper facilitates removal of X-ray film from the daylight pack paper sleeve. The new stripper is rectangular, approximately 4 inches wide, 5 inches high, and 7 inches long.

B68-10512

BOYDBOLT, A POSITIVE-LATCH, SIMPLE-RELEASE FASTENER

BRUEGER, J. FENSKE, T. HAMILL, W. KATZ, M. /BENDIX CORP./ DATE- NOV. 1968

MSC-13061

Fastener /Boydolt/ has recently been designed to furnish positive lock and release characteristics that positively prevent accidental adverse functions of lock or release.

B68-10515

FATIGUE OF REINFORCED CONCRETE BEAMS UNDER DYNAMIC LOADING

CHAN, G. C. /WYLLIE LABS./ DATE- NOV. 1968
M-FS-14980

Study, consisting of a literature survey and experiments, determined the strength properties of reinforced concrete beams subjected to vibrational stresses.

B68-10530

VERTICAL BORING MILL CAPACITY IS INCREASED

YOUNG, R. J. /N. AM. ROCKWELL CORP./ DATE- NOV. 1968

M-FS-16196

Commercially available vertical boring mill with a nominal capacity to 27 feet in diameter of workpiece has been modified in-shop to handle work up to 36 feet in diameter. Capacity was increased by adding extension saddles to the mill support columns on each side.

B68-10531

DESIGN ELIMINATES RADIAL THERMAL EXPANSION IN TURBINE STATOR COMPONENTS

ANDERSON, M. J. DIETRICH, J. A. /N. AM. ROCKWELL CORP./ DATE- NOV. 1968

M-FS-18146

Stress levels created in turbine stator components because of differential thermal expansion was eliminated by incorporation of a semifloating design, in which the stator vanes are retained by the outer ring assembly and radially piloted in the inner ring.

B68-10534

IMPROVED THERMAL TREATMENT OF ALUMINUM ALLOY 7075

COCKS, F. H. /TYCO LABS./ DATE- DEC. 1968
M-FS-20083

Newly developed tempering treatment considerably increases the corrosion resistance of 7075-T6 alloy and concomitantly preserves its yield strength. The results of tests on samples of the alloy subjected to the above treatments show that when the overaging period is 12 hours /at 325 degrees F/, the alloy exhibits a yield strength of 73,000 psi.

B68-10535

PIROTECHNIC-ACTUATED CABLE RELEASE

HANSON, R. W. DATE- DEC. 1968
XNP-10849

05 MECHANICAL

Remote, unattended means has been designed and reduced to practice that retains and then releases an attached load by means of a restrained cable. The cable is released by an electrical impulse on signal.

B68-10537

FLUIDIC TRANSDUCER GIVES PRESSURE OUTPUT AS FUNCTION OF TEMPERATURE

WALL, D. B. /MARTIN CO./ DATE- DEC. 1968 REAN- SEE ALSO B68-10538

ERC-10093

Fluidic transducer gives a pressure output signal that is a direct function of the differential temperature sensed by the device. The transducer is arranged as a bridge.

B68-10538

FLUIDIC ANALOG AMPLIFIER

MC KENZIE, C. P. /MARTIN CO./ DATE- DEC. 1968

REAN- SEE ALSO B68-10537

ERC-10102

Five-stage, high-gain, push-pull fluidic amplifier provides increased range and improved linearity. The fluidic amplifier was designed to operate in conjunction with a fluidic transducer.

B68-10540

TUBE JOINT LEAK REPAIR COUPLING

FERGUSON, W. B. /N. AM. ROCKWELL CORP./ DATE-

DEC. 1968

MSC-15022

Tube joint leak repair coupling consists of 2 split seals, 1 male split nut, 1 female split nut, and two aligning pins. Each split nut consists of 2 half-shell sections which, when engaged, are held together by a dovetail joint and an aligning pin.

B68-10549

HIGH-TORQUE PRECISION STEPPING DRIVE

KASPARACK, W. E. DATE- NOV. 1968

M-FS-14772

Stepping drive has been designed for precise incremental angular positioning of scale models of spacecraft about a horizontal axis in order to accurately measure antenna receiving and transmitting characteristics. Positioning is insured by spring-loaded, self-locking plungers.

B68-10550

CONTACT-SPRING FORMING MACHINE FOR FLAT

CONDUCTOR CABLE RECEPTACLES

ANGELE, W. MARTINECK, H. G. DATE- DEC. 1968

REAN- SEE ALSO NASA-SP-5043

M-FS-20126

Machine tool produces beryllium-copper contact springs for FCC /flat conductor cable/ feed-through receptacles. The springs are heat-treated and plated to impart the required electrical contact properties.

B68-10551

WELD PREPARATION TOOL FOR PIPES AND TUBING

WALLACE, E. D. DATE- DEC. 1968

KSC-09955

Improved scarfing tool consists of a mount-table, roller-guided assembly. It converts a conventional routing machine for relatively precise field preparation of pipes for welding.

B68-10567

RADIAL INFLOW TURBINE DESIGN CHARTS

ROHLIK, H. E. DATE- DEC. 1968

LEWIS-10720

Design charts were prepared for the selection of turbine geometry corresponding to maximum turbine efficiency. Optimum values can be determined as functions of specific speed.

B68-10573

FIXTURE FACILITATES SOLDERING OPERATIONS

WHITE, C. H. /CHRYSLER CORP./ DATE- DEC. 1968

M-FS-14456

Soldering fixture, designed for printed circuit cards, is a basic bench-mounted, self-contained integral unit combining all soldering needs into a compact, readily available work station. All tools, materials, and accessories are available to

provide an ideal station to perform critical soldering.

B68-10575

HOISTING FRAME FACILITATES HANDLING OF LARGE

OBJECTS

COLPEAN, K. V. HOLCOMB, D. F. /N. AM. ROCKWELL

CORP./ DATE- DEC. 1968

M-FS-16166

Hoisting frame can be used with a standard 5-ton forklift to handle the large spreader bars, or other bulky pieces of equipment, much faster and more efficiently than with a boom or gantry crane. In addition forklifts of this type are more readily available.

B69-10008

TAPE READING FIXTURE

SPON- INNOVATOR NOT GIVEN /CHRYSLER CORP./ DATE-

JAN. 1969

M-FS-14146

Commercially available roller type desk pad provides an efficient and orderly manner of handling rolled paper tapes for proofreading. The fixture, which is modified to accept Flex-O-Writer or similar tapes and roll them in either direction, reduces the chance of damaging or soiling the tapes through repeated handling.

B69-10009

GUN FACILITATES ADHESIVE BONDING OF STUDS

TO SURFACES

DAVIS, B. K. SIMPSON, W. G. DATE- JAN. 1969

M-FS-20299

Gun facilitates adhesive bonding of thermoplastic-backed studs to smooth, hard surfaces. Such studs can be used for mounting loads where defacement with drilled holes cannot be tolerated. These studs can be easily removed by softening the plastic bonding with heat from the gun.

B69-10016

SEMITOROIDAL-DIAPHRAGM CAVITATING VALVE

DESIGNED FOR BIPOPELLANT FLOW CONTROL

YOUNG, A. L. /TRW, INC./ DATE- FEB. 1969

XNP-09704

Valve controls the flow of bipropellant liquids in rocket engines. Throttling and cavitation of the liquids are controlled by axial deflections of a semitoroidal metal diaphragm. The valve is highly resistant to corrosion and leakage, and should be useful in food processing and chemical industries.

B69-10018

COMPOUND TAPER MILLING MACHINE

CAMPBELL, N. R. /N. AM. ROCKWELL CORP./ DATE-

FEB. 1969

MSC-15174

Simple, inexpensive milling machine tapers panels from a common apex to a uniform height at panel edge regardless of the panel perimeter configuration. The machine consists of an adjustable angled beam upon which the milling tool moves back and forth above a rotatable table upon which the workpiece is held.

B69-10019

BERYLLIUM FASTENER TECHNOLOGY

GLACKIN, J. J. GOWEN, E. F., JR. GRIES, G. W.

KEENEY, C. J., JR. /SPS LABS./ WOOD, C. M.

DATE- FEB. 1969

M-FS-20306

Program was conducted to develop, produce, and test optimum-configuration, beryllium prestressed and blind fasteners. The program was carried out in four phases - phase 1, feasibility study, phase 2, development, phase 3, evaluation of beryllium alloys, and phase 4, fabrication and testing.

B69-10021

FIFTH-WHEEL FORK TRUCK ADAPTER

SMITH, F. L. /CHRYSLER CORP./ DATE- FEB. 1969

M-FS-14460

Standard fifth wheel mounted on a rectangular steel structure adapted for use with a fork lift truck provides a fast, safe, and economical way of maneuvering semitrailers in close quarters at plants and warehouses. One operator can move and

locate a semitrailer without dismantling from a fork lift truck.

B69-10030

MULTIPLE-ORIFICE THROTTLE VALVE

FITTON, J. S., JR. ROSALES, L. A. /TRW, INC./
DATE- FEB. 1969

KNP-09698

Multiple-orifice throttle valve is not subject to cold welding in a vacuum environment and is compatible with strong oxidizing fluid. The valve is of all metal construction using simple components that do not slide or rotate and excludes static or dynamic seals.

B69-10044

ABRASION AND RESISTANT DISCHARGE VALVE

DEVELOPED

GOTTWALD, W. L. DATE- FEB. 1969

ARG-10219

Discharge valve capable of withstanding intense radiation and high abrasion was developed for use in a fluidized bed reactor. The valve which employs a replaceable Teflon seal, has only one moving part and is designed for remote assembly and disassembly.

B69-10046

HYDRODYNAMICS OF A NEW CONCEPT OF PRIMARY

CONTAINMENT BY ENERGY ABSORPTION

FISTEDIS, S. H. SORESENSEN, H. C. DATE- FEB. 1969

REAN- SEE ALSO ANL-7214

ARG-10242

Fluid dynamical analysis for idealized reactors system with spherical symmetry determines the effect which the destructive component of a nuclear accident produces on primary containment structures. Steel strands surrounding the reactor cavity in the biological shield exhibit plastic deformation to achieve the energy absorption.

B69-10051

WELDED REPAIRS OF PUNCTURED THIN-WALLED

ALUMINUM PRESSURE VESSELS

JONES, D. J. /BOEING CO./ DATE- FEB. 1969

M-FS-14836

Punctures in thin-walled aluminum pressure vessels are repaired by plugging the hole with an interference-fit disc and welding the unit. The repaired vessels withstood test pressures in excess of vessel ultimate design values for 2-, 4-, and 6-inch holes in 0.202-inch-thick aluminum alloy parent material.

B69-10052

HOT-CRACKING STUDIES OF INCONEL 718 WELD-

HEAT-AFFECTED ZONES

THOMPSON, E. G. /N. AM. ROCKWELL CORP./ DATE-

FEB. 1969

M-FS-18211

Hot ductility tests, gas-tungsten-arc fillerless fusion tests, and circle patch-weld-restraint tests were conducted on Inconel 718 to better understand and correlate the weldability /resistance to hot cracking/ of the alloy. A correlation of the test results with composition, heat-treat condition, grain size, and microstructure was made.

B69-10059

REIDENTIFYING HARDWARE AFTER LOSS OF SERIAL

NUMBER

WELLS, E. J. /N. AM. ROCKWELL CORP./ DATE- MAR.

1969

M-FS-18133

System traces fabrication and inspection records of special hardware back to the raw material. Reidentification of hardware, after loss of serial numbers, is established by X raying all parts again and comparing the new film with the original, whose numbers were previously recorded on serialized documents.

B69-10062

TWO-AXIS WINCH INSTALLER FOR HEAVY DUCTS

IN CONFINED SPACE

COX, E. F. /N. AM. ROCKWELL CORP./ DATE- MAR.

1969

M-FS-14254

Two-axis winching and traversing device is used for installing liquid-propellant rocket-engine fuel and liquid oxygen suction ducts between the valves and the rocket engine on a test stand. The device raises and maneuvers the duct into the required position where it can be safely installed by mechanics.

B69-10069

INFLATABLE BLADDER TO FACILITATE HANDLING OF

HEAVY OBJECTS - A CONCEPT

MC GOLDRICK, G. J. /N. AM. ROCKWELL CORP./ DATE-

MAR. 1969

M-FS-14272

Inflatable bladder facilitates the removal of heavy, highly finished metal parts from tote boxes or shipping containers. The proposed concept permits removal without danger of damage to the parts or injury to handling personnel.

B69-10071

FATIGUE FAILURE IN METAL BELLOWS DUE TO

FLOW-INDUCED VIBRATIONS

DANIELS, C. M. FARGO, C. G. /N. AM. ROCKWELL

CORP./ DATE- MAR. 1969

M-FS-18383

To prevent fatigue due to flow-induced vibrations in metal bellows connected to ducts carrying liquid hydrogen, a study was made which shows that the flexure lines are in general a function of the vibration coupling between the fluid and bellows structure, and the nature of the external environment.

B69-10076

NOZZLES FOR SIZE RECLASSIFICATION OF

MICROFOG PARTICLES

LEONARDI, S. J. SHIN, J. /MOBIL RES. AND

DEVELOP. CORP./ DATE- MAR. 1969

LEWIS-10705

Modified reclassifying nozzles, commonly used with mist lubrication systems, creates larger particle sizes in the mist. The concept used involves the wetting out of particles within the nozzle with continuous reatomization of the resulting liquid film by passing gas through the nozzle.

B69-10083

DIRECT INDICATION OF PARTICLE SIZE IN

FLUIDIZED BEDS

KNUDSEN, I. E. OLSEN, W. F. DATE- MAR. 1969

REAN- SEE ALSO ANL-6907

ARG-10130

Differential pressure measurements indicate particle size and particle size distribution in fluidized beds. The technique is based on the relationship between bed particle size and the intensity and frequency of fluctuations. By measuring the fluctuations, an estimate of average particle size of the fluid-bed material can be made.

B69-10085

TUBE WELDING AND BRAZING

POORMAN, R. M. DATE- APR. 1969

M-FS-20348

Brochures outline the tools, equipment, materials, and techniques used for joining tubes by automatic and semiautomatic welding and brazing. A few of the metals being joined are stainless steels of various diameters and thickness. Techniques have been developed for on-site or work-bench repair.

B69-10086

TECHNIQUES FOR CONTROLLING WARPAGE AND

RESIDUAL STRESSES IN WELDED STRUCTURES

COLE, D. Q. /HARVEY ENG. LABS./ DATE- APR. 1969

M-FS-20307

Thermal pattern alteration technique controls both distortion and residual stresses in aluminum weldments. Cryogenic liquids and auxiliary heat sources are used to produce contraction and expansion of metal in the vicinity of the weld in such a manner as to counterbalance expansion and contraction caused by welding.

B69-10100

ELECTROMECHANICAL ROTARY ACTUATOR

05 MECHANICAL

OPERATES OVER WIDE TEMPERATURE RANGE

SULLIVAN, S. P. /N. AM. ROCKWELL CORP./ DATE- APR. 1969

M-FS-18402

Electromechanical rotary actuator, which operates over wide temperature range, contains a spring stop which has been calculated to limit internal deceleration loads to a magnitude equal to stall torque. Cryogenic capability is obtained by using dry lubricant on the gears and no lubrication on the bearings.

B69-10109

CALIBRATED WATER TANK FACILITATES PROOF-LOADING OF CRANES AND DERRICKS

KOPPI, R. K. /BOEING CO./ DATE- APR. 1969

M-FS-15059

Calibrated steel water tank provides the weight loads required for proof-testing of cranes and derricks. The use of the water tank provides a safe, fast, economical method of proof-loading cranes and derricks.

B69-10110

COLD MACHINING OF HIGH DENSITY TUNGSTEN AND OTHER MATERIALS

ZIEGELMEIER, P. DATE- APR. 1969

ARG-10289

Cold machining process, which uses a sub-zero refrigerated cutting fluid, is used for machining refractory or reactive metals and alloys. Special carbide tools for turning and drilling these alloys further improve the cutting performance.

B69-10119

MAGNETRON TUNER HAS LOCKING FEATURE

MARTUCCI, V. J. /NETCOM, INC./ DATE- APR. 1969

XNP-09771

Magnetron tuning arrangement features a means of moving a tuning ring axially within an anode cavity by a system of reduction gears engaging a threaded tuning shaft of lead screw. The shaft positions the tuning ring for the desired magnetron output frequency, and a washer prevents backlash.

B69-10127

BATTERY CASE SHEAR

PATRO, S. DATE- MAY 1969

GSFC-10783

Hand operated shear removes a battery case without disturbing the internal components which are to be tested. It consists of three tool-steel elements, the cutter blade, and a hand lever that provides the mechanical advantage required to cut steel.

B69-10128

SELF-STARTING CIRCUIT FOR SWITCHING REGULATORS

SCHRAUT, E. H. SOHL, G. /ELECTRO-OPT. SYSTEMS/ DATE- MAY 1969

LEWIS-10686

Schematic is provided on a self-starting circuit for a switching regulator which uses a logic circuit to sense a change in output voltage and provides a correction signal for dc power sources. With this device, the total power consumed by the logic circuitry is held to a minimum, and the circuit receives the optimum regulated supply power.

B69-10137

HELICAL TAPE FORMING DEVICE

BUSH, J. E. COLE, P. T. DATE- MAY 1969

GSFC-10830

Using a device that is not limited to a minimum thickness or width-to-thickness ratio, a very thin metal tape or ribbon is formed into a continuous flat wound helical coil. The device imparts the desired circular shape by squeeze rolling it with an unequal force across its width.

B69-10141

MECHANICAL PROPERTIES OF A LAP JOINT UNDER UNIFORM CLAMPING PRESSURE

DILLER, S. V. METHERELL, A. F. /MCDONNELL DOUGLAS CORP./ DATE- MAY 1969

M-FS-14538

Equations were derived for the load deflection relations, the energy dissipation per cycle, and the instantaneous rate of dissipation for a lap joint idealized as two overlapping plates clamped together under a uniform clamping pressure.

B69-10144

ADVANCES IN ALUMINUM ANODIZING

DALE, K. H. /REYNOLDS METALS CO./ DATE- MAY 1969

M-FS-14600

White anodize is applied to aluminum alloy surfaces by specific surface preparation, anodizing, pigmentation, and sealing techniques. The development techniques resulted in alloys, which are used in space vehicles, with good reflectance values and excellent corrosive resistance.

B69-10145

MIXING WELD GASES OFFERS ADVANTAGES

MAY, J. L. MENDENHALL, M. M. /N. AM. ROCKWELL CORP./ DATE- MAY 1969

M-FS-16413

Argon added to helium during gas tungsten arc cover-pass welding in the horizontal position results in a better controlled wider bead width, increased arc stability, and reduction in heat input. Adequate filler material wetness and penetration pass coverage is possible with only one pass.

B69-10150

RENEWAL OF CORROSION PROTECTION OF COATED ALUMINUM AFTER WELDING

HIGGINS, R. H. DATE- MAY 1969

M-FS-20361

Effectiveness of conversion coatings designed to protect aluminum alloys against atmospheric corrosion is reduced after exposure to high temperature or welding. Damaged coating should be manually stripped six inches from the weld and then recoated by sponge or spray with the original solution.

B69-10164

DETACHABLE CASTER ADAPTER

MOHR, R. J. /N. AM. ROCKWELL CORP./ DATE- AUG. 1969

MSC-91215

Detachable caster adapter moves heavy welding tables when fork lift trucks are not practical. A support saddle on the adapter, connected to the caster platform by means of a hinge, fits the leg of the welding table, but can be modified to fit other leg configurations.

B69-10178

DESIGN AND TESTING OF LIQUID HYDROGEN-COOLED, ULTRAHIGH-SPEED BALL BEARINGS

BUTNER, M. F. /ROCKETDYNE/ WAGNER, D. A. DATE- JUN. 1969

M-FS-18453

Large-bore, liquid hydrogen-cooled, ultrahigh-speed, rolling contact bearings of an optimum design allow optimization of large rocket engine turbopumps in which bearing speed is a limiting factor. Optimum design for the bearings resulted from an application of liquid hydrogen used as a coolant.

B69-10180

SPACE-AVING HOIST FOR TANK MANHOLES

EHRHARDT, W. R., JR. /N. AM. ROCKWELL CORP./ DATE- JUL. 1969

M-FS-16508

Working platform and collapsible basket facilitate entry of men with equipment into the overhead manhole of a deep tank. A winch and pulley rigging hold the basket which is suspended in the manhole. The basket is suspended at three points without the rig impinging on the area of the manhole.

B69-10182

JOURNAL GAS BEARING FOR CURVED SURFACES

REDMON, J. W. DATE- JUN. 1969

M-FS-20423

Optimizing bearing length and permissible axis

curvature alleviates distortion of film gap of gas lubricated journal bearing in deployment mechanisms. Required bearing length is divided into two shorter bearings interconnected by links which allow satisfactory conformity with the bent, load-carrying member.

B69-10183

ASTRONAUT'S TOOL FOR WITHDRAWING/REPLACING COMPUTER CARDS

WEST, R. L. /SPERRY RAND CORP./ DATE- JUL. 1969
M-FS-20453

Symmetrical tool allows astronauts to withdraw and replace Apollo Telescope Mount control computer cards. It is easily manipulated by a gloved hand, provides positive locking of a withdrawn card, and has a visible locking device.

B69-10184

ADJUSTABLE WRENCH FOR ELECTRONIC CONNECTORS

JOHNSON, W. C. /ROCKETDYNE/ DATE- JUN. 1969
M-FS-18547

Standard crescent wrench has been modified to provide a means whereby one adjustable tool can be used with all sizes of electronic connectors. The machined wrench jaws provide lugs for engaging the standard size slots on the different connectors.

B69-10190

TOOLS FOR APPLYING LEAD TAPE TO FLAT CONDUCTOR CABLE FOR CHEMICAL STRIPPING

ANGELE, W. DATE- JUN. 1969 REAN- SEE ALSO
NASA-SP-5043, AND NASA-SP-5924 /01/
M-FS-20429

Two tools facilitate chemical stripping of insulation on flat conductor cabling. A tape pressing tool and a taping fixture apply adhesive lead tape with the proper amount of pressure to protect the remaining insulation from the chemical stripping solution.

B69-10199

TOOLS MADE OF ICE FACILITATE FORMING OF SOFT, STICKY MATERIALS

HARRIS, J. E. /BOEING CO./ RAMSEY, J. G., JR.
SCHINBECKLER, K. D. DATE- JUN. 1969
KSC-10262

Tools made of ice facilitate the forming or shaping of materials that are soft and sticky in the uncured state. The low-temperature of the ice slows the curing of the material, extending the working time available before setup. Handling problems are eliminated because the material does not adhere to the tool, and the melting ice serves as a lubricant.

B69-10202

PROPOSED TECHNIQUE FOR VERTICAL ALIGNMENT OF A CRANE'S CABLE

GERA, J., JR. /N. AM. ROCKWELL CORP./ DATE- JUN. 1969
M-FS-16496

Proposed vertical alignment technique senses the attitude of a crane's cable and displays any deviation from the vertical. The system consists of a detector assembly fixed to the boom and a display scope located in the cabin. It has potential application with either fixed-boom cranes or gantries.

B69-10209

DETERMINATION OF THE ABSOLUTE CONTOURS OF OPTICAL FLATS

PRIMAK, W. DATE- JUL. 1969
ARG-10352

Emersons procedure is used to determine true absolute contours of optical flats. Absolute contours of standard flats are determined and a comparison is then made between standard and unknown flats. Contour differences are determined by deviation of Fizeau fringe.

B69-10227

ELECTROCHEMICAL SINTERING PROCESS FOR PRODUCING ELECTRODES FROM CADMIUM FELT AND A NICKEL OR SILVER GRID

COLSTON, E. HENNIGAN, T. J. POTTER, N. STEHMLE,
J. T. WEBSTER, W. DATE- JUL. 1969
GSFC-10764

Electrochemical sintering process produces cadmium felt electrodes. Two pieces of cadmium felt are sandwiched around a nickel screen or silver expanded metal grid, held together by mold compression, and electrochemically sintered by being put through several charge and discharge cycles at low current density.

B69-10229

J-BEVELING OF PIPE ENDS WITH A HAND-HELD TOOL

MATUS, S. T. /BENDIX CORP./ DATE- JUL. 1969
REAN- SEE ALSO B66-10145, B68-10551, AND
B69-10231
KSC-10356

Adapted cutter, driven by a hand-held, variable-speed power drill, is used in the field to cut J-bevels on the ends of stainless-steel or aluminum pipe to be joined by precision welding. With this tool an acceptable bevel is cut within 3 percent of the time required for grinding and filing.

B69-10231

TOOL SIMPLIFIES MACHINING OF PIPE ENDS FOR PRECISION WELDING

MATUS, S. T. /BENDIX CORP./ DATE- JUL. 1969
KSC-10361

Single tool prepares a pipe end for precision welding by simultaneously performing internal machining, end facing, and bevel cutting to specification standards. The machining operation requires only one milling adjustment, can be performed quickly, and produces the high quality pipe-end configurations required to ensure precision-welded joints.

B69-10242

REMOTE BALANCE WEIGHS ACCURATELY AMID HIGH RADIATION

EGGENBERGER, D. N. SHUCK, A. B. DATE- JUL. 1969
ARG-10387

Commercial beam-type balance, modified and outfitted with electronic controls and digital readout, can be remotely controlled for use in high radiation environments. This allows accurate weighing of breeder-reactor fuel pieces when they are radioactively hot.

B69-10245

REPLACEMENT OF FLUID-FILTER ELEMENTS WITHOUT INTERRUPTION OF FLOW

KOTLER, R. A. /N. AM. ROCKWELL CORP./ WARD, J. B. DATE- JUL. 1969
MSC-15499

Gatling-type filter assembly, preloaded with several filter elements enables filter replacement without breaking into the operative fluid system. When the filter element becomes contaminated, a unit inner subassembly is rotated 60 degrees to position a clean filter in the line.

B69-10261

REPAIR OF HONEYCOMB PANELS WITH WELDED BREAKAWAY STUDS

BRUCE, D. F. /N. AM. ROCKWELL CORP./ DATE- AUG. 1969
MSC-15046

Damaged metallic honeycomb panels can be repaired by drilling holes and welding breakaway studs to both facing sheets. Minimal heat required for welding reduces distortion of highly stressed panels. Repairs can be made without the use of doublers and with greater strength when doublers are used.

B69-10263

PREDICTION OF PERFORMANCE OF CENTRIFUGAL PUMPS DURING STARTS UNDER PRESSURE

ROSTAFINSKI, W. DATE- AUG. 1969
LEWIS-10900

Method which calculates start-up characteristics of centrifugal pumps reveals a capacity to predict pressure drop characteristics of pumps with vane diffusers. Calculations are based on pump geometry, design-point flow, speed, and pressure rise, and the pump characteristic within range of approximately ten percent of the design-point flow.

05 MECHANICAL

B69-10264

WELDING, BRAZING, AND SOLDERING HANDBOOK
KILGORE, A. B. /BOEING CO./ KOEHLER, M. L.
METZLER, J. W. STURGES, S. R. DATE- SEP. 1969
M-FS-20504

Handbook gives information on the selection and application of welding, brazing, and soldering techniques for joining various metals. Summary descriptions of processes, criteria for process selection, and advantages of different methods are given.

B69-10278

INSTRUCTION MANUALS FOR LIQUID PENETRANT
NONDESTRUCTIVE TESTING
SPON- INNOVATOR NOT GIVEN /GEN. DYNAMICS/ DATE-
SEP. 1969
M-FS-14010

Manuals provide quality control and test personnel with basic information on liquid penetrant testing. Topics covered include scope of application, equipment and materials used, test procedures, safety precautions, quality control, and comparison of liquid penetrant testing with other nondestructive testing processes.

B69-10279

HANDBOOK FOR DESIGN OF CONTAINERS OF FLUIDS
AND GASES FOR SPACECRAFT
CAMPBELL, R. L. KOEHLER, M. L. /BOEING CO./
DATE- SEP. 1969
M-FS-20502

Handbook guides selection of construction materials for liquids and gases used in rockets and spacecraft. Methods of design, fabrication, post-fabrication treatment, nondestructive testing, and repair are described in detail.

B69-10280

TWO-STEP ROCKET ENGINE BI-PROPELLANT VALVE
CONCEPT
CAPPS, J. E. FERGUSON, R. E. POHL, H. O. DATE-
AUG. 1969
MSC-10951

Initiating combustion of altitude control rocket engines in a precombustion chamber of ductile material reduces high pressure surges generated by hypergolic propellants. Two-step bipropellant valve concepts control initial propellant flow into precombustion chamber and subsequent full flow into main chamber.

B69-10282

COUNTERSUNK HEADSCREW RETAINER
TOTH, R. S. /N. AM. ROCKWELL CORP./ DATE- AUG.
1969
M-FS-16481

Pin locking technique for flush fasteners retains a screw under dynamic conditions when self-locking or lock wiring devices are not practical. Spring pin is countersunk through one side of the screw head into the component to form a flat surface.

B69-10284

LEAKAGE TESTER FOR FLAT CONDUCTOR CABLE
CONNECTOR
ANGELE, W. DATE- AUG. 1969 REAN- SEE ALSO
NASA-SP-5043 AND NASA-SP-5924/01/
M-FS-20427

U-tube containing liquid indicates pressure differences in a leakage tester. This tube, connecting two containers, indicates that the amount of leakage over a set period of time is calculated from the pressure and gas volume.

B69-10288

TFE-FLUOROCARBON LINERS FOR FLEXIBLE HOSES
HIGLEY, D. F. /N. AM. ROCKWELL CORP./ DATE- AUG.
1969
M-FS-16480

Flexible hose handles high rates of flow under high pressures. Short lengths of tubing are overlapped to permit flexibility with much greater parallel offset.

B69-10295

A LABORATORY METHOD FOR PRECISELY
DETERMINING THE MICRO-VOLUME-MAGNITUDES OF
LIQUID EFFLUX

CLOUTIER, R. L. /BERKELEY SCI. LAB./ DATE- AUG.
1969
ARC-10052

Micro-volumetric quantities of ejected liquid are made to produce equal volumetric displacements of a more dense material. Weight measurements are obtained on the displaced heavier liquid and used to calculate volumes based upon the known density of the heavy medium.

B69-10296

ELECTROTHERMAL LINEAR ACTUATOR
DERR, L. J. TOBIAS, R. A. DATE- AUG. 1969
NPO-10637

Converting electric power into powerful linear thrust without generation of magnetic fields is accomplished with an electrothermal linear actuator. When treated by an energized filament, a stack of bimetallic washers expands and drives the end of the shaft upward.

B69-10298

FOUR-BAR LINKAGE FOR THERMAL COMPENSATION
IN TEST MOUNTS FOR STRUCTURES
NORMAN, R. M. DATE- AUG. 1969
NPO-11059

Supporting system compensates automatically for the dimensional changes produced by contraction and expansion of structures undergoing thermal proofing on mounts. Structurally destructive forces would be exerted on a spacecraft in a simulator if this four bar linkage test mount was not used.

B69-10302

PARAMETERS FOR GOOD WELDING OF COPPER TO
NICKEL
HALL, L. G. /MARTIN MARIETTA CORP./ DATE- AUG.
1969
M-FS-20353

Quality in welding copper leads to nickel bus wires is obtained by the mass of nickel exceeding that of copper. Welding range increases proportionately with the increase in the nickel-to-copper mass ratio up to 4-to-1.

B69-10303

QUALITY-WELD PARAMETERS FOR MICROWELDING
TECHNIQUES AND EQUIPMENT
HALL, L. G. /MARTIN MARIETTA CORP./ HUTCHINSON,
W. R. DATE- AUG. 1969
M-FS-20484

Limited-amplitude, controlled-decay process improves the reliability of microwelding. The system consists in building a capacitor-discharge welder for control of the shape of the weld pulse. Standard welders may be modified.

B69-10305

REPAIR OF WELD DEFECTS IN THIN-WALLED
STAINLESS STEEL TUBES
FIORELLI, F. /N. AM. ROCKWELL CORP./ KERN, D. D.
DATE- AUG. 1969
M-FS-16293

Hand-operated tool repairs weld defects in large-diameter, thin-walled stainless steel tubes. Tool consists of a three-roll external planisher and an internal backup mandrel, both hydraulically pressurized by hand pumps, and an external restraining mandrel, which keeps the tube from turning during the planishing operations.

B69-10310

PRECISION MOUNTING FOR INSTRUMENT OPTICAL
ELEMENTS PROVIDED BY POLYIMIDE BONDING
MUELLER, T. F. /BALL BROS. RESEARCH CORP./
DATE- AUG. 1969
M-FS-20293

Epoxy resin-coated polyimide plastic is used for bonding materials with different thermal coefficients in applications requiring precision mounting, especially where vibrations, temperature extremes, and low pressures are encountered. Low vapor pressure of the bonding material precludes outgassing problems.

B69-10320

HERMETICALLY SEALED PUMP
LUDWIG, L. P. STROM, T. N. DATE- AUG. 1969

LEWIS-10837

Mechanically simple, hermetically-sealed pump utilizes pumped fluid for lubrication. The rotor, having helical grooves on the outer surface, functions as both a bearing and pump.

B69-10328

A MECHANICALLY EXTENDIBLE BOOM

BACHLE, W. H. /PHILCO-FORD CORP./ DATE- SEP. 1969

NPO-11118

Series of elements connected by idle rollers and two tapes /one for extension and one for retraction/ are used in the fabrication of a telescoping boom. The boom has high strength and rigidity which will allow a gravity dump at any point in the extension cycle.

B69-10331

SHOCK-ABSORBENT MOUNTINGS FOR BEARINGS

TOPITS, A., JR. DATE- SEP. 1969

NPO-10626

Inner and outer concentric rings are separated by a number of S-shaped rectangular leaf springs. The spring mounting will protect a bearing and its shaft from shock.

B69-10335

MASKING OF ALUMINUM SURFACE AGAINST

ANODIZING

CRAWFORD, G. B. /DOUGLAS AIRCRAFT CO./ THOMPSON, R. E. DATE- SEP. 1969

M-FS-12964

Masking material and a thickening agent preserve limited unanodized areas when aluminum surfaces are anodized with chromic acid. For protection of large areas it combines well with a certain self-adhesive plastic tape.

B69-10342

AUTOMATIC FILTER-BLOWBACK SYSTEMS USED WITH SINTERED-METAL FILTERS

CARLS, E. L. LEVITZ, N. M. DATE- AUG. 1969

REAN- SEE ALSO ANL-7392

ARG-10324

Sintered-metal filters remove entrained particulate solids from the fluid-bed effluent-gas stream. Removal prevents loss of material from the reactor or contamination of the gas stream.

B69-10343

DESIGN OF A STRAIN-GAGE PROBE

KOLBA, V. H. VETTER, D. L. DATE- AUG. 1969

ARG-10338

Strain-gage spacer probe uses the deflection of a leaf spring to measure strain in a long, slender beam nondestructively. The selected gage is of the smallest practical size, as thin as possible and yet of a standard type.

B69-10345

SURFACE PROFILOMETER FOR EXAMINING

GRAIN-BOUNDARY GROOVES

JECH, R. E. READY, D. W. DATE- AUG. 1969

ARG-10290

Surface profilometer, consisting primarily of commercially available components, measures surface topographical features accurately and precisely. It shows improvement over the interferometric technique in measurement of grain-boundary grooves formed during annealing on nickel-oxide bicrystals.

B69-10346

IMPROVED TABLE FOR CUTTING AND WELDING

OLIVER, D. H. /N. AM. ROCKWELL CORP./ RAMIREZ, M. DATE- SEP. 1969

MSC-15537

Welding table covered with parallel inverted steel angles improves metal torch cutting of various types and thicknesses.

B69-10348

VIBRATION DAMPENER FOR NILES VERTICAL

BORING MILL RAM

YOUNG, R. J. /N. AM. ROCKWELL CORP./ DATE- SEP. 1969

MSC-15529

Controlled hydraulic cylinder, which serves as a

vibration dampener, is used as a ram support unit. Constant pressure is exerted, minimizing the cutting tool vibration.

B69-10350

REMOVAL OF RETAINING WASHERS OF THE WAFFLE-SPRING TYPE

MARZULLO, R. A. /N. AM. ROCKWELL CORP./ DATE- SEP. 1969

MSC-15531

Special tool removes quick-locking fasteners incorporating waffle-spring retaining washers without damage.

B69-10355

SEALING A RUBBER BLADDER BETWEEN TWO SECTIONS OF AN ACCUMULATOR

SCHARTAU, G. M. /IBM/ DATE- SEP. 1969

M-FS-20403

Leak-free clamping of a two section accumulator is accomplished by a flat metallic ring molded peripherally to the rubber flange of the bladder, and an inset rubber seal bonded to the face of the flange of each section. Method maintains constant torque on the clamping bolts.

B69-10358

STRESS-TESTING OF THE THROAT OF A ROCKET* S

NOZZLE

ESTES, E. G. /MC DONNELL DOUGLAS CORP./ DATE- SEP. 1969

NPO-10311

Test motor in which high initial pressure can be reduced suddenly provides a method of testing stress effects in the throat of a rockets nozzle. Motors operating pressure is increased to aggravate tensile stresses in a submerged throat. Opposing compression stresses are limited by control of the operating pressure.

B69-10367

STUDY OF HIGH-SPEED ANGULAR-CONTACT BALL BEARINGS UNDER DYNAMIC LOAD

GREER, T. E. KANNEL, J. W. STOCKWELL, R. D. /BATTELLE MEM. INST./ WALTERS, C. T. WILSON, W. R. D. DATE- SEP. 1969

M-FS-20562

Research program studies behavior of specific high-speed, angular-contact ball bearings. Program is aimed at detailed investigation of ball-separator behavior and lubrication surface-finish effects in a specific gyro wheel.

B69-10373

IMPROVED DESIGN OF ITEM IN HIGH SPEED ROTATING MACHINERY

DIETRICH, J. A. /N. AM. ROCKWELL CORP./ DATE- SEP. 1969

M-FS-18441

Greater centrifugal radial growth of the preimpeller hub with respect to the impeller and nut at operating speed alleviates clamping and alignment problems in high speed rotating machinery. Design results in axial tightness and radial piloting of the preimpeller.

B69-10375

CONNECT-DISCONNECT COUPLING FOR PREADJUSTED RIGID SHAFTS

BAJKOWSKI, F. W. /N. AM. ROCKWELL CORP./ HOLMBERG, A. DATE- SEP. 1969

MSC-15470

Coupling device enables a rigid shaft to be connected to or disconnected from a fixed base without disturbing the point of adjustment of the shaft in a socket or causing the shaft to rotate. The coupling consists of an externally threaded, internally slotted boss extending from the fixed base.

B69-10379

TOOL REPAIRS TUBE COMPONENTS IN SITU

RUSH, R. E. /N. AM. ROCKWELL CORP./ TUCKER, P. E. DATE- SEP. 1969

MSC-15348 MSC-15363

Two versions of a portable tool repair the seats of tube fittings and the flared ends of tubing. Each version operates on the principle of lapping to remove imperfections from tube and fitting

interfacing surfaces.

B69-10388

QUICK-RELEASE HOOK-AND-LOOP FASTENER
WHITACRE, H. E. DATE- OCT. 1969
MSC-10950

Joints between two rigid materials lined with velcro fabric can now be broken with ease using any one of several methods. Three such methods are applicable to either hook or loop fabric.

B69-10393

CONVERSION OF CONTINUOUS-DIRECT-CURRENT
TIG WELDER TO PULSE-ARC OPERATION
LIEN, D. R. /N. AM. ROCKWELL CORP./ DATE- OCT.
1969

M-FS-16411

Electronics package converts a continuous-dc tungsten-inert gas welder for pulse-arc operation. Package allows presetting of the pulse rate, duty cycle, and current value, and enables welding of various alloys and thicknesses of materials.

B69-10396

QUICK-ACTING BACKUP TOOL FOR WELDING DUCTS
JOHNSON, L. L. /N. AM. ROCKWELL CORP./ DATE-
SEP. 1969
M-FS-18404

Alignment and backup tool facilitates butt welding of large-diameter ducts. It consists of a circular three-piece segmented hoop, a pneumatic piston, and two shoes.

B69-10398

ONE-HANDED HAMMER-SPANNER FOR CHUCKS
MARTINO, J. A. /N. AM. ROCKWELL CORP./ SEID, S.
DATE- SEP. 1969
M-FS-18581

Modified spanner wrench with a heavy hammer-piece hinged to its handle allows one hand removal of a tool from a chuck.

B69-10399

HYDRAULIC CALIPERS
BENSON, J. A. /N. AM. ROCKWELL CORP./ DATE- SEP.
1969
M-FS-18052

Hydraulic calipers determine area of annular openings in irregular or concealed passages. With modifications the device could be adapted to investigations of cross-sectional changes in heat flow passages, ducts, conduits, and heat exchanger elements.

B69-10400

PNEUMATIC FLOW COMPARATOR
WILSON, A. J. /N. AM. ROCKWELL CORP./ DATE- SEP.
1969
M-FS-18373

Pneumatic flow comparator provides simple go, no-go evaluation of individual tubes. Flow characteristics of tubes used to form the walls of regeneratively cooled combustors must be identical within very close tolerances to ensure equally distributed coolant flow throughout the combustor wall.

B69-10403

PRESSURE-CONTROL PURGE PANEL FOR AUTOMATIC
BUTT WELDING
LANG, E. J. /N. AM. ROCKWELL CORP./ VAN WAGNER,
B. H. DATE- SEP. 1969
M-FS-18465

Modification of a purge panel for use in an automatic butt weld reduces the drop in pressure between the regulators and the weld head and tube purge fitting. The invention affects air regulators for plants, regulating circuits for pneumatic valves, and automatic welding machines.

B69-10404

GENERATION OF SONIC POWER DURING WELDING
MC CAMPBELL, W. M. DATE- SEP. 1969
M-FS-20339

Generation of intense sonic and ultrasonic power in the weld zone, close to the puddle, reduces the porosity and refinement of the grain. The ac induction brazing power supply is modified with long cables for deliberate addition of resistance

to that circuit. The concept is extensible to the molding of metals and plastics.

B69-10408

SELF-LUBRICATING GEAR
DEMOREST, K. E. DATE- SEP. 1969
M-FS-14971

Self-lubricating gear, designed for long term operation in a vacuum at high, low, and ambient temperatures, is constructed of alternating layers of metal and a dry lubricant material, such as polytetrafluoroethylene, with a suitable reinforcing material bonded into a laminated composite unit, which is machined to form a standard gear.

B69-10422

MAGNETOMOTIVE FORMING FOR PRECISION SIZING
AND JOINING OF LARGE-DIAMETER TUBES
BENNIGHT, J. D. SCHWINGHAMER, R. J. DATE- SEP.
1969
M-FS-20481

Portable electromagnetic coil enables high precision expansion or constriction and joining of large diameter metal tubes. A nonconducting mandrel or forming die is used on the side of the tubes wall opposite the coil. The coil is insulated from the tube by a thin plastic sleeve.

B69-10437

CALIBRATABLE SOLID-STATE PRESSURE SWITCH
SPON- INNOVATOR NOT GIVEN /FAIRCHILD HILLER CORP./
DATE- SEP. 1969
M-FS-20474

Pressure switch, incorporating a semiconductor light-detector coupled to an electrically controlled actuating unit, provides accurate and reliable switching over a broad range of pressures and environments.

B69-10448

AIR-CUSHION LIFT PAD
BLAISE, H. T. DANE, D. H. DATE- SEP. 1969 REAN-
SEE ALSO B68-10442
M-FS-14685

Mathematical model is formulated for an air pad which is capable of lifting a structure to a height of 0.125 inch. Design is superior to conventional air cushion devices because it eliminates flutter, vibration, heaving, and pitching.

B69-10450

IMPROVED FIRE RESISTANT RADIO FREQUENCY
ANECHOIC MATERIALS
ROBINSON, D. A. /N. AM. ROCKWELL CORP./ DATE-
SEP. 1969
M-FS-16600

Protective, flameproof foam covering improves the resistance to fire and surface contamination of low-cost radio frequency absorbing and shielding anechoic materials. This promotes safety of operating personnel and equipment being tested in an otherwise combustible anechoic chamber.

B69-10456

CHECKING FLAT CONDUCTOR CABLE SPACING BY
MEANS OF A MOIRE PATTERN
ANGELE, W. DATE- SEP. 1969
M-FS-20426

Moire tester detects small variations in flat conductor cable spacing by a quick, visual inspection. This device compares the cable to be tested with the negative of a very precise standard cable. The moire, consisting of bands of light and dark zones and its irregularities, can be interpreted as errors in spacing.

B69-10458

CALIBRATION STANDARD FOR DYNAMIC EVALUATION
OF A PROFILE-PLOTTER
MOULTON, K. S. /N. AM. ROCKWELL CORP./ DATE-
SEP. 1969
M-FS-16476

Template is used for evaluation of the dynamic characteristics and accuracy of the plotter. It has a profile composed of surfaces parallel to and at known distances from a reference plane, plane, the diverse surfaces being connected by slopes of

known angles and blended by cylindrical developments of known radii.

B69-10459
FLEXIBLE RIVET-SET
HESPEHIDE, W. H. /MC DONNELL DOUGLAS CORP./
DATE- SEP. 1969
M-FS-20317

Tool sets rivets in tight places where the riveting head of the gun cannot be laid on the rivet. Tool may be made in any of many diameters and lengths, and its principle and use are not restricted to riveting.

B69-10463
IMPROVED NICKEL PLATING OF INCONEL X-750
FARMER, M. E. /N. AM. ROCKWELL CORP./ FEENEY, J.
E. KUSTER, C. A. DATE- SEP. 1969
M-FS-18604

Electroplating technique with acid pickling provides a method of applying nickel plating on Inconel X-750 tubing to serve as a wetting agent during brazing. Low-stress nickel-plating bath contains no organic wetting agents that cause the nickel to blister at high temperatures.

B69-10471
A BIAXIAL WELD STRENGTH PREDICTION METHOD
RAWB, R. A. /DOUGLAS AIRCRAFT CO./ DATE- OCT. 1969
M-FS-20019

Method is given for design of structures which are subjected to multi-axial loading due to internal pressure. The biaxial strength of a structure can be predicted by modifying the uniaxial formula.

B69-10483
MULTI-PURPOSE TOOL MITTEN
WILCOB, E. F. /RAFF ANALYTIC STUDY ASSOC., INC./ DATE- SEP. 1969
HQ-10047 HQ-10049

Tool mitten provides a low reaction torque source of power for wrench, screwdriver, or drill activities. The technique employed prevents the attachments from drifting away from the operator. While the tools are specifically designed for space environments, they can be used on steel scaffolding, in high building maintenance, or underwater environments.

B69-10485
FREON, T-B1 CUTTING FLUID
PETERS, R. L. /N. AM. AVIATION, INC./ DATE- SEP. 1969
MSC-11486

Improved cutting fluid completely controls the heat generated from machining operations, thus providing longer tool life. Fluid is especially useful in the working of plastics and replaces less efficient contaminating oils.

B69-10495
HEAT-SHRINKABLE JACKET HOLDS FLUID IN CONTACT WITH TENSILE TEST SPECIMEN
LEGER, L. J. SPIKER, I. K. DATE- OCT. 1969
MSC-13195

Heat-shrinkable plastic tubing can be quickly sealed around a metal tensile test specimen and used as a jacket for any compatible liquid.

B69-10496
IRIS-LEAF CORE RETAINER FOR A SURFACE DRILL
OLIVARI, H. /MARTIN-MARIETTA CORP./ DATE- SEP. 1969
MSC-11402

Iris-leaf core retainer insures retention of a complete sample within the drill string. Individual overlapping leaves will not rupture or tear out when they come in contact with the oncoming core.

B69-10499
TORSIONAL TUBULAR DISCONNECT
CURRY, K. C. STARKY, D. J. DATE- OCT. 1969
NPO-10704

Torque driven disconnect maintains connection on a gas supply line until desired parting occurs at a remote location. It consists of a helical

plastic tube with a disconnect coupling fitted for an interference condition slip joint, and a rotationally constrained support connected to a gas source.

B69-10506
ANALYSIS OF PROBLEMS RELATED TO SLINGSHOT
SHOCK MACHINE HIGH-VELOCITY SHOCK TESTING
SHIPLEY, J. W. DATE- OCT. 1969
NPO-11193

Slingshot device is capable of imparting a square-pulse acceleration greater than 20,000 g with a pulse duration of up to 1.5 milliseconds. A load is applied to the bungee cord and the sled is drawn back to desired length. When released it provides the desired velocity at impact.

B69-10509
BORON FIBER-REINFORCED ALUMINUM ALLOY
TUBING /EXPERIMENTAL/
SCHERBA, E. S. /N. AM. ROCKWELL CORP./ DATE- OCT. 1969
MSC-15633

Prototype of a conceptual boron fiber-reinforced tubing meets requirements for lightweight structural members subjected to high shock loads and bending stresses.

B69-10514
AUTOMATIC LEVELING AND EQUALIZING HOIST
DEVICE
BROWER, J. R. /N. AM. ROCKWELL CORP./ HOLCOMB, D. F. DATE- OCT. 1969
M-FS-16549

Hoist uses six equally spaced support points with the load equalized between pairs to prevent over-stressing of any one point of support. The pickup point is automatically shifted through a motor driven feedback system to level the load throughout the lifting period.

B69-10519
FLARED-TUBE FITTINGS WITH REPLACEABLE SEAT
INSERTS
BALLINGER, V. J. /N. AM. ROCKWELL CORP./ GRANT, L. E. HOWLAND, B. T. DATE- OCT. 1969
MSC-15372 MSC-15373 MSC-15375

Three design modifications of conventional flared-tube fittings provide easily replaceable cone seats for specific applications in fluid flow lines.

B69-10527
TOOL FOR READING PSYCHROMETRIC CHARTS
DE ANGELO, F. T. /BOEING CO./ DATE- OCT. 1969
KSC-10358

Three-legged, clear plastic tool is designed so that the angles of each leg correspond with the angles of psychrometric chart construction for each of the three required scales. The appropriate edges are tapered to the chart surface.

B69-10544
RHODIUM-PLATED BARRIER AGAINST
HIGH-TEMPERATURE FUSION BONDING
JANIS, R. C. /N. AM. ROCKWELL CORP./ KUSTER, C. A. DATE- DEC. 1969
M-FS-92155

Very thin rhodium electro-deposit plating eliminates the need for corrosion-resistant protection on silver surfaces and has no effect on the pliability characteristics of the plated surface.

B69-10545
INTEGRAL VALVE PROVIDES AUTOMATIC RELIEF
AND REMOTE VENTING
GILMORE, R. F. /CHRYSLER CORP./ DATE- OCT. 1969
M-FS-12134

In-line, pilot-operated, differential area, poppet type valve provides both automatic relief of a tank at a precise over-pressure and remote control of tank venting. Relief and vent operations are separate functions incorporated in an integral valve package.

B69-10547
SINGLE-ELEMENT COAXIAL INJECTOR FOR
ROCKET FUEL

05 MECHANICAL

LARSON, L. L. DATE- OCT. 1969
NPO-11095

Improved injector for oxygen difluoride and diborane has better mixing characteristics and is able to project fuel onto the wall of the combustion chamber for better cooling. It produces an essentially conical, diverging, continuous sheet of propellant mixture formed by similarly shaped and continuously impinging sheets of fuel and oxidant.

B69-10573
CONTROL FOR MAINTAINING CONSTANT LEVEL OF A CRYOGENIC LIQUID
LIBEROTTI, J. DATE- OCT. 1969
NPO-11177

Pressure formed as the cryogenic liquid vaporizes is used to pump new cryogenic liquid from a storage reservoir. Changes in volume of a gas resulting from changes in temperature actuate a valve which either replenishes the depleted liquid in the vessel or vents the evolving gas to the atmosphere.

B69-10588
TWO-FUNCTIONAL SEAL FOR HOSE CONNECTION
RICHARDSON, M. B. RICHARDSON, M.B./DOUGLAS AIRCRAFT CO./ DATE- OCT. 1969
M-FS-14062

Seal, machined from a plastic material, prevents liquid hydrogen leakage from hose connectors. It serves as a block-type seal supporting maximum loading of the poppet with slight elastic deflection or as a lip-type seal that is deformed elastically in bending, tension, or compression by the seated poppet.

B69-10590
MONTE CARLO SIMULATION BY COMPUTER FOR LIFE-CYCLE COSTING
GRALOW, F. H. /BOEING CO./ LARSON, W. J. DATE- NOV. 1969
M-FS-14754

Prediction of behavior and support requirements during the entire life cycle of a system enables accurate cost estimates by using the Monte Carlo simulation by computer. The system reduces the ultimate cost to the procuring agency because it takes into consideration the costs of initial procurement, operation, and maintenance.

B69-10609
EXPERIMENTAL PROGRAM TO INVESTIGATE TRANSONIC FLOW AROUND PROTRUSANCES
ROBERTSON, J. E. /WYLE LABS./ DATE- NOV. 1969
M-FS-20037

Transient and steady state aerodynamic flow of turbulent boundary layers are investigated for generalized cylindrical projections and several specific configurations used on the Saturn 5 launch vehicle. A transonic wind tunnel gave generalized information.

B69-10615
DESIGN OF MULTILAYER INSULATION SYSTEMS
CUNNINGTON, G. R., JR. /LOCKHEED MISSILES AND SPACE CO./ STREED, E. R. DATE- NOV. 1969
ABC-10166

Analytical models for insulation system heat transfer studies the types of materials best suited for a near solar environment. This multilayer insulation system for spacecraft can operate at temperatures in the 300 to 700 degree K range.

B69-10634
HERMETICALLY SEALED VIBRATION DAMPER
WHEATLEY, D. G. /GEN. MOTORS CORP./ DATE- NOV. 1969
MSC-10959

Simple fluidic vibration damper for installation at each pivotal mounting between gimbals isolates inertial measuring units from external vibration and other disruptive forces. Installation between each of the three gimbal axes can dampen vibration and shock in any direction while permitting free rotation of the gimbals.

B69-10649
HIGH-PRESSURE SEALS FOR ROTARY SHAFTS
HOLDEN, C. P. /W. AM. ROCKWELL CORP./ DATE- NOV. 1969
M-FS-18548

High pressure seals for rotating shafts are machined from a polyimide resin. It is more durable and cheaper than the older seals of plastic coated metal and works at temperatures between minus 400 degrees and plus 900 degrees F.

B69-10661
FOIL BEARING SUPPORT FOR HIGH-SPEED ROTOR
LAZAR, L. /AMEX CORP./ DATE- NOV. 1969
HQ-10315

High speed rotors are supported initially by flexible metal foil and then on an air film generated by a self-acting hydrodynamic effect. The flexibility of the bearing enables it to conform and deflect locally, wear is less severe, self-alignment and accommodation of thermal distortion is permitted.

B69-10684
A ROTATING, NONCAPILLARY HEAT PIPE
GRAY, V. H. DATE- DEC. 1969
LEWIS-10298

Hollow rotating shaft operates like a heat pipe, with a small, sealed-in inventory of fluid that transfers heat by vaporizing at the hot end and condensing at the cold end. This heat pipe utilizes large centrifugal forces for pumping the condensate, and rotation to enforce liquid-vapor separation.

B69-10696
PRECISELY REPEATABLE ROTARY MECHANISM
JOHNSON, K. G. DATE- DEC. 1969
NPO-10679

Precision-finished lead screw and a fitted mating nut member produce a linear translatable motion. This motion is transformed to a rotary movement of a pivotal platform member. The transformation is achieved by coupling the nut member and the platform member through a pair of opposed, taut, flex bands.

B69-10704
IMPROVED SOLENOID VALVE DESIGN
EVANS, J. DATE- DEC. 1969
GSFC-10607

Modified solenoid valve reduces valve seat loading by eliminating off-center operation of the armature, reducing the poppet size and spring-cushioning its impact, and reducing armature impact with a poppet guide stop.

B69-10785
SHAKER SLIP-PLATE ADAPTER
HOLM, O. S. /MC DONNELL-DOUGLAS CORP./ DATE- DEC. 1969
M-FS-14063

Magnesium adapter ties in all of the attachment bosses on a horizontal slip table and makes a rigid coupling which terminates in a single row of attachment bosses at the edge of the horizontal plate. This eliminates ineffective dissipation of the driving force in vibration tests.

B69-10804
EXPLOSIVE BONDING OF METAL-MATRIX COMPOSITES
REECE, O. Y. DATE- DEC. 1969
M-FS-20657

Explosive bonding process produces sheet composites of aluminum alloy reinforced by high-strength stainless steel wires. The bonds are excellent metallurgically, no external heat is required, various metals can be bonded, and the process is inexpensive.

B69-10816
FLUID SAMPLE COLLECTION AND STORAGE DEVICE
COHEN, D. /WHIRLPOOL CORP./ STONE, S. E. DATE- DEC. 1969
MSC-10962

Fluid sampling device collects a sample from a low-pressure fluid system and stores it for an indefinite period, with little risk of contamination of either the sample or the

surrounding environment. The collector /a plastic bladder/ is separated from the sampler after a sample is collected.

06 COMPUTER PROGRAMS

B67-10169

STUDY OF DYNAMIC RESPONSE OF ELASTIC SPACE STATIONS

KANRATH, P. /N. AM. AVIATION/ DATE- JUN. 1967
NPO-10124

Analytical procedure and the requisite computer programs compute the dynamic responses of two large elastic space stations. The linearized equations of motion are derived from lagranges equations. Then the normal modes of free vibration of the nonrotating space station are used to define the elastic degrees of freedom.

B67-10172

SPACE TRAJECTORIES PROGRAM FOR IBM 7090

HOLDBRIDGE, D. B. DATE- JUN. 1967 REAN- SEE ALSO 32-223

NPO-10125

Space trajectories Program studies the motion of a space probe confined to the solar system and influenced by the nonspherical Earth and Moon, and the point masses defined by the Sun, Venus, Mars, and Jupiter. It is written in the FORTRAN assembly program language.

B67-10173

LINEAR CIRCUIT ANALYSIS PROGRAM FOR IBM 1620 MONITOR II, 1311/1443 DATA PROCESSING SYSTEM /CIRCS/

HATFIELD, J. DATE- JUN. 1967

NPO-10131

CIRCS is modification of IBSNAP Circuit Analysis Program, for use on smaller systems. This data processing system retains the basic dc, transient analysis, and FORTRAN 2 formats. It can be used on the IBM 1620/1311 Monitor I Mod 5 system, and solves a linear network containing 15 nodes and 45 branches.

B67-10193

COMPUTER PROGRAM SIMULATES PHYSICAL SYSTEMS BY SOLVING THE SIMULTANEOUS DIFFERENTIAL EQUATIONS DESCRIBING THE SYSTEMS

HANKOVITZ, R. J. DATE- JUN. 1967

NPO-10019

DIANA, a digital-analog simulation program for IBM 1620 2 computer, simulates physical systems by solving the simultaneous differential equations describing the systems. It expands and optimizes the input-output capabilities, permits additional flexibility in midstream program alternation, and minimizes the computational time.

B67-10217

A MODAL COMBINATION COMPUTER PROGRAM FOR DYNAMIC ANALYSIS OF STRUCTURES

BAMFORD, R. M. DATE- JUN. 1967

NPO-10129

Computer program determines the response of a composite linear structure to sinusoidal base motion of a restrained structure or sinusoidal forces of a free structure. This program is applied to problems of testing practices and closed-loop stability of autopilot controlled space vehicles. It is written for the IBM 7094 in FORTRAN 4 language.

B67-10222

SUBROUTINES GEORGE AND DRABIC SIMPLIFY OPERATION OF AUTOMATIC DIGITAL PLOTTER

ENGLEL, P., III GRAY, W. H. RICHARD, P. J. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- JUL. 1967

NUC-10044

FORTRAN language subroutines enable the production of a tape for a 360-30 tape unit that controls the CALCOMP 566 Digital Incremental Plotter. This provides the plotter with instructions for graphically displaying data points with the proper scaling of axes, numbering, lettering, and tic marking.

B67-10223

CALCULATION OF RESONANCE NEUTRON ABSORPTION IN TWO-REGION PROBLEMS /THE GAROL CODE/

SMITH, C. V. STEVENS, C. A. /GEN. DYN./ DATE- JUL. 1967

NUC-10045

GAROL computer program explicitly takes into account those effects which arise from neutron resonance overlap of an individual resonance absorber and of mixtures of different resonance absorbers. GAROL computes effective group cross-sections for the resolved resonances of a mixture of isotopes in a two-region cell.

B67-10224

COMPUTER PROGRAM CALCULATES STEADY-STATE TEMPERATURE DISTRIBUTION WITHIN PLANE OR AXISYMMETRIC SOLIDS

WILSON, E. L. /AEROJET-GEN. CORP./ DATE- JUL. 1967

NUC-10049

Digital computer program, using the finite element analysis technique, determines the steady-state temperature within plan or axisymmetric solids composed of many different materials of various geometry. Program output is used to plot isotherms and provide data enabling the performance of stress analysis or heat transfer calculations upon the bodies.

B67-10233

LAND LANDING COUCH DYNAMICS COMPUTER PROGRAM

HERTING, D. W. POHLEN, J. C. POLLACK, R. A. /N. AM. AVIATION/ DATE- JUL. 1967

MSC-1210

Computer programs perform landing stability studies of mechanical impact system designs for advanced spacecraft. The programs consider variation in spacecraft vertical and horizontal velocity, attitude and orientation, shock strut load-stroke characteristics, and ground coefficient of friction.

B67-10235

COMPUTER PROGRAM SIMPLIFIES DESIGN OF ROTATING COMPONENTS OF TURBOMACHINERY

LEFEVRE, J. C. /AEROJET-GEN. CORP./ DATE- JUL. 1967

NUC-10046

Digital computer program performs stress analysis and burst speed calculations on rotating axisymmetric turbomachinery components. The computer printout contains the displacement of each nodal point, the stress at the center of each element, the average tangential stress within the component, and the burst speed.

B67-10240

VIS-A-PLAN /VISUALIZE A PLAN/ MANAGEMENT TECHNIQUE PROVIDES PERFORMANCE-TIME SCALE

RAMCK, N. H. /TRANS WORLD AIRLINES/ DATE- JUL. 1967

KSC-10073

Vis-A-Plan is a bar-charting technique for representing and evaluating project activities on a performance-time basis. This rectilinear method presents the logic diagram of a project as a series of horizontal time bars. It may be used supplementary to PERT or independently.

B67-10261

ANALYTICAL TECHNIQUE PERMITS COMPARISON OF RELIABILITY OF ALTERNATE MECHANICAL DESIGNS

HENNING, F. W. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- JUL. 1967

NUC-10065

Failure Rate Index analysis permits comparison of reliability of alternate mechanical designs. All failure modes for a mechanical component are identified, and computed on an index which relates the failure mode to failure of the component. The summation of all failure mode indexes relates the potential reliability of the component.

B67-10278

CINDA - CHRYSLER IMPROVED NUMERICAL DIFFERENCING ANALYZER COMPUTER PROGRAM

GASKI, J. D. LEWIS, D. R. /CHRYSLER CORP./ DATE- AUG. 1967 REAN- SEE ALSO B66-10404

06 COMPUTER PROGRAMS

M-FS-2298

Dimensionless multioption systems compiler computer program constructs and analyzes a mathematical model of any arbitrary one, two, or three dimensional lumped parameter representation of a physical system. It automatically optimizes the utilization of computer core space and is more general and versatile than BETA.

B67-10279

COMPUTER PROGRAM FOR DETERMINATION OF NATURAL FREQUENCIES OF CLOSED SPHERICAL SANDWICH SHELLS

WILKINSON, J. P. D. /N. AM. AVIATION/ DATE- AUG. 1967

MSC-1246

Solutions for the axially symmetric motion of an elastic spherical sandwich shell have been obtained from a theory of shells which includes the effects of transverse shear deformation and rotary inertia. Frequency equations and mode shapes are derived for the full vibrations of a closed spherical shell.

B67-10280

MASTER CONTROL DATA HANDLING PROGRAM USES AUTOMATIC DATA INPUT

ALLISTON, W. DANIEL, J. /BOEING CO./ DATE- AUG. 1967

M-FS-2259

General purpose digital computer program is applicable for use with analysis programs that require basic data and calculated parameters as input. It is designed to automate input data preparation for flight control computer programs, but it is general enough to permit application in other areas.

B67-10281

COMPUTER PROGRAM PREDICTS THERMAL AND FLOW TRANSIENTS EXPERIENCED IN A REACTOR LOSS-OF-FLOW ACCIDENT

HALE, C. J. /GEN. DYNAMICS/ DATE- AUG. 1967

NUC-10054

Program analyzes the consequences of a loss-of-flow accident in the primary cooling system of a heterogeneous light-water moderated and cooled nuclear reactor. It produces a temperature matrix 36 x 41 /x,y/ which includes fuel surface temperatures relative to the time the pump power was lost.

B67-10287

COMPUTER PROGRAM PROVIDES LINEAR SAMPLED-DATA ANALYSIS FOR HIGH ORDER SYSTEMS

BUNN, D. B. KIMBALL, R. B. /N. AM. AVIATION/ DATE- AUG. 1967

M-FS-12821

Computer program performs transformations in the order S-to-W-to-Z to allow arithmetic to be completed in the W-plane. The method is based on a direct transformation from the S-plane to the W-plane. The W-plane poles and zeros are transformed into Z-plane poles and zeros using the bilinear transformation algorithm.

B67-10306

COMPUTER PROGRAM USES MONTE CARLO TECHNIQUES FOR STATISTICAL SYSTEM PERFORMANCE ANALYSIS

WOHL, D. P. /N. AM. AVIATION/ DATE- AUG. 1967

M-FS-2234

Computer program with Monte Carlo sampling techniques determines the effect of a component part of a unit upon the overall system performance. It utilizes the full statistics of the disturbances and misalignments of each component to provide unbiased results through simulated random sampling.

B67-10307

COMPUTER PROGRAM DETERMINES THERMAL ENVIRONMENT AND TEMPERATURE HISTORY OF LUNAR ORBITING SPACE VEHICLES

HEAD, D. E. MITCHELL, K. L. /BOEING CO./ DATE- AUG. 1967

M-FS-12916

Program computes the thermal environment of a spacecraft in a lunar orbit. The quantities determined include the incident flux /solar and

lunar emitted radiation/, total radiation absorbed by a surface, and the resulting surface temperature as a function of time and orbital position.

B67-10309

STUDY OF RANDOM PROCESS THEORY AIDS DIGITAL DATA PROCESSING

BORDNER, G. W. /CORNELL AERON. LAB./ DATE- AUG. 1967

M-FS-1475

Study of techniques for all random process technology, including stationary, nonstationary, and Gaussian bivariate, aids digital data processing. It presents material on digital filtering, correlation function, optimal spectral smoothing, deterministic data processing, and nonstationary spectrum and correlation analyses.

B67-10310

COMPUTER PROGRAM FOR MASS OPTIONAL SOLUTIONS OF SOME ENDPOINT TRAJECTORY PROBLEMS

BENNETT, A. G. ESHRIDGE, C. D. OHAHONY, M. S. /BOEING CO./ DATE- AUG. 1967

M-FS-12976

Optimization of trajectories for propellant consumption is achieved by incorporating a coast arc device into a three-dimensional fixed end-point steepest ascent computer program. It calculates a trajectory between any two points in space defined by initial and final position vectors, without restrictions on thrust or orbit characteristics.

B67-10319

TRANSIENT ANALYSIS GENERATOR /TAG/ SIMULATES BEHAVIOUR OF LARGE CLASS OF ELECTRICAL NETWORKS

THOMAS, W. J. DATE- SEP. 1967

NPO-10031

Transient Analysis Generator program simulates both transient and dc steady-state behavior of a large class of electrical networks. It generates a special analysis program for each circuit described in an easily understood and manipulated programming language. A generator or preprocessor and a simulation system make up the TAG system.

B67-10323

COMPUTER PROGRAM UTILIZES FORTRAN 4 SUBROUTINES FOR CONTOUR PLOTTING

BLOCK, N. GARRET, R. LAWSON, C. DATE- SEP. 1967

NPO-10127

Computer program constructs lists of xy-coordinate pairs that define contour curves for an arbitrary given function of two variables and transmits these lists to plotting equipment to produce contour plots. The principal subroutine, CONTOUR, is independent of any specific system of plotting subroutines and equipment.

B67-10327

MULTIPLE CORRELATION COMPUTER PROGRAM DETERMINES RELATIONSHIPS BETWEEN SEVERAL INDEPENDENT AND DEPENDENT VARIABLES

KASPAR, H. /N. AM. AVIATION/ NEWSBAUM, J. B. DATE- SEP. 1967

M-FS-13024

Relationships between independent and dependent variables are determined by multiple correlation computer program. This is applied to research and experimental design and development of complex hardware and components that require test programs.

B67-10328

COMPUTER OPTIMIZATION PROGRAM FINDS VALUES FOR SEVERAL INDEPENDENT VARIABLES THAT MINIMIZE A DEPENDENT VARIABLE

WARECH, E. J. /N. AM. AVIATION/ DATE- SEP. 1967

M-FS-13030

Computer program finds values of independent variables which minimize the dependent variable. This optimization program has been used on the F-1 and J-2 engine programs to establish minimum film coolant requirements.

B67-10329

COMPUTER PROGRAM RESOLVES RADIATIVE,
CONDUCTIVE, AND CONVECTIVE HEAT TRANSFER
PROBLEMS FOR VARIETY OF GEOMETRIES
ELKIN, R. MC GARRITY, A. L. DATE- SEP. 1967
M-FS-1910

Computer program computes temperature distribution as a function of time in a given body which has been subdivided into a network of nodes. Thermal resistances and capacitances may be computed from nodal geometry.

B67-10330

IMPROVED COMPUTER PROGRAM FOR ELASTIC
ANALYSIS OF HIGHLY REDUNDANT STRUCTURAL
CONFIGURATIONS
HROMJAK, A. J. /N. AM. AVIATION/ DATE- SEP. 1967
M-FS-13087

Computer program provides elastic analysis of highly redundant structural configurations. Punched output of flexibility and stiffness matrices are obtained for use in a natural frequency analysis. Member reaction output in card or tape form is used in conjunction with other programs to perform stress analyses.

B67-10331

GENERAL PURPOSE COMPUTER PROGRAMS FOR
NUMERICALLY ANALYZING LINEAR AC ELECTRICAL
AND ELECTRONIC CIRCUITS FOR STEADY-STATE
CONDITIONS
EGEBRECHT, R. A. /BOEING CO./ THORBJORNSEN, A.
R. DATE- SEP. 1967
M-FS-13094

Digital computer programs determine steady-state performance characteristics of active and passive linear circuits. The ac analysis program solves the basic circuit parameters. The compiler program solves these circuit parameters and in addition provides a more versatile program by allowing the user to perform mathematical and logical operations.

B67-10344

COMPUTER SUPERROUTINE ISUDS ACCURATELY SOLVES
LARGE SYSTEM OF SIMULTANEOUS LINEAR ALGEBRAIC
EQUATIONS
COLLIER, G. /WESTINGHOUSE ASTRONUCL. LAB./ DATE-
SEP. 1967
NUC-10051

Computer program, an Iterative Scheme Using a Direct Solution, obtains double precision accuracy using a single-precision coefficient matrix. ISUDS solves a system of equations written in matrix form as AX equals B , where A is a square non-singular coefficient matrix, X is a vector, and B is a vector.

B67-10345

COMPUTER PROGRAM VARI-QUIR 3 PROVIDES
SOLUTION OF STEADY-STATE, MULTIGROUP,
TWO-DIMENSIONAL NEUTRON DIFFUSION EQUATIONS
COLLIER, G. /WESTINGHOUSE ASTRONUCL. LAB./ DATE-
SEP. 1967
NUC-10052

Computer program VARI-QUIR 3 provides Gauss-Seidel type of solution with inner and outer iterations for steady-state, multigroup, two-dimensional neutron diffusion equations. The program has no restrictions on any of the input parameters such as the number of groups, regions, or materials.

B67-10348

COMPUTERIZED PARTS LIST SYSTEM COORDINATES
ENGINEERING RELEASES, PARTS CONTROL, AND
MANUFACTURING PLANNING
HORTON, W. /WESTINGHOUSE ASTRONUCL. LAB./
KINSEY, M. DATE- SEP. 1967
NUC-10073

Computerized parts list system compiles and summarizes all pertinent and available information on complex new systems. The parts list system consists of three computer subroutines - list of parts, parts numerical sequence list, and specifications list.

B67-10405

SATURN S-2 AUTOMATIC SOFTWARE SYSTEM

/SASS/

PARKER, P. E. /N. AM. AVIATION/ DATE- NOV. 1967
M-FS-1741

SATURN S-2 Automatic Software System /SASS/ was designed and implemented to aid SATURN S-2 program development and to increase the overall operating efficiency within the S-2 data laboratory. This program is written in FORTRAN 2 for SDS 920 computers.

B67-10406

COMPUTER PROGRAM FOR NETWORK SYNTHESIS BY
FREQUENCY RESPONSE FIT
GREEN, S. /IBM/ DATE- NOV. 1967
M-FS-12686

Computer program synthesizes a passive network by minimizing the difference in desired and actual frequency response. The program solves for the critical points of the error function /weighted least squares fit between calculated and desired frequency response/ by the multivariable Newton-Raphson method with components constrained to an admissible region.

B67-10407

EARTH ORBIT RENDEZVOUS EVALUATION PROGRAM
BENNETT, A. G. /BOEING CO./ ESKRIDGE, C. D.
HANAFY, L. M. HOLM, G. L. OMAHONY, M. L.
QUARLES, J. D. DATE- NOV. 1967
M-FS-13016

Study program written in FORTRAN 4 develops an orbital rendezvous guidance scheme for large, constant thrust launch vehicles. It concentrates on /1/ an investigation of the direct extension of the present Saturn Iterative Guidance Mode /IGH/ scheme and /2/ a scheme formulated in a reference frame moving with the target satellite.

B67-10411

COMPUTER PROGRAM GENERATES AVERAGED VALUE
DATA TAPES
WATKINS, F. L. /N. AM. AVIATION/ DATE- NOV. 1967
M-FS-12728

Computer program generates a magnetic output tape containing time and averaged data values of a specified number of major frames over a specified time interval. A decommutation system is used to acquire the raw data, which is then reformatted and averaged.

B67-10414

COMPUTER PROGRAM PROVIDES STEADY STATE
ANALYSIS FOR LIQUID PROPELLANT PROPULSION
SYSTEMS
CLARK, R. L. /N. AM. AVIATION/ DATE- NOV. 1967
MSC-10064

Computer program uses Bernoulli's formula and Newton-Raphson method to provide steady state fluid flow analysis of line pressure drop in a system with six outlets for each of two main storage tanks. Program flexibility arises in the ease with which changes in the fluid line geometry can be made.

B67-10415

COMPUTER PROGRAM ANALYZES GENERALIZED
ENVIRONMENTAL CONTROL AND LIFE SUPPORT
SYSTEMS
VAUGHAN, R. L. /DOUGLAS AIRCRAFT CO./ DATE- NOV.
1967
MSC-1157

Versatile computer program analyzes environmental control and life support systems. The program permits changes of system component arrangements, component design details, and operating modes. It is written in FORTRAN language for use on the IBM 7094 computer.

B67-10450

COMPUTER PROGRAM FPIP-REV CALCULATES
FISSION PRODUCTS INVENTORY FOR U-235
FISSION
BROWN, W. S. /WESTINGHOUSE ASTRONUCL. LAB./
CALL, D. W. DATE- NOV. 1967
NUC-10089

Computer program calculates fission product inventories and source strengths associated with the operation of U-235 fueled nuclear power reactor. It utilizes a fission-product nuclide

06 COMPUTER PROGRAMS

library of 254 nuclides, and calculates the time dependent behavior of the fission product nuclides formed by fissioning of U-235.

B67-10456

COMPUTER MCAP-TOSS CALCULATES STEADY-STATE FLUID DYNAMICS OF COOLANT IN PARALLEL CHANNELS AND TEMPERATURE DISTRIBUTION IN SURROUNDING HEAT-GENERATING SOLID

LEE, A. Y. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- NOV. 1967
NUC-10042

Computer program calculates the steady state fluid distribution, temperature rise, and pressure drop of a coolant, the material temperature distribution of a heat generating solid, and the heat flux distributions at the fluid-solid interfaces. It performs the necessary iterations automatically within the computer, in one machine run.

B67-10457

COMPUTER PROGRAM MCAP PROVIDES FOR STEADY STATE THERMAL AND FLOW ANALYSIS OF MULTIPLE PARALLEL CHANNELS IN HEAT GENERATING SOLID
PIERCE, B. L. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- NOV. 1967
NUC-10043

Computer program /MCAP/ calculates the temperature distribution in a heat generating solid complicated by nonuniform power and flow distributions between multiple channels. It determines the channel diameters coefficients, the effects of tolerances, the pressure drop at a given flowrate, or the flowrate for a specific pressure drop.

B67-10476

COMPUTER PROGRAM CONDUCTS FACILITIES UTILIZATION AND OCCUPANCY SURVEY
MINER, R. R. SPRAGUE, H. R. ZIMMERMAN, J. S. DATE- DEC. 1967
NPO-10326

Computer program identifies the various uses of all facility rooms and provides information on the net area in each room as well as the number and classification of people occupying them. The program, which is easily updated, also provides a means to indicate unsatisfactory work areas.

B67-10478

KOPE /KALENDAR ORIENTED PROGRAM EFFORTS/ PROVIDES DATA FOR MANAGEMENT DECISIONS
KARKAINEN, T. A. /CHRYSLER CORP./ DATE- DEC. 1967
M-FS-12331

KOPE /Kalendar Oriented Program Efforts/ is a computer program that establishes control over project efforts to assure management of meeting a specified completion date. With the appropriate input data, KOPE computes the starting and completion dates, the manning level for each activity, and the composite manning level for the program.

B67-10479

FORTRAN 4 PROGRAM FOR TWO-IMPULSE RENDEZVOUS ANALYSIS
BARLING, W. H., JR. BROTHERS, W. J. /LOCKHEED MISSILES AND SPACE CO./ DATE- DEC. 1967
M-FS-13971

Program determines if rendezvous in near space is possible, and performs an analysis to determine the approximate required values of the magnitude and direction of two thrust applications of the upper stage of a rocket firing. The analysis is performed by using ordinary Keplerian mechanics.

B67-10480

NUMERICAL LEAST-SQUARE METHOD FOR RESOLVING COMPLEX PULSE HEIGHT SPECTRA
SCHMADEBECK, R. /MELPAR/ TROMBKA, J. I. DATE- DEC. 1967
GSFC-10142

Linear least-square method resolves complex pulse height spectra, allowing for calculation of relative intensity, of statistical variance based

on counting statistics of the correlation between library components, and of the goodness-of-fit chi square. Some applications are to gamma-ray, X ray, and charged-particle spectroscopy.

B67-10489

COMPUTER PROGRAM CALCULATES SONIC-BOOM PRESSURE SIGNATURES
CRAIDON, C. B. DATE- DEC. 1967
LANGLEY-10096

Computer programs calculate sonic boom characteristics of airplane configurations for a range of flight conditions. One program provides the area distribution, and another program provides the equivalent area due to lift. Program outputs are the complete near field /or far field/ pressure signature, including shock wave strengths and locations.

B67-10490

COMPUTER PROGRAM USES CHARACTERISTICS METHOD FOR FREE-JET INVESTIGATION
CRAIDON, C. B. DATE- DEC. 1967
LANGLEY-10117

Computer program computes the free-jet boundary contours and other flow properties within the exhaust plume from highly underexpanded nozzles operating in near-vacuum conditions. The calculations are made by the method of characteristics which makes use of three-dimensional irrotational equations of flow.

B67-10492

COMPUTER PROGRAM REDUCES AND PROVIDES PROFILE PLOT OF SURFACE PLATE CALIBRATION DATA
REED, R. W. /N. AM. AVIATION/ DATE- DEC. 1967
M-FS-13866

Computer program which yields CRT displays will decrease the time and labor required to reduce and provide a profile plot of surface plate calibration data. The displays depict actual and resolved data points for each individually calibrated line.

B67-10493

ASSEMBLY PROCESSOR PROGRAM CONVERTS SYMBOLIC PROGRAMMING LANGUAGE TO MACHINE LANGUAGE
PELTO, E. V. /N. AM. AVIATION/ DATE- DEC. 1967
M-FS-13262

Assembly processor program converts symbolic programming language to machine language. This program translates symbolic codes into computer understandable instructions, assigns locations in storage for successive instructions, and computer locations from symbolic addresses.

B67-10494

COMPUTER PROGRAM PERFORMS AEROTHERMODYNAMIC FLIGHT TEST DATA CORRELATION
SCHMUS, F. /N. AM. AVIATION/ SOWERS, D. A. DATE- DEC. 1967
MSC-10075

Computer program plots flight test data /stored on magnetic tape during the flight/ with comparative data from other tapes /design and post-flight predictions/. Information as to which measurements are on each tape, the order in which they appear, and the exact time span is supplied by the source of the data.

B67-10495

MULTIDIMENSIONAL REACTION KINETIC ABLATION PROGRAM /REKAP/
ASTON, B. /GE/ BINCK, E. COLLINGSWOOD, B. DATE- DEC. 1967
MSC-10079

Multidimensional reaction kinetics ablation program provides an improved capability for analyzing thermal performance of partially penetrated charring ablator heat shields. The capability was provided for determining transient temperature histories in an ablating three-dimensional shape consisting of up to five layers of material.

B67-10504

COMPUTER PROGRAMS FOR ANTENNA FEED SYSTEM

DESIGN AND ANALYSIS

LUDWIG, A. DATE- DEC. 1967

NPO-10359

Fourteen computer programs have been developed for antenna feed system design and analysis. The programs cover a large spectrum of feed design problems, from primary feed pattern synthesis to the farfield pattern of the main reflector, including analyses of structural distortions,

B67-10509

PROGRAM COMPUTES EQUILIBRIUM NORMAL SHOCK AND STAGNATION POINT SOLUTIONS FOR ARBITRARY GAS MIXTURES

CALLIS, L. B. KEMPER, J. T. DATE- DEC. 1967

LANGLEY-10090

Program computes solutions for flow parameters in arbitrary gas mixtures behind a normal and a reflected normal shock, for in-flight and shock-tube stagnation conditions. Equilibrium flow calculations are made by a free-energy minimization technique coupled with the steady-flow conservation equations and a modified Newton-Raphson iterative scheme.

B67-10510

PROBABILISTIC APPROACH TO LONG RANGE

PLANNING OF MANPOWER

LEUK, R. A. /TEX. A AND M UNIV./ DATE- DEC. 1967

MSC-11524

Publication presents a total long range planning model for project oriented organizations. The total model consists of planning systems which originate - /1/ at the project level and consolidate into an overall plan, and /2/ from a budgetary ceiling and allocate to the individual projects. Analysis of /1/ and /2/ is provided for management decision making.

B67-10511

LOGIC REALIZATION OF SIMPLE MAJORITY VOTING CONNECTIVES

ANDERSON, T. O. GOLOMB, S. W. LUSHEAUGH, W. A.

DATE- DEC. 1967

JPL-727

Redundant circuitry is added to computer network to eliminate incorrect output obtained due to a component failure, noise, or some other disturbance. This circuitry provides majority operation. Only NAND gates are employed, and the modules used are among the most popular microelectronic or integrated circuits presently in use.

B67-10520

COMPUTER PROGRAM PERFORMS RECTANGULAR FITTING STRESS ANALYSIS

BERTRAND, A. R. /BOEING CO./ DATE- DEC. 1967

M-FS-13010

Computer program simulates specific bulkhead fittings by subjecting the desired geometry configuration to a membrane force, an external force, an external moment, an external tank pressure, or any combination of the above. This program generates a general model of bulkhead fittings for the Saturn booster.

B67-10521

GENERAL FREQUENCY RESPONSE PROGRAM CALCULATES FREQUENCY RESPONSE OF SYSTEM, OPEN AT ANY SPECIFIED ELEMENT

PROSCH, J. /BOEING CO./ DATE- DEC. 1967

M-FS-12817

The general frequency response program provides the frequency response of any linear feedback control system including the open loop control system. The system characteristic matrix, obtained from the Laplace transformations of the dynamic and control equations, is input to the program. A variety of outputs are available.

B67-10522

COMPUTERIZED SCHEDULE EFFECTIVENESS TECHNIQUE /SET/ DETERMINES PRESENT AND FUTURE SCHEDULE POSITION

BALLARD, D. /BOEING CO./ BIRDSONG, J. CALVA, R.

DATE- DEC. 1967

M-FS-13012

Computerized scheduling system calculates an index

of overall schedule-effectiveness. The schedule-effectiveness index is a measurement of actual overall performance against the existing schedule, and a series of schedule-effectiveness values indicates the trend of actual performance. This computer program is written in FORTRAN 4.

B67-10523

ANALYSIS OF DYNAMIC SYSTEMS WITH DAP4H COMPUTER PROGRAM

ABSALOM, J. G. /N. AM. AVIATION/ DATE- DEC. 1967

M-FS-13999

Dynamic Analysis Program, FORTRAN 4 Level H /DAP4H/, developed from 27 subprograms, features liberal use of the subroutines, subprograms, and skeletonization to minimize programming effort in formulating models of new systems and components. It formulates mathematical models of complex mechanical, pneumatic, and hydraulic dynamic systems.

B67-10524

DYANA - AN ADVANCED PROGRAMMING SYSTEM FOR LARGE CLASSES OF DYNAMIC AND EQUIVALENT SYSTEMS

MC CORMICK, W. J. /BOEING CO./ DATE- NOV. 1967

M-FS-12084

DYANA /dynamic analyzer/ is an advanced programming system which performs automatically the computing of a problem, as well as a major portion of the programming and analysis. The system is divided into time response and frequency response of dynamic and equivalent systems.

B67-10530

PROGRAM COMPUTES ZERO LIFT WAVE DRAG OF ENTIRE AIRCRAFT

CRAIDON, C. B. HARRIS, R. V., JR. DATE- DEC.

1967

LANGLEY-10079

Computer program computes zero lift wave drag of an entire aircraft including any combination of the wing, body, pods, fins, and canard. The program computes the external volume of the wing and the axial area distribution of the wing equivalent body.

B67-10531

COMPUTER PROGRAM PROVIDES IMPROVED LONGITUDINAL RESPONSE ANALYSIS FOR AXISYMMETRIC LAUNCH VEHICLES

SMITH, W. W. WALTON, W. C., JR. DATE- DEC. 1967

LANGLEY-10093

Computer program calculates axisymmetric launch vehicle steady-state response to axisymmetric sinusoidal loads. A finite element technique is utilized to construct the total launch vehicle stiffness matrix and mass matrix by subdividing the prototype structure into a set of axisymmetric shell components, fluid components, and spring-mass components.

B67-10536

N-SAP AND G-SAP NEUTRON AND GAMMA RAY ALBEDO MODEL SCATTER FIELD ANALYSIS PROGRAM

SAPOVCHAK, B. J. /WESTINGHOUSE ASTRONUCL. LAB./

STEPHENSON, L. D. DATE- DEC. 1967

NUC-10126

Computer program calculates neutron or gamma ray first order scattering from a plane or cylindrical surface to a detector point. The SAP Codes, G-SAP and N-SAP, constitute a multiple scatter albedo model shield analysis.

B67-10537

SOC-DS COMPUTER CODE PROVIDES TOOL FOR DESIGN EVALUATION OF HOMOGENEOUS TWO-MATERIAL NUCLEAR SHIELD

DISNEY, R. K. /WESTINGHOUSE ASTRONUCL. LAB./

RICKS, L. O. DATE- DEC. 1967

NUC-10142

SOC-DS Code /Shield Optimization Code-Direct Search/, selects a nuclear shield material of optimum volume, weight, or cost to meet the requirements of a given radiation dose rate or energy transmission constraint. It is applicable to evaluating neutron and gamma ray shields for all nuclear reactors.

06 COMPUTER PROGRAMS

B67-10543

COMPUTER PROGRAM CALCULATES PERIPHERAL
WATER INJECTION COOLING OF AXISYMMETRIC
SUBSONIC DIFFUSER

GREY, J. /GREYRAD CORP./ DATE- JAN. 1968
NUC-10541

Digital computer program calculates the cooling effectiveness and flow characteristics resulting from the mixing of a cool liquid injectant /water/ with a hot sonic or subsonic gas stream /hydrogen/. The output of the program provides pressure, temperature, velocity, density, composition, and Mach number profiles at any location in the mixing duct.

B67-10549

COMPUTER PROGRAM FOR OPTICAL SYSTEMS RAY
TRACING

FERGUSON, T. J. KONN, H. DATE- DEC. 1967
PRC-10017

Program traces rays of light through optical systems consisting of up to 65 different optical surfaces and computes the aberrations. For design purposes, paraxial tracings with astigmatism and third order tracings are provided.

B67-10566

COMPUTER PROGRAM ETC IMPROVES COMPUTATION
OF ELASTIC TRANSFER MATRICES OF LEGENDRE
POLYNOMIALS P/0/ AND P/1/

GIBSON, G. /WESTINGHOUSE ASTRONUCL. LAB./
MILLER, M. DATE- DEC. 1967
NUC-10070

Computer program ETC improves computation of elastic transfer matrices of Legendre polynomials P/0/ and P/1/. Rather than carrying out a double integration numerically, one of the integrations is accomplished analytically and the numerical integration need only be carried out over one variable.

B67-10568

GRAPHIC VISUALIZATION OF PROGRAM PERFORMANCE
AIDS MANAGEMENT REVIEW

EISENHART, G. N. /AEROJET-GEN. CORP./ DATE- DEC.
1967

NUC-10011

Chart technique /PERTREE/ which displays the essential status elements of a PERT system in a vertical flow array, of high graphic quality, enables visual review by management of program performance. Since the display is versatile, it can accommodate any aspect of the program which the presenter wishes to accent.

B67-10612

EQUATION RELATES FLOW AT FREE JET TO FLOW
DOWNSTREAM

FENWICK, J. R. /N. AM. AVIATION/ DATE- DEC. 1967
M-FS-13789

Nonlinear equation relates the flowrate at an orifice to that at a station downstream from the orifice. This equation should aid in understanding combustion instabilities and should not be subject to the substantial errors of prior analytical methods.

B67-10625

PROPELLANT TANK PRESSURIZATION ANALYSIS
PROGRAM

EPSTEIN, M. /N. AM. AVIATION/ DATE- DEC. 1967
M-FS-1506

Computer program for the analysis of a single propellant tank pressurization system includes many pertinent physical phenomena previously ignored in other mathematical models. This program can be used for analysis, simulation, and design of propellant pressurization systems.

B67-10626

VERSATILE ANALOG PULSE HEIGHT COMPUTER
PERFORMS REAL-TIME ARITHMETIC OPERATIONS

BRENNER, R. STRAUSS, M. G. DATE- DEC. 1967
ARG-10052

Multipurpose analog pulse height computer performs real-time arithmetic operations on relatively fast pulses. This computer can be used for identification of charged particles, pulse shape discrimination, division of signals from position

sensitive detectors, and other on-line data reduction techniques.

B67-10630

COMPUTER PROGRAM FOR VIDEO DATA PROCESSING
SYSTEM /VDPS/

BILLINGSLEY, F. C. NATHAN, R. DATE- DEC. 1967
NPO-10042

Video data from spacecraft photographic mission telemetry is scanned to generate digital tape computer program which prints out intensity points, cleans noise and telemetry drop-out, enhances contrast, modifies the picture, and calculates contour lines. The output is converted into new photographic film.

B67-10631

DIGITAL COMPUTER PROGRAM PREDICTS EFFECTS
OF LOCAL PRESSURE TRANSIENTS ON DEFORMATION
AND STRESSES IN CYLINDRICAL DUCTS

ECHENOZ, Y. /ELL AEROSYSTEMS CO./ LUBERACKI, W.
PADLOG, J. REISMANN, H. DATE- DEC. 1967
M-FS-13058

Digital computer program determines the dynamic response of circular cylinders subjected to pressure transient forms commonly encountered in propulsion systems. The method can be readily used to obtain solutions for all possible combinations of admissible boundary conditions.

B67-10632

AUTOMATIC DESIGN OF OPTICAL SYSTEMS BY
DIGITAL COMPUTER

CASAD, T. A. SCHMIDT, L. P. DATE- DEC. 1967
NPO-10265

Computer program uses geometrical optical techniques and a least squares optimization method employing computing equipment for the automatic design of optical systems. It evaluates changes in various optical parameters, provides comprehensive ray-tracing, and generally determines the acceptability of the optical system characteristics.

B67-10651

DEVELOPMENT OF RELIABILITY PREDICTION
TECHNIQUE FOR SEMICONDUCTOR DIODES

RYERSON, C. M. /HUGHES AIRCRAFT CO./ DATE- DEC.
1967 REAN- SEE ALSO NASA-CR-702
GSFC-10231

New fundamental technique of reliability prediction for semiconductor diodes based on realistic mathematical models can be applied to component failure rate prediction including mechanical degradation, electrical degradation, environmental stress factors, and electrical load stress factors.

B67-10654

X-Y PLOTTER ADAPTER DEVELOPED FOR SDS-930
COMPUTER

ROBERTSON, J. E. DATE- JAN. 1968
NPO-10220

Graphical Display Adapter provides a real time display for digital computerized experiments. This display uses a memory oscilloscope which records a single trace until erased. It is a small hardware unit which interfaces with the J-box feature of the SDS-930 computer to either an X-Y plotter or a memory oscilloscope.

B67-10665

COMPUTER PROGRAM CALCULATES GAMMA RAY
SOURCE STRENGTHS OF MATERIALS EXPOSED TO
NEUTRON FLUXES

HEISER, P. C. /WESTINGHOUSE ASTRONUCL. LAB./
RICKS, L. O. DATE- JAN. 1968
NUC-10143

Computer program contains an input library of nuclear data for 44 elements and their isotopes to determine the induced radioactivity for gamma emitters. Minimum input requires the irradiation history of the element, a four-energy-group neutron flux, specification of an alloy composition by elements, and selection of the output.

B67-10666

COMPUTER PROGRAM CALCULATES WING AERODYNAMIC

CHARACTERISTICS FOR FIXED WINGS WITH DIHEDRAL
AND VARIABLE-SWEEP WINGS AT SUBSONIC SPEEDS
LAMAR, J. E. MARGASON, R. J. DATE- DEC. 1967
LANGLEY-10191

Vortex lattice is used to describe the lifting surface of an arbitrary wing planform in steady potential subsonic compressible flow in computer program which calculates wing aerodynamic characteristics. Estimates of flow field characteristics in the vicinity of a lifting wing can also be programmed.

B67-10678
COMPUTER PROGRAM /P1-GAS/ CALCULATES THE
P-0 AND P-1 TRANSFER MATRICES FOR NEUTRON
MODERATION IN A MONATOMIC GAS
COLLIER, G. /WESTINGHOUSE ASTRONUC. IAE./
GIBSON, G. DATE- JAN. 1968
NUC-10141

FORTRAN 4 program /P1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas. The equations used are based on the conditions that there is isotropic scattering in the center-of-mass coordinate system, the scattering cross section is constant, and the target nuclear velocities satisfy a Maxwellian distribution.

B68-10005
MOP /MATRIX OPERATION PROGRAMS/ SYSTEM
NULLER, P. M. DATE- JAN. 1968
NPO-10429

MOP /Matrix Operation Programs/ system consists of a set of FORTRAN 4 subroutines which are related through a small common allocation. The system accomplishes all matrix algebra operations plus related input-output and housekeeping details.

B68-10006
COMPUTER PROGRAM PERFORMS FREQUENCY
ANALYSIS OF NONUNIFORM TURBINE DISK
SUBJECTED TO TEMPERATURE GRADIENTS
SOO, P. P. /AEROJET-GEN. CORP./ DATE- JAN. 1968
NUC-10301

Computer program determines the natural frequencies of a turbine disk of variable thickness subjected to uniform rotation and radial temperature gradients by using Rayleigh-Ritz procedure. The program involves the potential and kinetic energy expressions for a circular flat plate of variable thickness.

B68-10009
COMPUTER PROGRAM CALCULATES AND PLOTS
SURFACE AREA AND PORE SIZE DISTRIBUTION DATA
HALPERT, G. DATE- MAY 1968
GSFC-10362

Computer program calculates surface area and pore size distribution of powders, metals, ceramics, and catalysts, and prints and plots the desired data directly. Surface area calculations are based on the gas adsorption technique of Brunauer, Emmett, and Teller, and pore size distribution calculations are based on the gas adsorption technique of Pierce.

B68-10025
COMPUTER PROGRAM FOR CALCULATION OF IDEAL
GAS THERMODYNAMIC DATA
GORDON, S. MC BRIDE, B. J. DATE- MAY 1968 REAN-
SEE ALSO NASA-TN-D-4097 AND NASA-TN-D-1454
LEWIS-10254

Computer program calculates ideal gas thermodynamic properties for any species for which molecular constant data is available. Partial functions and derivatives from formulas based on statistical mechanics are provided by the program which is written in FORTRAN 4 and MAP.

B68-10033
COMPUTER PROGRAM FOR INTERPLANETARY CONIC
PATCHING
DAVIS, D. A. GUSSOW, D. G. /BOEING CC./ DATE-
FEB. 1968
M-FS-14296

Computer program enables study of one-way transfers, single and double planet flybys, single and double planet stopovers, or mixed flyby and

stopover trajectories. In each operation it first computes the heliocentric conic which connects the centers of the launch and target planets and requires a given trip time.

B68-10044
GENERAL COMPUTER PROGRAM FOR CALCULATION
OF RADIATION FROM INHOMOGENEOUS, NONISOBARIC,
NONISOTHERMAL ROCKET EXHAUST PLUME
DASH, M. J. HUFFAKER, R. M. DATE- FEB. 1968
M-FS-14314

Computer program evaluates radiation from an axisymmetric gas body with water vapor, carbon dioxide, carbon monoxide, and solid carbon particles as radiating constituents, and hydrogen as a nonradiating constituent. The program provides a convenient method of evaluating a great many problems of radiation from rocket exhaust plumes.

B68-10045
CONCEPT FOR SIMPLIFIED SERIAL DIGITAL
DECODER
GREEN, R. R. DATE- FEB. 1968
NPO-10150

Modular decoder, which lends itself best to special purpose digital equipment using sequential access memories, decodes the first order Reed-Muller codes. It functions as a maximum-likelihood exhaustive-search decoder and is a modular implementation to accommodate codes of any length.

B68-10050
SITE SURVEY FOR OPTIMUM LOCATION OF OPTICAL
COMMUNICATION EXPERIMENTAL FACILITY
SPON- INNOVATOR NOT GIVEN /SYLVANIA ELECTRON.
SYSTEMS-EAST/ DATE- MAR. 1968
M-FS-13155

Site survey was made to determine the optimum location for an Optical Communication Experimental Facility /OCEF/ and to recommend several sites, graded according to preference. A site was desired which could perform two-way laser communication with a spacecraft and laser tracking with a minimum of interruption by weather effects.

B68-10055
THREAD CUTTING WITH 3-AXIS N/C MILLING
MACHINE
SALLEY, G. C. WOOD, C. H., JR. DATE- MAR. 1968
LANGLEY-10017

TAPDIE, a generalized macro written for the APT numerical control system, cuts threads in stock too big for conventional machines or for which conventional methods are unsuitable. TAPDIE computes the machine tool path necessary and the information is passed on to a post-processor which produces a control tape.

B68-10096
COMPUTER PROGRAM PERFORMS STIFFNESS MATRIX
STRUCTURAL ANALYSIS
BAMFORD, R. BATCHELDER, R. SCHMELE, L. WADA, B.
K. DATE- APR. 1968
NPO-10502

Computer program generates the stiffness matrix for a particular type of structure from geometrical data, and performs static and normal mode analyses. It requires the structure to be modeled as a stable framework of uniform, weightless members, and joints at which loads are applied and weights are lumped.

B68-10097
COMPUTER PROGRAM CALCULATES VELOCITIES AND
STREAMLINES IN TURBOMACHINES
KATSANIS, T. DATE- MAY 1968
LEWIS-10252

Computer program calculates the velocity distribution and streamlines over widely separated blades of turbomachines. It gives the solutions of a two dimensional, subsonic, compressible nonviscous flow problem for a rotating or stationary circular cascade of blades on a blade-to-blade surface of revolution.

B68-10127
AUTOMATIC PLANNING CONCEPT - AN ANALYSIS OF

06 COMPUTER PROGRAMS

OPTIMUM SCHEDULING

REBELEIN, P. R. TRUENBELS, P. /HONEYWELL, INC./
DATE- APR. 1968
M-FS-14198

Study considers resource costs, mission constraints, and experiment results as linear functions, insofar as possible, in an effort to develop optimum scheduling by the use of linear programming. It involves a mathematical approach in which a number of constraints are considered operative.

B68-10137

COMPUTER PROGRAM CONDUCTS FACILITIES UTILIZATION AND OCCUPANCY SURVEY

MINER, R. R. SPRAGUE, H. R. ZIMMERMAN, J. S.
DATE- APR. 1968 REAN- SEE ALSO B67-10476
NPO-10438

Computer program identifies the uses of all facilities and provides information on the net area in each room as well as the number and classification of people occupying them. The system also provides a means to indicate unsatisfactory work areas and may be able to be updated each month.

B68-10139

COMPUTER PROGRAM AIDS DUAL REFLECTOR ANTENNA SYSTEM DESIGN

PIRNETT, P. GERRITSEN, R. JARVIE, P.
/INFORMATICS, INC./ LUDWIG, A. DATE- APR. 1968
NPO-10501

Computer program aids in the design of maximum efficiency dual reflector antenna systems. It designs a shaped Cassegrainian antenna which has nearly 100 percent efficiency, and accepts input parameters specifying an existing conventional antenna and produces as output the modifications necessary to conform to a shaped design.

B68-10150

COMPUTER PROGRAMS FOR THERMODYNAMIC AND TRANSPORT PROPERTIES OF HYDROGEN

HALL, W. J. MC CARTY, R. D. RODER, H. M. /NATL. BUREAU OF STD./ DATE- MAY 1968
NUC-10537

Computer program subroutines provide the thermodynamic and transport properties of hydrogen in tabular form. The programs provide 18 combinations of input and output variables. This program is written in FORTRAN 4 for use on the IBM 7044 or CDC 3600 computers.

B68-10158

COMPUTER PROGRAM DETERMINES EXACT TWO-SIDED TOLERANCE LIMITS FOR NORMAL DISTRIBUTIONS

FRIEDMAN, H. A. WEBB, S. R. /N. AM. ROCKWELL CORP./ DATE- MAY 1968
M-FS-18045

Computer program determines by numerical integration the exact statistical two-sided tolerance limits, when the proportion between the limits is at least a specified number. The program is limited to situations in which the underlying probability distribution for the population sampled is the normal distribution with unknown mean and variance.

B68-10159

COMPUTER PROGRAM DETERMINES VIBRATION IN THREE-DIMENSIONAL SPACE OF HYDRAULIC LINES EXCITED BY FORCED DISPLACEMENTS

DODGE, W. G. /N. AM. AVIATION/ DATE- MAY 1968
M-FS-12226

Computer program determines the forced vibration in three dimensional space of a multiple degree of freedom beam type structural system. Provision is made for the longitudinal axis of the analytical model to change orientation at any point along its length. This program is used by industries in which structural design dynamic analyses are performed.

B68-10164

DIGITAL FILTER SYNTHESIS COMPUTER PROGRAM

MOYER, R. A. MUNOZ, R. M. DATE- MAY 1968
ARC-10130

Digital filter synthesis computer program expresses any continuous function of a complex

variable in approximate form as a computational algorithm or difference equation. Once the difference equation has been developed, digital filtering can be performed by the program on any input data list.

B68-10187

ELAS - A GENERAL PURPOSE COMPUTER PROGRAM FOR THE EQUILIBRIUM PROBLEMS OF LINEAR STRUCTURES

AKIYUZ, F. A. UTKU, S. DATE- JUN. 1968
NPO-10598

Digital computer program ELAS handles the equilibrium problems of linear structures of one, two, or three dimensional continua. ELAS generates the governing equations for the unknown deflections of the mesh points that define the stationary point of the total potential energy function associated with the given loading and unknown deflections.

B68-10193

DIGITAL FILTER SUPPRESSES EFFECTS OF NONSTATISTICAL NOISE BURSTS ON MULTICHANNEL SCALAR DIGITAL AVERAGING SYSTEMS

GOODMAN, L. S. SALTER, F. O. DATE- JUN. 1968
ARG-90143

Digital filter suppresses the effects of nonstatistical noise bursts on data averaged over multichannel scalar. Interposed between the sampled channels and the digital averaging system, it uses binary logic circuitry to compare the number of counts per channel with the average number of counts per channel.

B68-10208

JPKWIC - GENERAL KEY WORD IN CONTEXT AND SUBJECT INDEX REPORT GENERATOR

JIRKA, R. KABASHIMA, N. KELLY, D. PLESSET, M.
DATE- JUN. 1968
NPO-10589

JPKWIC computer program is a general key word in context and subject index report generator specifically developed to help nonprogrammers and nontechnical personnel to use the computer to access files, libraries and mass documentation. This program is designed to produce a KWIC index, a subject index, an edit report, a summary report, and an exclusion list.

B68-10216

COMPUTER PROGRAM DETERMINES SYSTEM STABILITY /DIGSTA/

LORENZO, C. F. SCALZOTT, L. L. DATE- JUN. 1968
LEWIS-10395

Computer program implements a stability criterion that can be applied directly to the numerical solutions of systems of differential equations. The program accepts as input the time function of the system, a time to view the transient, and an acceptable amplitude boundary for any steady-state oscillation.

B68-10217

COMPUTER PROGRAM OFFERS NEW METHOD FOR CONSTRUCTING PERIODIC ORBITS IN NONLINEAR DYNAMICAL SYSTEMS

BENNETT, A. G. HANAFY, L. M. PALMORE, J. I.
DATE- JUN. 1968
M-FS-14654

Computer program uses an iterative method to construct precisely periodic orbits which dynamically approximate solutions that converge to precise dynamical solutions in the limit of the sequence. The method used is a modification of the generalized Newton-Raphson algorithm used in analyzing two point boundary problems.

B68-10226

COMPUTER PROGRAM ANALYZES BUCKLING OF SHELLS OF REVOLUTION WITH VARIOUS WALL CONSTRUCTIONS, BOSOR

ALMROTH, B. O. BUSHNELL, D. SOBEL, L. H.
/LOCKHEED MISSILES AND SPACE CO./ DATE- JUN. 1968
LANGLEY-10290

Computer program performs stability analyses for a wide class of shells without unduly restrictive approximations. The program uses numerical

integration, finite difference of finite element techniques to solve with reasonable accuracy almost any buckling problem for shells exhibiting orthotropic behavior.

B68-10227
SEAL /SUBNETWORK ENUMERATION AND LISTING/
HAPP, W. W. MC INTOSH, F. J. DATE- JUN. 1968
ERC-10116

SEAL /Subnetwork Enumeration And Listing/
computer program uses combinatorial techniques to generate all of the nonredundant subnetwork configurations derivable from an asymmetrical network or device. This is accomplished by a systematic shorting and opening of accessible terminals to obtain the desired allowable configurations.

B68-10232
HICOV - NEWTON-RAPHSON CALCULUS OF
VARIATION WITH AUTOMATIC TRANSVERSALITIES
HEINTSCHEL, T. J. /GE/ DATE- JUL. 1968
M-FS-14468

Computer program generates trajectories that are optimum with respect to payload placed in an earth orbit. It uses a subroutine package which produces the terminal and transversality conditions and their partial derivatives. This program is written in FORTRAN 4 and FORMAC for the IBM 7094 computer.

B68-10287
DEVELOPMENT OF ELECTRONIC DATA PROCESSING
/EDP/-AUGMENTED MANAGEMENT SYSTEM
SCOTT, J. E. WADDLETON, T. R. /BOEING CO./
DATE- AUG. 1968
M-FS-14715

To tailor the existing Unified Flight Analysis System to management data rather than technical data, a pilot model could be produced in breadboard form, using electronic data processing, in a matter of a few months at very moderate cost. Such a system lends itself to continuous refinement.

B68-10292
LINEAR SYSTEMS OF EQUATIONS SOLVED USING
MATHEMATICAL ALGORITHMS
BAREISS, E. H. DATE- AUG. 1968 REAN- SEE ALSO
ANL-7213
ARG-10146

New mathematical algorithm solves linear systems of equations, $AX = B$, and preserves the integer properties of the coefficients. The algorithms presented can also be used for the efficient evaluation of determinates and their leading minors.

B68-10296
COMPUTER GRAPHICS DATA CONDITIONING
HAGENA, K. H. MC MILLEN, G. C. /BOEING CO./
DATE- AUG. 1968
M-FS-14695

Graphics data conditioning program expedites engineering analysis of flight data and ensures timely correction of measurement errors. By adding interactive computer graphic displays to existing data conditioning programs, computational results are immediately visible, enabling on-line intervention and control of computer processing.

B68-10335
COMPUTER PROGRAM ANALYZES AND DESIGNS
SUPERSONIC WING-BODY COMBINATIONS
WOODWARD, F. A. /BOEING CO./ DATE- SEP. 1968
ARC-10141

Computer program formulates geometric description of the wing body configuration, optimizes wing camber shape, determines wing shape for a given pressure distribution, and calculates pressures, forces, and moments on a given configuration. The program consists of geometry definition, transformation, and paneling, and aerodynamics, and flow visualization.

B68-10354
FORTRAN OPTICAL LENS DESIGN PROGRAM
FIRNETT, P. J. SCHMIDT, L. F. WILSON, L. A.
/INFORMATICS, INC./ DATE- SEP. 1968

NPO-10603

Computer program uses the principles of geometrical optics to design optical systems containing up to 100 planes, conic or polynomial aspheric surfaces, 7 object points, 6 colors, and 200 rays. This program can be used for the automatic design of optical systems or for the evaluation of existing optical systems.

B68-10356
ANALYSIS OF ANNULAR COMBUSTORS
SPON- INNOVATOR NOT GIVEN /NORTHERN RES. ENG.
CORP./ DATE- SEP. 1968 REAN- SEE ALSO
NASA-CR-72374 AND NASA-CR-72375
LEWIS-10399

Computer program is used for analysis and design of gas turbine combustors. The program analyzes fluid flow, combustion, and heat transfer in annular and rectangular combustors with diffusers, making use of currently available analytical methods and correlations.

B68-10361
REAL FLUID PROPERTIES OF NORMAL AND
PARAHYDROGEN
GOLDBERG, F. N. HAFERD, A. M. DATE- SEP. 1968
LEWIS-10458

Computer program calculates the real fluid properties of normal or parahydrogen using a library of single function calls without initial estimates. Accurate transport and thermodynamic properties of molecular hydrogen are needed for advanced propulsion systems.

B68-10374
AXISYMMETRIC TWO-PHASE PERFECT GAS
PERFORMANCE PROGRAM
KLIEGEL, J. R. NICKERSON, G. R. /TRW SYSTEMS/
DATE- OCT. 1968 REAN- SEE ALSO B68-10375,
B68-10376, AND B68-10377
MSC-11774

Computer program calculates the inviscid axisymmetric nozzle expansion of propellant systems having both gaseous and condensed exhaust products. The program uses velocity and thermal lags and will perform calculations for contoured and conical nozzles.

B68-10375
ONE-DIMENSIONAL REACTING GAS NONEQUILIBRIUM
PERFORMANCE PROGRAM
FREY, H. M. KLIEGEL, J. R. /TRW SYSTEMS/ DATE-
OCT. 1968 REAN- SEE ALSO B68-10374, B68-10376,
AND B68-10377
MSC-11777

Computer program calculates the inviscid one-dimensional equilibrium, frozen, and nonequilibrium nozzle expansion of gaseous propellant exhaust mixtures containing the elements - carbon, hydrogen, oxygen, nitrogen, fluorine and chlorine. The program performs calculations for conical nozzles only.

B68-10376
ONE-DIMENSIONAL TWO-PHASE REACTING GAS
NONEQUILIBRIUM PERFORMANCE PROGRAM
CHERRY, S. S. FREY, H. M. KLIEGEL, J. R. QUAN,
V. /TRW SYSTEMS/ DATE- OCT. 1968 REAN- SEE ALSO
B68-10374, B68-10375, AND B68-10377
MSC-11780

Computer program calculates the inviscid one-dimensional equilibrium, frozen, and nonequilibrium nozzle expansion of propellant exhaust mixtures containing carbon, hydrogen, oxygen, nitrogen, fluorine, chlorine and either aluminum, beryllium, boron or lithium. This program performs calculations for conical nozzles only.

B68-10377
AXISYMMETRIC REACTING GAS NONEQUILIBRIUM
PERFORMANCE PROGRAM
KLIEGEL, J. R. MELDE, J. E. NICKERSON, G. R.
QUAN, V. /TRW SYSTEMS/ DATE- OCT. 1968 REAN-
SEE ALSO B68-10374, B68-10375, AND B68-10376
MSC-11781

Computer program calculates the inviscid one-dimensional equilibrium, frozen, and nonequilibrium nozzle expansion of propellant

06 COMPUTER PROGRAMS

exhaust mixtures containing these six elements - carbon, hydrogen, oxygen, nitrogen, fluorine, and chlorine plus either aluminum, beryllium, boron or lithium. This program will perform calculations for contoured and conical nozzles.

B68-10403

INTERNAL VELOCITY FACTORS

CATHCART, J. R. FRANK, A. J. MASSAGLIA, J. L.
/N. AM. ROCKWELL CORP./ DATE- NOV. 1968
MSC-15002

Computer program analyzes the entries and planetary trajectories of space vehicles. It obtains the equivalence of altitude and flight path angle, respectively, to acceleration load factor with respect to velocity for a given inertial velocity.

B68-10405

ANALYSIS OF FILAMENT REINFORCED METAL-SHELL PRESSURE VESSELS

LANDES, R. E. MORRIS, E. E. /AEROJET GEN. CORP./
DATE- NOV. 1968
LEWIS-10352

Computer program analyzes design requirements and computes designs for metal-lined filament-wound pressure vessels with either geodesic/helical/ or in-plane filament winding patterns on the cylindrical portion and over the ends, reinforced by circumferential windings on the cylindrical portion.

B68-10410

DSM SEVEN DAY/TWELVE WEEK SCHEDULE PROGRAM

HOLZMAN, R. E. DATE- DEC. 1968
NPO-10752

Deep Space Network scheduling program allocates resources based on the users requirements. The system reviews and allocates the requests for equipment and resources. Depending upon the program input either the seven day or the twelve week schedule is generated.

B68-10416

CIRCUS--A DIGITAL COMPUTER PROGRAM FOR TRANSIENT ANALYSIS OF ELECTRONIC CIRCUITS

MOORE, W. T. STEINBERG, L. L. /BOEING CO./
DATE- DEC. 1968
M-FS-15002

Computer program simulates the time domain response of an electronic circuit to an arbitrary forcing function. CIRCUS uses a charge-control parameter model to represent each semiconductor device. Given the primary photocurrent, the transient behavior of a circuit in a radiation environment is determined.

B68-10421

COMPUTER PROGRAM FOR MACHINE DESIGN OF CASSEGRAIN FEED SYSTEMS

POTTER, P. D. DATE- NOV. 1968
NPO-10588

Program designs the feed system geometry and the subreflector surface, with the main reflector configuration and frequency of operation as input data. Although the feedhorn is not designed, its required gain, beamwidth, and approximate radiation pattern are specified.

B68-10422

GENERALIZED NEWTON-RAPHSON TRAJECTORY OPTIMIZATION-GENERATOR 1

COPE, D. D. ESKRIDGE, C. D. HANAFY, L. M.
/BOEING CO./ DATE- NOV. 1968
M-FS-15020

Computer program constructs a sequence of optimal solutions to dynamically-approximate linear equations. Specification of the number and type of subarcs in the optimal solution allows simultaneous satisfaction of all switching criteria.

B68-10423

SYMBOLIC REDUCTION OF BLOCK DIAGRAMS

USING FORMAC

LORENZO, C. F. SWIGERT, P. DATE- NOV. 1968
LEWIS-10409

Two computer programs - one written in FORMAC to generate the desired symbolic expressions, the

other in FORTRAN 4 to numerically evaluate the expressions are announced. The FORTRAN program accepts the symbolic punched output from the FORMAC program in either unexpanded or expanded form. It numerically evaluates the expressions.

B68-10435

GERT EXCLUSIVE-OR COMBINING PATHS AND LOOPS OF ELECTRICAL NETWORKS

ALAN, A. PRITSKER, B. /ARIZONA STATE UNIV./
DATE- OCT. 1968
ERC-10206

Program takes a network with multi-parameter branches and reduces it to a network having a single branch connecting source nodes to sink nodes. The program calculates probability, expected time, and variance in the time to go from each source node to each sink node of the GERT network.

B68-10445

ENVIRONMENTAL TEST PLANNING, SELECTION AND STANDARDIZATION AIDS AVAILABLE

COPELAND, E. H. FOLEY, J. T. DATE- DEC. 1968
SAN-10028

Requirements for instrumentation, equipment, and methods to be used in conducting environmental tests on components intended for use by a wide variety of technical personnel of different educational backgrounds, experience, and interests is announced.

B68-10446

MODIFIED MUTHOPP MEAN CAMBER COMPUTER PROGRAM

LAMAR, J. E. DATE- DEC. 1968
LANGLEY-10376

Computer program which determines the mean camber surface required to support a given set of loadings on a composite wing in subsonic compressible flow has been developed.

B68-10447

PLUME RADIATION PROGRAM

DE SOTO, S. VOK, C. A. /N. AM. ROCKWELL CORP./
DATE- OCT. 1968
M-FS-13202

Computer program determines the radiant flux to the base region of a real gas system with an axisymmetric geometry and any axisymmetric property distribution.

B68-10448

PERFORMANCE ANALYSIS OF ELECTRICAL CIRCUITS

/PANE/
JOHNSON, K. L. STEINBERG, L. L. /BOEING CO./
DATE- OCT. 1968
M-FS-15001

Automated statistical and worst case computer program has been designed to perform dc and ac steady circuit analyses. The program determines the worst case circuit performance by solving circuit equations.

B68-10449

SINGLE DEGREE OF FREEDOM ANTENNA POINTING

PROGRAM /ANTENNA/
FLEISHNER, G. E. DATE- NOV. 1968
NPO-10756

Computer program optimizes the accuracy of pointing a radio-frequency antenna at a target whose position is time varying but known with respect to a certain reference frame.

B68-10450

COMPUTER PROGRAM TRACK PERFORMS TRANSIENT AND/OR STEADY STATE THERMAL ANALYSIS WITH COUPLED FLUID FLOW AND HEAT CONDUCTION

LEE, A. Y. WOODS, M. D. WOODS, H. D.
/WESTINGHOUSE ASTRONUC. LAB./ DATE- NOV. 1968
NUC-10189

Computer program called TRACK was developed by combining a transient fluid flow computer code and the existing modified TOSS heat conduction code to perform the computation.

B68-10451

A REQUEST-ORIENTED INFORMATION SELECTION PROGRAM

RYAN, E. DATE- OCT. 1968
LEWIS-10255

General purpose information retrieval program written entirely in FORTRAN 4 was developed and can be used with any file of fixed format documents. This program is easily used by noncomputer personnel and provides flexibility in search requests and output format.

B68-10452
MODIFIED MUTHOPP LIFTING SURFACE LOADING PROGRAM

LAMAR, J. E. DATE- NOV. 1968
LANGLEY-10375

Computer program determines the longitudinal subsonic aerodynamic characteristics of composite wings. The program uses the basic theoretical method of Muthopp in predicting the loading data.

B68-10453
COMPUTER PROGRAM FOR PARAMETER OPTIMIZATION

GLATT, C. R. HAGUE, D. S. /BOEING CO./ DATE- DEC. 1968
ARC-10168

Flexible, large scale digital computer program was designed for the solution of a wide range of multivariable parameter optimization problems. The program has the ability to solve constrained optimization problems involving up to one hundred parameters.

B68-10457
GERT-SIMULATION PROGRAM FOR GERT NETWORK ANALYSIS

ALAN, A. PRITSKER, B. /ARIZONA STATE UNIV./ DATE- OCT. 1968
ERC-10209

GERT Simulation Program simulates GERT networks to obtain statistics on specified nodes of the network. It performs sampling experiments to determine which branches of the network are taken and how long it takes to traverse a branch of the network.

B68-10576
DIGITAL COMPUTER TECHNIQUE FOR SETUP AND CHECKOUT OF AN ANALOG COMPUTER

AMBARUCH, R. /IBM/ DATE- NOV. 1968
M-FS-13969

Computer program technique, called Analog Computer Check-Out Routine Digitally /ACCORD/, generates complete setup and checkout data for an analog computer. In addition, the correctness of the analog program implementation is validated.

B69-10007
PROPELLANT TANK PRESSURIZATION ANALYSIS PROGRAM

EPSTEIN, M. /N. AM. ROCKWELL CORP./ DATE- JAN. 1969
M-FS-12623

Propellant tank pressurization analysis program considers fluid densities related to pressures and temperatures acting on the components, heat transfer between the fluids, the components, the ambient, plus component volumes, materials, and configurations in the formation of a mathematical model. This program is written in FORTRAN H and MAP.

B69-10023
COMPUTER PROGRAM DEVELOPED FOR FLOWSHEET CALCULATIONS AND PROCESS DATA REDUCTION

ALFREDSON, P. G. ANASTASIA, L. J. KNUDSEN, I. E. KOPPEL, L. B. VOGEL, G. J. DATE- FEB. 1969
REAN- SEE ALSO ANI-7197
ARG-10134

Computer program PACER-65, is used for flowsheet calculations and easily adapted to process data reduction. Each unit, vessel, meter, and processing operation in the overall flowsheet is represented by a separate subroutine, which the program calls in the order required to complete an overall flowsheet calculation.

B69-10031
THE COMPATIBLE CONVERSION SYSTEM

HOFFMAN, P. KOTHE, J. MANDY, J. MC VAY, L. WINNINGKOFF, K. YEAGER, E. /BOEING CO./ DATE- FEB. 1969
M-FS-15010

Compatible conversion system centralizes the solution of general problems arising from the use of direct access mass storage. It also provides a simple stable interface for the conversion of production programs to process on third generation computer system.

B69-10034
COMPUTER PROGRAM ANALYZES WHIRL CRITICAL SPEEDS AND BEARING LOADS FOR SHAFTS COUPLED BY NONLINEAR SPRINGS TO MACHINE HOUSING

SEVERUD, L. K. /AEROJET GEN. CORP./ DATE- FEB. 1969
NUC-10308

Computerized method of analysis predicts bearing loads, shaft deflections, and critical speeds for shafts coupled by rolling contact bearings to the machine housing. The bearing nonlinearities, casing as well as rotor dynamics, and rotor-imbalance forcing functions are all included in the system dynamics analysis.

B69-10035
GENERAL SERIES SOLUTION TECHNIQUE FOR BENDING OF IRREGULAR LATERALLY LOADED FLAT PLATES

SWANSON, J. A. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- FEB. 1969
NUC-10170

Computer program calculates the stresses and lateral deflections to a uniform thickness flat plate with a uniform pressure load. The plate to be analyzed may have several different boundary conditions. The program is written in FORTRAN 4 for use on the CDC 6600 computer.

B69-10036
COMPUTER PROGRAM CALCULATES THE EFFECTIVE TEMPERATURE FOR A CRYSTALLINE SOLID /DETS/ JOHNSTON, A. S. SOWDEN, M. M. /WESTINGHOUSE ASTRONUCL. LAB./ DATE- FEB. 1969
NUC-10161

Computer program computes and prints out both the Debye and resulting effective temperatures for each Debye model-dependent average energy per vibrational mode, Debye-Waller factor, and specific heat. The program calculates by the trapezoidal rule and then Simpsons rule.

B69-10038
MONTE CARLO DIRECT VIEW FACTOR AND GENERALIZED RADIATIVE HEAT TRANSFER PROGRAMS

MC WILLIAMS, J. L. SCATES, J. H. /BOEING CO./ DATE- FEB. 1969
M-FS-15051

Computer programs find the direct view factor from one surface segment to another using the Monte carlo technique, and the radioactive-transfer coefficients between surface segments. An advantage of the programs is the great generality of problems treatable and rapidity of solution from problem conception to receipt of results.

B69-10039
SPAN C - TERMINAL STERILIZATION PROCESS ANALYSIS PROGRAM

DATE- FEB. 1969 REAN- SEE ALSO B69-10104
NPO-10805

Computer program, SPAN-C, measures the dry heat thermal sterilization process applied to a planetary capsule and calculates the time required for heat application, steady state conditions, and cooling. The program is based on the logarithmic survival of micro-organisms. Temperature profiles must be input on cards.

B69-10040
RATIO MATCHING OF HALF-BRIDGE WELDABLE STRAIN GAGES, COMPUTER PROGRAM

ANDERSON, K. F. BROWN, G. L. DATE- FEB. 1969
FRC-10032

Computer program reduces the unbalance of weldable half-bridge strain gage installations. The

06 COMPUTER PROGRAMS

program calculates the two resistance ratios of each half-bridge gage, outputting a table of gages ranked according to resistance ratio. The tabulation forms a convenient record of gage characteristics.

B69-10041

WEIGHT CONTROL SYSTEM

DYER, A., JR. FERRARA, P. W. LUKE, H. P.
/BOEING CO./ DATE- FEB. 1969
M-FS-15028

Weight Control System, a set of linked computer programs which provides weight and balance reports from magnetic tape files, provides weight control and reporting on launch vehicle programs. With minor format modifications the program is applicable to aerospace, marine, automotive and other land transportation industries.

B69-10103

ABTRAJ ON-SITE TRACKING PREDICTION PROGRAM

BERMAN, A. L. LEPLA, F. B. DATE- APR. 1969
NPO-10836

Computer program, ABTRAJ, provides Deep Space Network tracking stations with the capability of generating spacecraft predictions with on-site computers. The program is comprised of two major sections - the main prediction portion and a trajectory subroutine which spans the desired predict interval with spacecraft ephemeris data written on magnetic tapes.

B69-10104

SPAN-TERMINAL STERILIZATION PROCESS ANALYSIS PROGRAM

DATE- APR. 1969 REAN- SEE ALSO B69-10039
NPO-10804

Computer program, SPAN, measures the dry heat thermal sterilization process applied to a planetary capsule and calculates the time required for heat application, steady state conditions, and cooling. The program is based on the logarithmic survival of micro-organisms. Temperature profiles must be input on tape.

B69-10105

MIDCOURSE MANEUVER OPERATIONS PROGRAM

GORDON, H. J. HAMBURG, R. L. MITCHELL, R. T.
PASS, D. ROYER, D. R. DATE- APR. 1969
NPO-10735

Midcourse Maneuver Operations Program /MMOP/ computes the required velocity change to correct a spacecraft trajectory. The program establishes the existence of maneuvers which satisfy spacecraft constraints, explores alternate trajectories in the event that some out-of-tolerance condition forces a change in plans, and codes the maneuvers into commands.

B69-10106

LABCON-LABORATORY JOB CONTROL PROGRAM

REAMS, L. T. /N. AM. ROCKWELL CORP./ DATE- APR. 1969
M-FS-18141

Computer program LABCON controls the budget system in a component test laboratory whose workload is made up from many individual budget allocations. A common denominator is applied to an incoming job, to which all effort is charged and accounted for.

B69-10111

GEOMETRY AND DESIGN POINT PERFORMANCE OF AXIAL FLOW TURBINES

CARTER, A. F. PLOTT, M. /NORTHERN RES. AND ENG. CORP./ DATE- APR. 1969
LEWIS-10471

Computer program determines the alternative geometries and associated design point performance of axial-flow turbines capable of satisfying specified design requirements. The program solves the flow field within the turbine without making the simplifying assumptions that result in restrictive designs.

B69-10132

/MAGNIFY/ PROGRAM FOR CALCULATING VELOCITIES IN MAGNIFIED REGION OF TURBOMACHINES

KATSANIS, T. MC NALLY, W. DATE- MAY 1969
LEWIS-10789

Computer program, MAGNIFY, calculates the velocity distribution through the passage between and over blade surfaces of blade rows for turbines and compressors. Using the input of other programs, MAGNIFY obtains velocities on smaller than normal finite difference mesh in any part of the blade-to-blade passage.

B69-10134

MASS SPECTROGRAPH ANALYSIS

SHORES, J. P. DATE- MAY 1969
MSC-13239

Computer program provides a means of rapid data reduction of mass spectrograph data. The methods used are suited to mechanization on a digital computer since they consist of the systematic search of a large amount of tabular data and the unknown.

B69-10139

V ICAR-DIGITAL IMAGE PROCESSING SYSTEM

BILLINGSLEY, F. BRESSLER, S. FRIDEN, H.
MORECROFT, J. NATHAN, R. RINDFLEISCH, T.
SELZER, R. DATE- JUN. 1969
NPO-10770

Computer program corrects various photometric, geometric and frequency response distortions in pictures. The program converts pictures to a number of elements, with each element optical density quantized to a numerical value. The translated picture is recorded on magnetic tape in digital form for subsequent processing and enhancement by computer.

B69-10146

BELL NOZZLE KERNEL ANALYSIS PROGRAM

ELLIOT, J. J. STROMSTRA, R. R. /ROCKETDYNE/
DATE- MAY 1969
M-FS-18456

Bell Nozzle Kernel Analysis Program computes and analyzes the supersonic flowfield in the kernel, or initial expansion region, of a bell or conical nozzle. It analyzes both plane and axisymmetric geometries for specified gas properties, nozzle throat geometry and input line.

B69-10148

MINIATURIZATION OF MAGNETIC LOGIC CIRCUITRY

BABA, P. D. /AMPEX CORP./ DATE- MAY 1969
LANGLEY-19037

Magnetic logic circuit design features two ferrite materials, with different formulation and magnetic characteristics, which are bonded into a continuous structure by preparing the materials as a slurry and using the doctor blade method to form flexible ferrite sheets. After firing, the sintering process was continuous across the bond.

B69-10157

PERFORMANCE STATISTICS OF THE FORTRAN 4 /H/ LIBRARY FOR THE IBM SYSTEM/360

CLARK, N. A. CODY, W. J., JR. HILLSTROM, K. E.
THIELEKER, E. A. DATE- MAY 1969 REAN- SEE ALSO
ANL-7321
ARG-10299

Test procedures and results for accuracy and timing tests of the basic IBM 360/50 FORTRAN 4 /H/ subroutine library are reported. The testing was undertaken to verify performance capability and as a prelude to providing some replacement routines of improved performance.

B69-10158

SYNTHESIS OF CALCULATIONAL METHODS FOR DESIGN AND ANALYSIS OF RADIATION SHIELDS FOR NUCLEAR ROCKET SYSTEMS

CAPO, M. A. /WESTINGHOUSE ASTRONUCLEAR DISNEY,
R. K. JORDAN, T. A. SOLTESZ, R. G. WOODSUM, H.
C. LAB./ DATE- JUN. 1969
M-FS-14447 NUC-10192

Eight computer programs make up a nine volume synthesis containing two design methods for nuclear rocket radiation shields. The first design method is appropriate for parametric and preliminary studies, while the second accomplishes the verification of a final nuclear rocket reactor design.

B69-10159

COMPUTER GRADING OF EXAMINATIONS

FRIGERIO, N. A. DATE- JUN. 1969

ARG-10269

A method, using IBM cards and computer processing, automates examination grading and recording and permits use of computational problems. The student generates his own answers, and the instructor has much greater freedom in writing questions than is possible with multiple choice examinations.

B69-10169

ENCODE/DECODE FACILITY FOR FORTRAN 4

COHN, C. E. DATE- JUN. 1969

ARG-10335

An ENCODE and DECODE facility, a subroutine added to a FORTRAN 4 library, allows alphanumeric data to be transferred to or from an area in memory rather than to or from external input/output devices. A buffer storage array allows the operations on the data prior to writing.

B69-10171

ADVANCED MISSION ANALYSIS PROGRAMS

BJORKMAN, W. S. /PHILCO-FORD CORP./ BROOKS, M.

J. DATE- JUN. 1969

GSFC-10575

Computer programs provide preliminary trajectory and guidance information required for feasibility studies in space mission analysis. The advanced mission analysis computer programs include programs for approximate solutions, programs for targeting and output, and programs for Monte Carlo and linear guidance analysis.

B69-10174

COMPUTER PROGRAMS FOR AXIAL FLOW

COMPRESSOR DESIGN

CARMODY, R. H. CREVELING, H. P. /GENERAL MOTORS

CORP./ DATE- JUN. 1969

LEWIS-10765

Four computer programs examine effects of design parameters and indicate areas for research of multistage axial flow compressors. The programs provide information on velocity diagrams and stage-by-stage performance calculation, radial equilibrium of flow, radial distribution of total pressure, and off-design performance calculation.

B69-10175

SHELL DESIGN COMPUTER PROGRAM

GREENBAUM, G. A. /TRW INC./ DATE- JUN. 1969

LEWIS-10734

Computer program determines the useful strength of a thin-walled shell once it has been wrinkled. It can be used as an analytical tool by designers to determine how much wrinkling or deformation a shell can withstand when subjected to axial compression and bending loads.

B69-10181

INVESTIGATION OF SPACECRAFT COATINGS

SPON- INNOVATOR NOT GIVEN /BATTELLE MEM. INST./

DATE- JUN. 1969

M-PS-20458

Literature review provides compilation of properties of coating materials used for external application on space vehicles. Attention is given to absorbance-emittance data and experimental spectral reference curves.

B69-10187

JFLIP-JPL FORTRAN LANGUAGE WITH INTERVAL

PRE-PROCESSOR

GERMANN, D. A. KNOWLTON, P. H. SMITH, H. L.

DATE- JUN. 1969

NFO-10835

FLIP and TMG are a FORTRAN pre-processor and a Syntax-Directed-Compiler used to describe the language in which the former is written. They provide those who write in FORTRAN 4 with greater language flexibility and power.

B69-10219

FORTRAN 4 PROGRAM CALCULATES VELOCITIES

AND STREAMLINES IN A TANDEM BLADE

TURBOMACHINE

KATSANIS, T. MCNALLY, W. D. DATE- JUL. 1969

LEWIS-10743

Computer program gives blade-to-blade solution of the two-dimensional, subsonic, compressible, nonviscous flow problem for a circular or straight infinite cascade of tandem or slotted turbomachine blades. The method of solution is based on the stream function using iterative solution of nonlinear finite-difference equations.

B69-10222

COMPUTER PROGRAM FOR HIGH PRESSURE REAL

GAS EFFECTS

JOHNSON, R. C. DATE- JUL. 1969

LEWIS-10820

Computer program obtains the real-gas isentropic flow functions and thermodynamic properties of gases for which the equation of state is known. The program uses FORTRAN 4 subroutines which were designed for calculations of nitrogen and helium. These subroutines are easily modified for calculations of other gases.

B69-10232

A COMPUTER PROGRAM FOR A LINE-BY-LINE

CALCULATION OF SPECTRA FROM DIATOMIC

MOLECULES AND ATOMS ASSUMING A VOIGT

LINE PROFILE

ARNOLD, J. O. LYLE, G. C. WHITING, E. E. DATE-

JUL. 1969

ARC-10221

Computer program predicts the spectra resulting from electronic transitions of diatomic molecules and atoms in local thermodynamic equilibrium. The program produces a spectrum by accounting for the contribution of each rotational and atomic line considered.

B69-10238

FINITE ELEMENT ANALYSIS OF COMPRESSIBLE

SOLIDS WITH NONLINEAR MATERIAL PROPERTIES

WILSON, E. L. /AEROJET-GENERAL CORP./ DATE- JUL.

1969

NUC-10342

Finite-element computer program solves for nodal point displacements in an axisymmetric solid. The options in the program include plane stress analysis, axisymmetric solids analysis, nonlinear /plastic/ analysis, and equivalent stress and strain.

B69-10239

THERMAL NETWORK ANALYZER PROGRAM

SAKAKURA, H. D. /AEROJET-GENERAL CORP./ DATE-

JUL. 1969

NUC-10540

Computer program solves transient or steady-state heat flow problems through the concept of lumped parameters expressed as the electrical analog of the heat transfer problem using finite differences techniques.

B69-10243

TIME-SHARED CATHODE RAY TUBE

HERNDON, E. S. /MITRE CORP./ DATE- JUL. 1969

MSC-12238

Time-shared cathode tube provides high quality display at low cost display stations which utilize television monitors. It updates a cluster of graphic displays from a computer and is useful in systems not equipped for graphics time-sharing.

B69-10267

COMPUTER PROGRAM FOR OFF-DESIGN

PERFORMANCE OF RADIAL INFLOW TURBINES

FUTREL, S. M., JR. TODD, C. A. DATE- AUG. 1969

LEWIS-10764

Computer program estimates off-design performance without making actual tests and design point performance. Turbine flow areas, diameters, and blade angles are required input information.

B69-10300

BUCKLING OF SHELLS OF REVOLUTION /BOSOR/

WITH VARIOUS WALL CONSTRUCTIONS

ALMROTH, B. O. /LOCKHEED MISSILES AND SPACE CO./

BUSHNELL, D. SOBEL, L. E. DATE- AUG. 1969

LANGLEY-10441

Computer program, using numerical integration and finite difference techniques, solves almost any

06 COMPUTER PROGRAMS

buckling problem for shells exhibiting orthotropic behavior. Stability analyses can be performed with reasonable accuracy and without unduly restrictive approximations.

B69-10334

ON THE BOUND OF FIRST EXCURSION PROBABILITY

YANG, J. N. DATE- SEP. 1969

NPO-11158

Method has been developed to improve the lower bound of the first excursion probability that can apply to the problem with either constant or time-dependent barriers. The method requires knowledge of the joint density function of the random process at two arbitrary instants.

B69-10337

ANALYSIS OF SPACE VEHICLE STRUCTURES USING

THE TRANSFER-FUNCTION CONCEPT

HEER, E. /CALIF. INST. OF TECHNOL./ TRUBERT, M.

R. DATE- SEP. 1969

NPO-11162

Analysis of large complex systems is accomplished by dividing it into suitable subsystems and determining the individual dynamical and vibrational responses. Frequency transfer functions then determine the vibrational response of the whole system.

B69-10368

COMPUTER SIMULATION OF HIGH-FREQUENCY COMBUSTION INSTABILITY AND ITS SUPPRESSION

BUCHER, R. E. /PRATT AND WHITNEY AIRCRAFT/ DATE-

SEP. 1969

HQ-10391

Program for simulation of gas motion illustrates the effects of some of the variables on the combustion chambers of liquid propellant rocket engines. The program is based on numerically integrating the laws of inviscid fluid dynamics by two-step Lax-Wendroff technique.

B69-10370

LM LOOKANGLE PROGRAM

AGEE, W. E. /LOCKHEED ELECTRON. CO./ DATE- SEP.

1969

MSC-13179

Program computes the spacecraft look angles and the slant range, which define a spherical coordinate system located in the spacecraft body. The program is designed to reduce data from the Lunar Module missions and to output desired information.

B69-10391

SONIC BOOM PROPAGATION IN STRATIFIED

ATMOSPHERE

HAEFELI, R. C. /AERONAUTICAL RES. ASSOCIATES OF

PRINCETON, INC./ HAYES, W. D. KULSRUD, H. E.

DATE- SEP. 1969

LANGLEY-10480

Comprehensive analysis and algorithm, realized in a computer program, provides realistic calculations for sonic boom signatures in the atmosphere. Algorithm includes maneuvering aircraft in a sonic boom pressure calculation, a ray-tube area calculation, and results in the form of complete signatures.

B69-10394

VISUAL TASK ANALYSIS /VISTA/

BURKES, T. /BOEING CO./ KELLY, A. MERRITT, H.,

JR. DATE- SEP. 1969

M-FS-14716

Computer system VISTA, automatically plots selective PERT networks in order to develop accurate, standardized scheduling documentation as an essential element to project planning. This automation of plotting networks generates standardized networks due to a priority scheme adopted for calculating paths between events.

B69-10409

EXACT MINIMAL-STATE SYSTEM RELIABILITY

ANALYSIS

LOCKS, M. O. /N. AM. ROCKWELL CORP./ DATE- SEP.

1969

M-FS-16551

System reliability equation, an exact function of

component reliabilities, for a system with a finite number of points is derived from the minimal states which are found by logical analysis of the configuration. The numerical value is obtained by substituting the component reliabilities or unreliabilities.

B69-10432

STRUCTURE OF THE ISOTROPIC TRANSPORT

OPERATORS IN THREE INDEPENDENT SPACE

VARIABLES

ABU-SHUMAYS, I. K. BAREISS, E. H. DATE- SEP.

1969 REAN- SEP ALSO ANL-7328

ARG-10448

Based on the idea of separation of variables, a spectral theory for the three-dimensional, stationary, isotropic transport operator in a vector space of complex-valued Borel functions results in continuous sets of regular and generalized eigenfunctions.

B69-10433

GAMBIT PROGRAM

COLLIER, G. /WESTINGHOUSE ASTRONUCL. LAB./

GIBSON, G. MORAN, L. I. DATE- SEP. 1969

NUC-10243

GAMBIT computer program provides multigroup flux and current averaged neutron cross sections for input to transport programs. The fast neutron compilation includes P/0 and P/1 elastic scattering transfer matrices, inelastic scattering matrices, $n, 2n$ cross section matrices, absorption and fission cross sections for all isotopes.

B69-10434

FAST FOURIER TRANSFORM SPECTRAL ANALYSIS

PROGRAM

DANIEL, J. A., JR. /BOEING CO./ GRAVES, M. L.

HOVEY, N. M. DATE- SEP. 1969

M-FS-15062

Fast Fourier Transform Spectral Analysis

Program is used in frequency spectrum analysis of postflight, space vehicle telemetered trajectory data. This computer program with a digital algorithm can calculate power spectrum rms amplitudes and cross spectrum of sampled parameters at even time increments.

B69-10435

DETERMINATION OF QUADRIC EQUATION

COEFFICIENTS DESCRIBING THREE-DIMENSIONAL

SURFACES, THEIR CONSTRAINT AND SKEWED PLANES,

AND VIEW POINT AREAS

PAOLETTI, C. J. /BOEING CO./ POND, J. E. VANCE,

J. H. DATE- SEP. 1969

M-FS-15043

Mathematical model and a digital computer BLITZ language programming technique computes coefficients of quadric equations describing cylinders, paraboloids, ellipsoids, or planes with any orientation to a reference system, coordinates of a vector, and coefficients of quadric surfaces which limit the surface of three-dimensional space.

B69-10454

SPECIAL PURPOSE COMPUTER PROVIDES

PROGRAMMABLE DIGITAL FILTER FOR SAMPLED-DATA

CONTROL SYSTEMS

CARROLL, C. C. DATE- DEC. 1969

M-FS-20290

Generalized digital filter is a special purpose computer. The term digital filter is an algorithm which accepts an input sequence of numbers and transforms it into an output number sequence. The organization of the computer, the logical design and synthesis, and experimentation with the computer in two sampled data control systems is discussed.

B69-10524

METHOD REDUCES COMPUTER TIME FOR SMOOTHING

FUNCTIONS AND DERIVATIVES THROUGH NINTH

ORDER POLYNOMIALS

GLAUZ, R. D. /AEROJET-GEN. CORP./ WILGUS, C. A.

DATE- OCT. 1969

NUC-10334

Analysis presented is an efficient technique to adjust previously calculated orthogonal polynomial

coefficients for an odd number of equally spaced data points. The adjusting technique derivation is for a ninth order polynomial. It reduces computer time for smoothing functions.

B69-10566
SYSTEM FOR COMPUTING OPERATIONAL
PROBABILITY EQUATIONS
RYAN, K. E. /N. AM. ROCKWELL CORP./ DATE- OCT.
1969
M-FS-16410

SCOPE system computes an expression relating the probability of system success to the probabilities of success of its components. It is especially designed for complex system reliability studies.

B69-10574
SPACECRAFT THERMAL RADIATION ENVIRONMENT
COMPUTER PROGRAM
PAOLETTI, C. J. /BOEING CO./ SCATES, J. H.
DATE- OCT. 1969
M-FS-15054

Computer program computes the total thermal radiation flux on each of a set of exposed surface elements of a spacecraft in the vicinity of a celestial body. The incident flux consists of solar, both direct and planetary-reflected, and planetary-emitted infrared radiation as functions of time.

B69-10608
AUTOMATIC COMPUTATION OF DATA-SET
DEFINITIONS
REYNOLDS, J. C. DATE- DEC. 1969
ARG-10475

Mathematical method for the construction of a computer program data set description from a computer program contains detailed declarative information. Cartesian products and disjoint-union operators are used to yield a series of recursive group equations.

B69-10656
COGENT PROGRAMMING MANUAL
REYNOLDS, J. C. DATE- NOV. 1969
ARG-10463

COGENT /Compiler and GENeralized Translator/ programming system is a compiler whose input language enables a description of symbolic and linguistic manipulation algorithms. Primarily for use as a compiler-compiler, it is also applicable to algebraic manipulation, mechanical theorem proving, and heuristic programming.

B69-10669
HIGH PRESSURE REAL GAS EFFECTS FOR HELIUM
AND NITROGEN
JOHNSON, R. C. DATE- OCT. 1969
LEWIS-10819

Critical flow factor is calculated that permits the isentropic mass-flow rate of the gases through critical flow nozzles to be calculated from plenum conditions. Results include nozzle throat velocity, compressibility factor, entropy, enthalpy, specific heat, and ratios of throat to plenum pressure, density, and temperature.

B69-10686
ADDING CALCIUM IMPROVES LITHIUM FERRITE CORE
LESSOFF, H. DATE- NOV. 1969
ERC-10036

Adding calcium increases uniformity of grain growth over a wide range of sintering temperatures and reduces porosity within the grain. Ferrite cores containing calcium have square hysteresis loops and high curie temperatures, making them useful in coincident current memories of digital electronic computers.

B69-10720
BIOMEDICAL BULK DATA PROCESSING PROGRAM
SPON- INNOVATOR NOT GIVEN /FLIGHT RES. CENTER/
DATE- NOV. 1969
ERC-10015 FRC-10016

Analog-to-digital computer accepts physiological flight data as three basic analog input signals -

the ECG signal, the flowmeter signal which is a respiration monitor, and the accelerometer signal which measures the normal g-load on the subject.

B69-10760
ENGINEERING THERMAL ANALYZER /BETA 2/
SCATES, J. H. /BOEING CO./ STEINBERG, L. L.
DATE- DEC. 1969
M-FS-15055

Computer program uses numerical methods to provide accurate heat transfer solutions to a wide variety of heat flow problems. This highly versatile program will solve steady state and transient problems in almost any situation that can be presented by a resistance-capacitance network.

B69-10723
OPTIMUM STRUCTURAL DESIGN BASED ON
RELIABILITY AND PROOF-LOAD TESTING
SHINOZUKA, M. YANG, J. N. DATE- DEC. 1969
NPO-11228

Proof-load test eliminates structures with strength less than the proof load and improves the reliability value in analysis. It truncates the distribution function of strength at the proof load, thereby alleviating verification of a fitted distribution function at the lower tail portion where data are usually nonexistent.

SUBJECT INDEX

Cumulative Index to Tech Briefs

Issue 10

Subject Index

The title of each Tech Brief is listed under several selected subject headings to provide the user with a variety of approaches in his search for specific information. The Tech Brief number, e.g., B69-10062, is located under and to the right of the title and is followed by a two-digit number, e.g., 05, which designates the subject category in which the entire entry can be found.

A

ABERRATION

Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations
ARG-251 B67-10305 04

Aerial-image enables diagrams and animation to be inserted in motion pictures
ARG-165 B67-10398 02

Improved method of optical design
GSFC-10743 B69-10405 02

ABLATION

Computational procedure for finite difference solution of one-dimensional heat conduction problems reduces computer time
MSC-1120 B66-10566 01

Sensors measure surface ablation rate of reentry vehicle heat shield
LANGLEY-287 B66-10592 01

Multidimensional reaction kinetic ablation program /REKAP/
MSC-10079 B67-10495 06

ABLATIVE MATERIALS

Computer simulation program is adaptable to industrial processes
LEWIS-240 B66-10426 01

Improved method facilitates debulking and curing of phenolic impregnated asbestos
MSC-949 B66-10459 05

High intensity radiation heat source is capable of sustained operation
ARC-61 B66-10547 02

New class of thermosetting plastics has improved strength, thermal and chemical stability
LEWIS-10108 B67-10197 03

Improved compression molding process
LANGLEY-10027 B67-10302 03

Fire retardant foams developed to suppress fuel fires
ARC-10098 B68-10358 03

New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability
LEWIS-10576 B69-10118 03

ABNORMALITIES

Phase plane displays detect incipient failure in servo system testing
HQ-10018 B67-10662 01

Investigation of temperature dependence of development and aging
ARG-10145 B69-10022 04

Modified cryogenic storage tank subsystem
KSC-10380 B69-10556 02

ABRASION

Epoxy-coated containers easily opened by wire band
M-FS-592 B66-10174 05

Portable sandblaster cleans small areas
MSC-523 B66-10242 05

Grit blasting nozzle fabricated from mild tool steel proves satisfactory
M-FS-1420 B66-10597 05

Abrasion and fracture testing in a high-pressure hydrogen environment
M-FS-18480 B69-10457 03

ABRASION RESISTANCE

Epoxy blanket protects milled part during explosive forming
M-FS-307 B66-10029 03

Polytetrafluoroethylene lubricates ball bearings in vacuum environment
M-FS-379 B66-10081 03

Electrical cabling withstands severe environmental conditions
M-FS-1585 B66-10427 01

Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area
NUC-10007 B67-10538 01

Abrasion and resistant discharge valve developed
ARG-10219 B69-10044 05

ABRASIVES

Stringent cleaning technique assures reliable epoxy bond
GSFC-161 B64-10142 03

Device spot-laps spheres to very close tolerances
JPL-SC-119 B66-10175 05

Cracks in glass electrical connector headers removed by dry blasting with fine abrasive
LEWIS-381 B67-10148 03

Improved atmospheric particle analyzer
ERC-33 B67-10231 01

Technique for abrasive cutting of thick-film conductors for hybrid circuits

ABSORBENTS

SUBJECT INDEX

MSC-13242	B69-10235	03	M-FS-14357	B68-10081	02
ABSORBENTS			Optimetric system facilitates colorimetric and fluorometric measurements		
Purification train produces ultrapure hydrogen gas			NPO-10233	B68-10316	01
M-FS-1913	B67-10078	03	Miniaturized King furnace permits absorption spectroscopy of small samples		
Tritiated alumina serves as reagent for self-labeling analysis			ARG-10177	B68-10418	02
ARG-209	B67-10315	03	Study of actinide chemistry in saturated potassium fluoride solution		
Two systems developed for purifying inert atmospheres			ARG-10204	B69-10004	03
ARG-10234	B69-10026	03	Coordination chemistry in fused-salt solutions		
ABSORBERS (EQUIPMENT)			ARG-10469	B69-10423	03
Bellows joint absorbs torsional deflections in duct system			ABSORPTIVITY		
M-FS-882	B66-10332	04	Special coatings control temperature of structures		
Electron beam standby absorber system			GSFC-444	B65-10337	03
M-FS-14108	B67-10650	01	Blackbody cavity radiometer has rapid response		
Pressure variable orifice for hydraulic control valve			JPL-521	B66-10679	01
MSC-11323	B68-10120	05	Vibration analysis utilizing Mossbauer effect		
ABSORBERS (MATERIALS)			M-FS-11974	B67-10339	01
Bidirectional torque filter eliminates backlash			Practical new method of measuring thermal-neutron fluence		
GSFC-335	B65-10148	05	NUC-10086	B67-10352	02
Mossbauer vibration calibration systems evaluated			Movable RF probe eliminates need for calibration in plasma accelerators		
M-FS-20014	B69-10125	01	LEWIS-10127	B67-10362	01
Improved fire resistant radio frequency anechoic materials			Method prevents secondary radiation in radiographic inspection		
M-FS-16600	B69-10450	05	M-FS-13383	B67-10391	02
ABSORPTANCE			Properties of optics at high temperature and their measurement, a study		
Technique for measuring absorptance and emittance by using cyclic incident radiation			M-FS-14696	B68-10240	02
LEWIS-321	B66-10630	02	Technique for predicting temperature distribution in gases		
ABSORPTION			LEWIS-10918	B69-10329	01
Gas diffusion cell removes carbon dioxide from occupied airtight enclosures			Prediction of thermal radiation from a rocket's exhaust plume		
MSC-118	B64-10319	03	M-FS-20414	B69-10371	02
Removable well in reaction flask facilitates carbon dioxide collection			ABUNDANCE		
ARC-47	B65-10316	03	Ion-retarding lens improves the abundance sensitivity of tandem mass spectrometers		
Hole saw drill attachment has zero force reaction			ARG-10365	B69-10166	02
MSC-543	B66-10604	05	AC GENERATORS		
Microprobe investigation of brittle segregates in aluminum MIG and TIG welds			Method for measuring alternator voltage transients		
M-FS-14720	B68-10334	03	LEWIS-10373	B68-10513	01
Investigation of spacecraft coatings			ACCELERATING AGENTS		
M-FS-20458	B69-10181	06	New shield for gamma-ray spectrometry		
Microdetermination of urea in urine using p-dimethylaminobenzaldehyde /PDAB/			ARG-10388	B69-10344	02
NPO-10715	B69-10317	04	ACCELERATION		
ABSORPTION SPECTRA			Chain friction system gives positive, reversible drive		
A radiometer-pyrometer			ARC-8	B63-10009	05
LEWIS-284	B66-10606	01	Design concept for pressure switch calibrator		
Status of ultrachemical analysis for semiconductors			HQ-36	B66-10598	01
M-FS-2254	B67-10138	03	Computer optimization program finds values for several independent variables that minimize a dependent variable		
Uranium isotopes quantitatively determined by modified method of atomic absorption spectrophotometry			M-FS-13030	B67-10328	06
ARG-210	B67-10236	03	Internal velocity factors		
Blood oxygen saturation determined by transmission spectrophotometry of hemolyzed blood samples			MSC-15002	B68-10403	06
MSC-11018	B67-10252	04	ACCELERATION (PHYSICS)		
Infrared spectroradiometer for rocket exhaust analysis			Novel shock absorber features varying yield strengths		

SUBJECT INDEX

ACCUMULATORS

MSC-63A	B64-10138	03	ARC-72	B66-10491	01
Solid state detectors monitor relay contacts	B66-10396	01	Low level accelerometer test methods are investigated		
JPL-785			M-FS-908	B66-10510	01
Design concept for pressure switch calibrator			Miniature piezoelectric triaxial accelerometer measures cranial accelerations		
HQ-36	B66-10598	01	ARC-71	B66-10534	01
A power-spectral-density computer program			Instrument sequentially samples ac signals from several accelerometers		
NPO-10126	B67-10160	01	JPL-884	B67-10029	01
A modal combination computer program for dynamic analysis of structures			Fixture tests bellows reliability through repetitive pressure/temperature cycling		
NPO-10129	B67-10217	06	MSC-1176	B67-10111	01
Rectilinear display gives acceleration load factor and velocity information			Instrumentation monitors transported material through variety of parameters		
MSC-1045	B67-10248	01	M-FS-12938	B67-10545	01
Electron beam parallel X-ray generator			Mass loading effects on vibrated ring and shell structures		
MSC-11022	B67-10372	02	M-FS-14979	B68-10532	03
Advances in light-gas gun technology			Acceleration insensitive fluid expansion compensator		
M-FS-14270	B68-10288	05	ERC-10152	B68-10559	01
Journal gas bearing for curved surfaces			Mossbauer vibration calibration systems evaluated		
M-FS-20423	B69-10182	05	M-FS-20014	B69-10125	01
Report on a cryogenic gyroscope			Compensation of pulse-rebalanced inertial instruments		
NPO-11200	B69-10504	02	MSC-13098	B69-10216	01
Miniaturized high-resolution mass/charge spectrograph /design study/			Biomedical bulk data processing program		
MSC-13279	B69-10554	02	PRC-10015	B69-10720	06
ACCELERATION PROTECTION			ACCEPTABILITY		
Friction brake cushions acceleration and vibration loads			Failure rates for accelerated acceptance testing of silicon transistors		
MSC-715	B66-10608	05	ERC-10198	B68-10541	01
ACCELERATORS			Beryllium fastener technology		
New apparatus increases ion beam power density			M-FS-20306	B69-10019	05
LEWIS-73	B63-10440	01	ACCEPTOR MATERIALS		
ACCELEROMETERS			Primary cells utilize halogen-organic charge transfer complex		
Device calibrates vibration transducer at amplitudes up to 20 g			JPL-926	B66-10682	02
M-FS-86	B63-10572	01	Xenon fluoride solutions effective as fluorinating agents		
Ultra-sensitive transducer advances micro-measurement range			ARG-217	B67-10133	03
ARC-26	B64-10004	01	ACCESS TIME		
Crystal measures short-term, large-magnitude forces			System monitors discrete computer inputs		
JPL-77	B65-10187	01	M-FS-1021	B66-10389	01
Simple device produces accelerometer calibration pulse			ACCESSORIES		
M-FS-363	B65-10269	01	Depth indicator and stop aid machining to precise tolerances		
Miniature servo accelerometer is force-balanced			M-FS-553	B66-10149	05
JPL-155	B65-10340	01	Versatile impact hand tool		
Tool enables proper mating of accelerometer and cable connector			M-FS-20140	B68-10371	05
M-FS-611	B66-10208	05	ACCIDENT PREVENTION		
Damping technique gives accelerometer flat frequency response			Key-locked guard prevents accidental switch actuation		
M-FS-471	B66-10293	01	MSC-419	B66-10235	05
Acceleration-compensated pressure transducer has fast response			Proposed technique for vertical alignment of a crane's cable		
LANGLEY-113	B66-10353	01	M-FS-16496	B69-10202	05
Rectilinear accelerometer possesses self-calibration feature			ACCIDENTS		
M-FS-1480	B66-10452	01	Hydrodynamics of a new concept of primary containment by energy absorption		
Instrument automatically selects peak acceleration signal from several accelerometers			ARG-10242	B69-10046	05
JPL-816	B66-10462	01	ACCUMULATORS		
Miniature capacitive accelerometer is especially applicable to telemetry			High-pressure regulating system prevents pressure surges		
			JPL-231	B63-10170	05

ACCUMULATORS (COMPUTERS)

SUBJECT INDEX

Nonresonant support facilitates vibration testing of structures M-FS-224	B65-10039	05	Optical output enhances flowmeter accuracy M-FS-482	B65-10395	02
Pulse height analyzer operates at high repetition rates, low power WOO-046	B65-10041	01	Special mount improves remote transducer accuracy LEWIS-269	B66-10021	01
Plastic bags in evacuated chamber make lightweight gas sampling system FRC-31	B65-10264	01	Circuit operates as sine function generator MSC-255	B66-10038	01
Electronic ampere-hour integrator is accurate to one percent GSFC-203	B65-10308	01	Calorimeter accurately measures thermal radiation energy LANGLEY-173	B66-10058	02
Centrifugal device separates liquid from gas MSC-282	B65-10394	05	Speciman holder design improves accuracy of X-ray powder analysis JPL-SC-165	B66-10075	02
Pressure levels and pulsation frequencies can be varied on high pressure/frequency testing device LEWIS-10205	B67-10360	05	Corrosion of metal samples rapidly measured NU-0041	B66-10140	03
Potassium plasma cell facilitates thermionic energy conversion process ARG-10010	B67-10399	01	Hollow needle used to cut metal honeycomb structures MSC-486	B66-10244	05
Design for high-temperature /1800 deg F/ liquid metal pressure transducer LEWIS-10144	B67-10458	01	Instrument calculates moments of inertia of complex plane figures MSC-628	B66-10306	01
Tool samples subsurface soil free of surface contaminants MSC-10988	B67-10473	05	Densitometer system for liquid hydrogen has high accuracy, fast response M-FS-909	B66-10438	01
Accumulator isolator prevents malfunctioning of faulty hydraulic system M-FS-1415	B67-10528	05	Study compares methods for the numerical solution of ordinary differential equations M-FS-830	B66-10466	01
Air sampler collects and protects minute particles HQ-10037	B67-10661	01	Subroutine allows easy computation in extended precision arithmetic M-FS-1136	B66-10504	01
Accumulator for shaft encoder M-FS-13599	B68-10093	01	A radiometer-pyrometer LEWIS-284	B66-10606	01
Performance of low-pressure thermionic converters is evaluated ARG-10276	B69-10090	01	Automated microsyringe is highly accurate and reliable NPO-10142	B67-10203	01
Integrated circuit with multiple collector current source M-FS-20177	B69-10126	01	Computer subroutine ISUDS accurately solves large system of simultaneous linear algebraic equations NUC-10051	B67-10344	06
Torsion system for creep testing with multiple stress reversals HQ-10039	B69-10147	03	Computerized parts list system coordinates engineering releases, parts control, and manufacturing planning NUC-10073	B67-10348	06
Positive and negative output circuits LEWIS-10715	B69-10151	01	Transducer measures embedment stresses in electronic modules M-FS-13486	B67-10367	01
Sealing a rubber bladder between two sections of an accumulator M-FS-20403	B69-10355	05	Areas of irregular, discontinuous patterns rapidly and accurately measured GSFC-10184	B67-10674	01
A simple electrometer for measuring small photoelectric currents GSFC-10603	B69-10734	01	Synchronized circuit improves accuracy of fluid transfer measurements MSC-11167	B68-10057	05
Fluid sample collection and storage device MSC-10962	B69-10816	05	Performance statistics of the FORTRAN 4 /H/ library for the IBM system/360 ARG-10299	B69-10157	06
ACCUMULATORS (COMPUTERS)			Gage provides audible signal to facilitate checkout of connector pins KSC-10335	B69-10173	01
Logic circuit exhibits optimum performance LANGLEY-129	B65-10193	01	ACETATES		
ACCURACY			Adherent protective coatings plated on magnesium-lithium alloy M-FS-365	B65-10294	03
Modified gas bearing is adjustable to optimum stiffness ratio M-FS-145	B64-10050	05	Aerial-image enables diagrams and animation to be inserted in motion pictures ARG-165	B67-10398	02
Metal-bending brake facilitates lightweight, close-tolerance fabrication ARC-29	B64-10069	05	Study of behavior of sterols at interfaces ARG-10085	B68-10281	03
Electron-beam deflection controlled by digital signals GSFC-385	B65-10283	02			

SUBJECT INDEX

ACQUISITION

ACETIC ACID			Edge-type connectors evaluated by electrical noise measurement		
Copper and nickel adherently electroplated on titanium alloy			M-FS-2243	B67-10125	01
M-FS-13952	B67-10532	03	Electronic dummy for acoustical testing		
Reducing contact resistance at semiconductor to metal or aluminum to metal interfaces			MSC-206	B67-10298	01
ERC-10254	B69-10689	01	Automatic testing device facilitates noise checks and electronic calibrations		
ACETONE			LEWIS-10173	B67-10467	01
Metals plated on fluorocarbon polymers			Transient sensor development		
JPL-544	B63-10612	03	M-FS-13370	B67-10471	01
Fabrication method produces high-grade alumina crucibles			Noise figure measurement concept for acoustic amplifiers		
M-FS-216	B65-10078	05	GSFC-10066	B68-10272	01
Freon provides heat transfer for solid CO2 calibration standard			Thick transducers used for generating short-duration stress pulses in thin specimens		
M-FS-644	B66-10257	02	ARG-10232	B69-10045	01
Spray-on electrodes enable EKG monitoring of physically active subjects			Survey of man-made electrical noise affecting radio broadcasting		
FR-36	B66-10649	04	HQ-10290	B69-10308	01
Viscosity and density of methanol/water mixtures at low temperatures			Seismographic recording of large rocket engine operation		
M-FS-14991	B68-10274	03	M-FS-20545	B69-10756	01
ACETYL COMPOUNDS			ACOUSTIC PROPAGATION		
Electric arc heater is self starting			Thick transducers used for generating short-duration stress pulses in thin specimens		
LANGLEY-208	B66-10230	03	ARG-10232	B69-10045	01
ACIDS			ACOUSTIC PROPERTIES		
Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination			Experiments to investigate particulate materials in reduced gravity fields		
ARG-262	B67-10421	03	M-FS-13308	B67-10394	02
Acid spray technique mills aluminum alloy materials without immersion			ACOUSTIC SIMULATION		
M-FS-12500	B67-10463	03	Electronic dummy for acoustical testing		
High-temperature bearing lubricants			MSC-206	B67-10298	01
LEWIS-10408	B68-10249	05	ACOUSTIC VELOCITY		
Electrolytic separation of crystals of transition-metal oxides			Ultrasonic temperature measuring device		
ARG-10506	B69-10642	03	LEWIS-10446	B68-10319	01
ACOUSTIC ATTENUATION			Instabilities encountered during heat transfer to a supercritical fluid		
Transistor biased amplifier minimizes diode discriminator threshold attenuation			ARG-10266	B69-10042	02
ARG-163	B67-10311	01	Thick transducers used for generating short-duration stress pulses in thin specimens		
Power consumption in acoustic amplifiers under conditions of maximum stable gain			ARG-10232	B69-10045	01
GSFC-10067	B68-10327	01	An ultrasonic method for studying elastic moduli as a function of temperature		
Improved communication system for large operations center			ARG-10187	B69-10082	02
M-FS-15016	B68-10529	01	Generation of sonic power during welding		
Thick transducers used for generating short-duration stress pulses in thin specimens			M-FS-20339	B69-10404	05
ARG-10232	B69-10045	01	ACOUSTICS		
A comparison of two methods of measuring particle size of Al2O3 produced by a small rocket motor			Study made of acoustical monitoring for mechanical checkout		
NPO-11198	B69-10572	03	M-FS-13372	B67-10430	02
ACOUSTIC IMPEDANCE			Noise study of single stage compressor rotor-stator interaction		
Active frequency control system for argon FM laser			LANGLEY-137	B67-10516	02
M-FS-14988	B69-10099	02	Sonic boom propagation in stratified atmosphere		
Energy-storage of a prescribed impedance			LANGLEY-10480	B69-10391	06
ARG-10428	B69-10431	02	Proposed acousto-optic filter		
ACOUSTIC MEASUREMENTS			HQ-10440	B69-10466	02
Small foamed polystyrene shield protects low-frequency microphones from wind noise			ACQUISITION		
M-FS-123	B63-10579	01	An investigation of phase-lock loop swept-frequency synchronization		
System enables more complete calibrations of dynamic-pressure transducers			M-FS-656	B66-10423	01
M-FS-2063	B67-10099	01	Acquisition of pseudonoise signals by sequential estimation		

ACRYLIC ACID

SUBJECT INDEX

M-FS-13898	B68-10258	01	over wide solid angle XNP-09808	B69-10032	01
ACRYLIC ACID			ACTUATORS		
Heparin insolubilized with crosslinking agent NPO-10834	B69-10299	03	Stepping switch with simple actuator provides many contacts in small space JPL-122	B63-10118	01
ACRYLIC RESINS			Blade valve isolates compartment in pipe, opens to allow free flow JPL-585	B64-10188	05
Circular, explosion-proof lamp provides uniform illumination MSC-382	B66-10156	02	Explosives actuate nonmagnetic indexing device GSFC-237	B65-10017	05
Electrically conductive fibers thermally isolate temperature sensor GSFC-456	B66-10349	01	Stepping motor drive circuit designed for low power drain GSFC-198	B65-10026	01
Copper-acrylic enamel serves as lubricant for cold drawing of refractory metals ARG-54	B66-10471	05	Device disconnects several couplings simultaneously JPL-226	B65-10163	05
Scribble coating for plastic films MSC-11194	B67-10409	03	Selenium bond decreases ON resistance of light-activated switch JPL-SC-101	B65-10324	01
ACTINIDE SERIES			Three-position rocker switch actuator has positive centering MSC-261	B65-10376	01
Study of actinide chemistry in saturated potassium fluoride solution ARG-10204	B69-10004	03	Fingertip current control facilitates use of arc welding gun MSC-289	B66-10092	05
ACTINIDE SERIES COMPOUNDS			Quick-closing valve is actuated by explosive discharge ARC-55	B66-10233	05
Nitric acid-organic mixtures surveyed for use in separation by anion exchange methods ARG-10065	B68-10425	03	Flow ring valve is simple, quick-acting M-FS-752	B66-10255	05
ACTINIUM			Compact actuator converts rotary to linear motion JPL-786	B66-10265	05
Daughter growth in freshly separated Ra-226, Ac-227 and U-232 ARG-10226	B69-10003	02	Special mandrel permits uniform welding of out-of-round tubing M-FS-706	B66-10323	05
ACTIVATION			Friction loading device enables accurate testing of brittle materials NU-0051	B66-10345	05
Study made of Raney nickel technology M-FS-2054	B67-10208	03	Pneumatic binary encoder replaces multiple solenoid system M-FS-665	B66-10374	01
Preparation of silver-activated zinc sulfide thin films GSFC-10687	B68-10271	03	Matching flow characteristics of standard shutoff valves eliminates need for custom fabricated valves M-FS-1069	B66-10416	05
Versatile impact hand tool M-FS-20140	B68-10371	05	Quick-response servo amplifies small hydraulic pressure differences ARG-99	B66-10498	05
ACTIVATION ANALYSIS			In-tank shutoff valve is provided with maximum blast protection M-FS-1529	B66-10514	05
Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes NUC-10143	B67-10665	06	Fluid logic control circuit operates nutator actuator motor LEWIS-294	B66-10593	05
ACTIVATION ENERGY			Fuel and oxidizer valve assembly employs single solenoid actuator MSC-1046	B66-10648	05
Solenoid permits remote control of stop watch and assures restarting FRC-17	B63-10024	01	Actuator device schedules rate of valve closure M-FS-1556	B66-10686	05
Electrically controlled optical latch and switch requires less current JPL-SC-111	B66-10414	01	Low speed, long term tracking electric drive system has zero backlash NPO-10173	B67-10220	01
Hydrated multivalent cations are new class of molten salt mixtures ARG-211	B67-10033	03	Pressure levels and pulsation frequencies can be varied on high pressure/frequency		
ACTUATION					
Level of super-cold liquids automatically maintained by levelometer JPL-397	B63-10250	01			
Simple mechanism combines positive locking and quick-release features WOO-4	B63-10420	05			
One-shot valve may be remotely actuated WOO-195	B65-10266	05			
Key-locked guard prevents accidental switch actuation MSC-419	B66-10235	05			
Rugged switch responds to minute pressure differentials M-FS-12704	B67-10389	01			
Simple switch actuated by force applied					

SUBJECT INDEX

ADAPTIVE CONTROL

testing device LEWIS-10205	B67-10360	05	ADAPTATION		
Movable RF probe eliminates need for calibration in plasma accelerators LEWIS-10127	B67-10362	01	Single projector accommodates slides of different size and format GSPC-439	B66-10016	02
Proposed method of rotary dynamic balancing by laser M-FS-12422	B67-10452	02	Bench vise adapter grips tubing securely and safely MSC-279	B66-10056	05
Combined actuator and latch for cartridge powered actuator MSC-11242	B67-10488	05	X-ray source uses interchangeable target anodes to vary X-ray wavelength NPO-10036	B67-10218	02
Butterfly valve with metal seals controls flow of hydrogen from cryogenic through high temperatures NUC-10034	B67-10567	05	ADAPTERS		
Flat cable insulation stripping machine M-FS-13776	B67-10581	05	Camera shutter is actuated by electric signal ARC-20	B63-10560	05
Dynamic captive plastic seal M-FS-12988	B67-10600	03	Mouthpiece adapter for pipettes protects mouth from harmful liquids LANGLEY-47	B65-10043	03
Air sampler collects and protects minute particles HQ-10037	B67-10661	01	Manual-feed adapter permits microfilming of continuous oscillograph output NU-0029	B65-10249	01
Phase plane displays detect incipient failure in servo system testing HQ-10018	B67-10662	01	Shoulder adapter steadies spot welding gun. M-FS-321	B66-10076	05
Quick-attach clamp XFR-05421	B68-10250	05	Hand drill adapter limits holes to desired depth MSC-346	B66-10123	05
High-voltage pulse generator developed for wide-gap spark chambers ARG-10136	B68-10283	01	Expandable insert serves as screw anchor MSC-301	B66-10132	05
Conceptual hermetically sealed elbow actuator M-FS-14710	B68-10300	05	O-rings with mylar back-up provide high- pressure cryogenic seal M-FS-603	B66-10278	05
Conceptual apparatus for detecting leaks of nonconductive liquids M-FS-14713	B68-10303	01	Adapter assembly prevents damage to tubing during high pressure tests MSC-563	B66-10330	02
Indium adhesion provides quantitative measure of surface cleanliness SAN-10024	B68-10342	01	Portable fixture facilitates pressure testing of instrumentation fittings M-FS-2032	B67-10121	03
Automatic patient respiration failure detection system with wireless transmission ARC-10174	B68-10365	01	Line adapter provides quick disconnect under moderate side loading M-FS-2159	B67-10256	05
Pyrotechnic-actuated cable release XNP-10849	B68-10535	05	Modified blackbody device emits high-density radiation M-FS-12744	B67-10388	02
Electromechanical rotary actuator operates over wide temperature range M-FS-18402	B69-10100	05	Multichannel wireway adapter box MSC-90645	B68-10052	05
Remotely-actuated biomedical switch ARC-10105	B69-10117	01	Tensile testing grips ensure uniform loading of bimetal tubing specimens LEWIS-10267	B68-10248	05
Torsion system for creep testing with multiple stress reversals HQ-10039	B69-10147	03	High-torque power wrench, a concept M-FS-18194	B68-10299	05
Electrothermal linear actuator NFO-10637	B69-10296	05	Fifth-wheel fork truck adapter M-FS-14460	B69-10021	05
Remote control thermal actuator LEWIS-10873	B69-10307	01	Detachable caster adapter MSC-91215	B69-10164	05
Separation simulator KSC-67-15	B69-10315	01	Astronaut's tool for withdrawing/replacing computer cards M-FS-20453	B69-10183	05
Calibratable solid-state pressure switch M-FS-20474	B69-10437	05	Camera mount for close-up stereo photographs LANGLEY-10442	B69-10226	02
Piezoelectric linear actuator MSC-13194	B69-10469	02	Tool repairs tube components in situ MSC-15348	B69-10379	05
Testing the flammability of materials exposed to arcs. MSC-15225	B69-10531	03	Shaker slip-plate adapter M-FS-14063	B69-10785	05
			ADAPTIVE CONTROL		
			Adaptive control circuit prevents amplifier saturation ERC-10026	B67-10648	02

ADDING CIRCUITS

SUBJECT INDEX

ADDING CIRCUITS

Improved circuit minimizes generation time of pseudonoise check bits
JPL-698 B65-10275 01

Simple circuit performs binary addition and subtraction
GSFC-399 B65-10355 01

Linear signal noise summer accurately determines and controls S/N ratio
JPL-SC-152 B66-10433 01

Security warning system monitors up to fifteen remote areas simultaneously
KSC-66-39 B66-10548 01

Self-correcting, synchronizing ring counter using integrated circuit devices
M-FS-13901 B68-10067 01

ADDITIVES

Quick-hardening problems are eliminated with spray gun modification which mixes resin and accelerator liquids during application
LANGLEY-6A B63-10318 03

Didysium compound improves nickel-cadmium cell
GSFC-295 B65-10083 03

Run-in with chemical additive protects gear surface
M-FS-548 B66-10069 05

Aluminum doping improves silicon solar cells
LEWIS-206 B66-10181 02

Chromium oxide coatings improve thermal emissivity of alumina
WOO-263 B66-10227 03

Photosensitive filler minimizes internal stresses in epoxy resins
M-FS-1880 B67-10227 03

Process controls introduction of selected impurities into semiconductor wafers
GSFC-523 B67-10303 01

Steel test panel helps control additives in pyrophosphate copper plating
LEWIS-10101 B67-10358 05

High-temperature bearing lubricants
LEWIS-10408 B68-10249 05

Ignition of binary alloys of uranium
ARG-10057 B68-10280 01

Precise doping of metals by small gas flows
LEWIS-10444 B68-10526 03

ADDUCTS

Adhesive for cryogenic temperature applications
LEWIS-10264 B69-10074 03

ADHESION

Refractory thermal insulation for smooth metal surfaces
M-FS-160 B64-10099 03

Multilayer refractory nozzles produced by plasma-spray process
WOO-318 B66-10611 05

Reparable, high-density microelectronic module provides effective heat sink
M-FS-13075 B67-10356 01

Technique for measuring magnetic tape interlayer adhesion
NPO-10011 B67-10417 03

Copper and nickel adherently electroplated on titanium alloy
M-FS-13952 B67-10532 03

Method of disjoining adhesively bonded electronic cordwood modules
MSC-12060 B68-10086 01

Indium adhesion provides quantitative measure of surface cleanliness
SAN-10024 B68-10342 01

Gun facilitates adhesive bonding of studs to surfaces
M-FS-20299 B69-10009 05

Effect of interparticle forces on the fluidization of fine particles
ARG-10264 B69-10195 03

Pulsed high-voltage dc RF sputtering
LEWIS-10920 B69-10699 01

ADHESION TESTS

Ultrasonic emission method enables testing of adhesive bonds
M-FS-799 B66-10341 01

Dot patterns provide reproducible flaw areas for study of adhesive bonds
M-FS-862 B66-10367 05

Nondestructive determination of cohesive strength of adhesive-bonded composites
M-FS-20397 B69-10464 03

ADHESIVES

Portable flooring protects finished surfaces, is easily moved
M-FS-15 B63-10387 05

Improved electrode gives high-quality biological recordings
MSC-17 B64-10025 04

Screening technique makes reliable bond at room temperature
M-FS-227 B65-10004 03

Improved conductive paste secures biomedical electrodes
MSC-107 B65-10015 03

Adhesive for vacuum environments resists shock and vibration
MSC-56 B65-10016 03

Peel resistance of adhesive bonds accurately measured
GSFC-320 B65-10173 03

Electronic modules easily separated from heat sink
MSC-142 B65-10186 02

Fastener distributes stress evenly from sandwich-panel-hung items
MSC-236 B65-10358 05

Adhesive-backed terminal board eliminates mounting screws
MSC-173 B65-10396 01

Polymer film exhibits thermal and radiation stability
LANGLEY-100 B66-10043 03

Improved electrode paste provides reliable measurement of galvanic skin response
MSC-146 B66-10049 04

Calibrated clamp facilitates pressure application
MSC-298 B66-10059 05

Storage-stable foamable polyurethane is activated by heat
LANGLEY-187 B66-10111 03

Integral skin electrode for electrocardiography is expendable
MSC-299 B66-10118 04

SUBJECT INDEX

ADJUSTING

Compound improves thermal interface between thermocouple and sensed surface NU-0028	B66-10121	02	M-FS-2308	B67-10378	01
Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02	Scribble coating for plastic films MSC-11194	B67-10409	03
Improved adhesive for cryogenic applications cures at room temperature WOO-132	B66-10185	03	Adhesives for laminating polyimide insulated flat conductor cable M-FS-12066	B67-10429	03
Rubber-coated bellows improves vibration damping in vacuum lines LEWIS-273	B66-10187	02	Proposed method of rotary dynamic balancing by laser M-FS-12422	B67-10452	02
Coating permits use of strain gage in water and liquid hydrogen M-FS-594	B66-10192	01	Solvent permits solid curing agents to be used at room temperatures M-FS-13434	B67-10593	03
Tool permits damage-free removal of solar cell GSFC-467	B66-10219	05	Synthesis of pure aromatic glycidyl esters for use as adhesives M-FS-12705	B67-10647	03
Substituted silane-diol polymers have improved thermal stability M-FS-469	B66-10259	03	Miniature pressure transducer for stressed member application MSC-11869	B68-10246	01
Electrolytic etching process provides effective bonding surface on stainless steel GSFC-484	B66-10299	03	Fiber glass reinforced structural materials for aerospace application M-FS-14806	B68-10360	03
Inexpensive insulation is effective for cryogenic transfer lines MSC-618	B66-10348	02	Improved radiographic image amplifier panel M-FS-14522	B68-10363	02
Impact and puncture resistant material protects parts from damage MSC-747	B66-10375	05	High-emittance coatings on metal substrates LEWIS-10325	B68-10381	03
Mylar film eliminates silk screening of equipment panels MSC-798	B66-10455	05	Battery-package design provides for cell cooling and constraint MSC-11839	B68-10398	05
Adhesive for polyester films cures at room temperature, has high initial tack M-FS-938	B66-10487	03	Frangible electrochemical cell and sealing technique XGS-10010	B69-10056	01
Film coating permits low-force scribing MSC-990	B66-10609	03	Adhesive for cryogenic temperature applications LEWIS-10264	B69-10074	03
Silver-palladium braze alloy recovered from masking materials M-FS-1845	B66-10631	03	Tools for applying lead tape to flat conductor cabling for chemical stripping M-FS-20429	B69-10190	05
Gas leak detector is simple and inexpensive M-FS-1206	B66-10669	01	Novel terminal strips for transformers NPO-10842	B69-10246	01
Process sequence produces strong, lightweight reflectors of excellent quality LEWIS-331	B67-10010	05	Instrumentation for nondestructive testing of composite honeycomb materials M-FS-20405	B69-10366	03
Miniature capacitor functions as pressure sensor JPL-903	B67-10020	01	Quick-set temporary bonding clamps NPO-10695	B69-10406	03
Resistance heating releases structural adhesive M-FS-1607	B67-10045	05	Heat-shrinkable jacket holds fluid in contact with tensile test specimen MSC-13195	B69-10495	05
Nonwoven glass fiber mat reinforces polyurethane adhesive M-FS-2309	B67-10113	03	Improved primer for bonding polyurethane adhesives to metals M-FS-90591	B69-10540	03
New class of thermosetting plastics has improved strength, thermal and chemical stability LEWIS-10108	B67-10197	03	ADIABATIC CONDITIONS		
Photosensitive filler minimizes internal stresses in epoxy resins M-FS-1880	B67-10227	03	Computer program NCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid NUC-10043	B67-10457	06
Inexpensive cryogenic insulation replaces vacuum jacketed line NUC-10061	B67-10264	02	Thermal Network Analyzer Program NUC-10540	B69-10239	06
Flowmeter determines mix ratio for viscous adhesives			ADJUSTING		
			Modified gas bearing is adjustable to optimum stiffness ratio M-FS-145	B64-10050	05
			Buckle joins web straps quickly, adjusts easily LANGLEY-21	B64-10119	05
			Calibrated clamp facilitates pressure application		

ADSORPTION

SUBJECT INDEX

MSC-298 B66-10059 05

T-handle wrench has torque-limiting action
MSC-280 B66-10065 05

Auxiliary coil controls temperature of RF
induction heater
GSFC-428 B66-10067 01

Fixture aids soldering of electronic
components on circuit board
ARC-56 B66-10162 01

Multisurface fixture permits easy grinding
of tool bit angles
M-FS-586 B66-10171 05

Lifting clamp positively grips structural
shapes
M-FS-593 B66-10176 05

Tool post modification allows easy turret
lathe cutting-tool alignment
M-FS-581 B66-10191 05

Mount enables precision adjustment of
optical-instrumentation mirror
MSC-184 B66-10199 02

Torque wrench allows readings from
inaccessible locations
M-FS-598 B66-10204 05

Automatic reel controls filler wire in
welding machines
MSC-416 B66-10236 05

Adjustable knife cuts honeycomb material to
specified depth
MSC-475 B66-10237 05

Lathe chuck key incorporates safety feature
MSC-506 B66-10243 05

Device facilitates centering of workpieces in
lathe chuck
M-FS-685 B66-10277 05

Concealed hinge permits flush mounting of
doors and hatches
MSC-623 B66-10336 03

Versatile machine mills, saws light materials
M-FS-827 B66-10364 05

Motion drive system is accurately controlled
in the 1-micron range
JPL-864 B66-10695 05

Tool facilitates installation of Marmon
clamps
M-FS-2039 B67-10105 05

A calibration means for spectrum analyzers
MSC-10987 B67-10254 01

Eccentric drive mechanism is adjustable
during operation
M-FS-2576 B67-10373 05

Apparatus makes klystron operating
frequency adjustable from remote point
NPO-09831 B67-10514 01

Electron beam standby absorber system
M-FS-14108 B67-10650 01

Tunable bandpass filter with variable
selectivity
ARC-10191 B69-10130 01

Adjustable wrench for electronic connectors
M-FS-18547 B69-10184 05

Tool simplifies machining of pipe ends for
precision welding
KSC-10361 B69-10231 05

ADSORPTION
Radioactive method enables determination of
surface areas rapidly and accurately
NU-0088 B66-10710 03

Separation of traces of metal ions from
sodium matrices
ARG-10341 B69-10168 03

Detection of molecular infrared spectra
HQ-10377 B69-10172 02

Separation of the rare earths by
anion-exchange in the presence of lactic
acid
ARG-10436 B69-10377 03

Improved cure method for single component
silicone rubber
MSC-12230 B69-10749 03

ADSORPTIVITY
Computer program calculates and plots
surface area and pore size distribution data
GSFC-10362 B68-10009 06

ADVANCED VIDICON CAMERA SYSTEM (AVCS)
Raster linearity of video cameras calibrated
with precision tester
GSFC-200 B64-10209 01

AERATION
Continuous microbial cultures maintained
by electronically-controlled device
ARG-177 B67-10556 04

AERIAL EXPLOSIONS
Instrumentation for nondestructive testing
of composite honeycomb materials
M-FS-20405 B69-10366 03

AERIAL PHOTOGRAPHY
Aerial-image enables diagrams and animation
to be inserted in motion pictures
ARG-165 B67-10398 02

AEROBES
Mass culture of photobacteria to obtain
luciferase
GSFC-10563 B69-10294 04

AERODYNAMIC BALANCE
Device measures fluid drag on test vehicles
LANGLEY-34 B65-10195 01

Laser system used for dynamic balancing of
gyros
M-FS-12218 B68-10225 05

AERODYNAMIC CHARACTERISTICS
Computer program calculates wing aerodynamic
characteristics for fixed wings with dihedral
and variable-sweep wings at subsonic speeds
LANGLEY-10191 B67-10666 06

Modified Multhopp lifting surface loading
program
LANGLEY-10375 B68-10452 06

Experimental program to investigate
transonic flow around protuberances
M-FS-20037 B69-10609 05

Optimum structural design based on
reliability and proof-load testing
NPO-11228 B69-10723 31

AERODYNAMIC COEFFICIENTS
New anemometer has fast response, measures
dynamic pressure directly
LANGLEY-28 B63-10530 05

Computer program analyzes and designs
supersonic wing-body combinations
ARC-10141 B68-10335 06

Modified Multhopp mean camber computer
program
LANGLEY-10376 B68-10446 06

SUBJECT INDEX

AEROSPACE INDUSTRY

AERODYNAMIC CONFIGURATIONS

Averaging probe reduces static-pressure sensing errors
 LANGLEY-36 B65-10114 05

Computer program analyzes and designs supersonic wing-body combinations
 ARC-10141 B68-10335 06

AERODYNAMIC DRAG

Rough surface improves stability of air-sounding balloons
 M-FS-320 B65-10326 05

Simple key locks turbine rotor blades
 WOO-103 B66-10023 05

AERODYNAMIC FORCES

Flexure support system protects thermally and dynamically loaded models
 LANGLEY-39 B65-10042 05

Aerodynamic forces of fluttering cylindrical and/or planar structures
 M-FS-20497 B69-10781 02

AERODYNAMIC HEATING

Insulation for cryogenic tanks has reduced thickness and weight
 M-FS-326 B66-10183 02

Instrument accurately measures small temperature changes on test surface
 LANGLEY-174 B66-10637 01

CINDA - Chrysler Improved Numerical Differencing Analyzer computer program
 M-FS-2298 B67-10278 06

AERODYNAMIC LOADS

Internal cooling increases range of immersion-type temperature probe
 LEWIS-171 B65-10157 02

Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds
 LANGLEY-10191 B67-10666 06

AERODYNAMIC NOISE

Study of hot wire techniques in low density flows with high turbulence levels
 M-FS-1269 B66-10687 01

AERODYNAMIC STABILITY

Rough surface improves stability of air-sounding balloons
 M-FS-320 B65-10326 05

AERODYNAMICS

Computer program analyzes and designs supersonic wing-body combinations
 ARC-10141 B68-10335 06

AERONAUTICS

Titanium treatment improves brazed joints
 MSC-127 B65-10153 05

AEROSOLS

Solvent residue content measured by light scattering technique
 M-FS-850 B66-10320 01

Cleanroom air sampler counts, categorizes, and records particle data
 M-FS-2221 B67-10076 01

Improved atmospheric particle analyzer
 ERC-33 B67-10231 01

Nozzles for size reclassification of microfog particles
 LEWIS-10705 B69-10076 05

Health hazards of ultrafine metal and metal oxide powders
 LEWIS-10878 B69-10268 04

Conditioning of pulses from aerosol-particle

detectors
 ERC-10250 B69-10691 01

AEROSPACE ENGINEERING

Pressure transducer system is force-balanced, has digital output
 M-FS-154 B65-10174 05

Improved electro-optical tracking system
 M-FS-14791 B68-10311 01

An overview of electromagnetic interference problems in spacecraft
 NPO-11170 B69-10362 01

System for computing operational probability equations
 M-FS-16410 B69-10566 06

AEROSPACE ENVIRONMENTS

Test device prevents molecular bounce-back
 GSFC-82 B63-10546 03

Modular Porous Plate Sublimator /MPPS/ requires only water supply for coolant
 M-FS-1374 B66-10409 01

Study made of explosive cutting in simulated space environments
 M-FS-1597 B67-10040 01

Study indicates fluid digital computation systems are feasible
 M-FS-520 B67-10181 01

Environmental study of miniature slip rings
 M-FS-2443 B67-10210 05

Materials data handbook, aluminum alloy 7075
 M-FS-2349 B67-10301 03

Standards for compatibility of printed circuit and component lead materials
 M-FS-14531 B68-10310 01

Materials data handbook, aluminum alloy 6061
 M-FS-20381 B69-10065 03

Diffusion bond method of joining steel and a TFE-bronze composite
 M-FS-20482 B69-10237 03

AEROSPACE INDUSTRY

Lightweight magnesium-lithium alloys show promise
 M-FS-17 B63-10389 03

Bench vise adapter grips tubing securely and safely
 MSC-279 B66-10056 05

Study to minimize hydrogen embrittlement of ultrahigh-strength steels
 M-FS-2455 B67-10141 03

Computer program performs rectangular fitting stress analysis
 M-FS-13010 B67-10520 06

Weight Control System
 M-FS-15028 B69-10041 06

Countersunk headscrew retainer
 M-FS-16481 B69-10282 05

Removal of retaining washers of the waffle-spring type
 MSC-15531 B69-10350 05

Tool for reading psychrometric charts
 KSC-10358 B69-10527 05

Silphenylene elastomers have high thermal stability and tensile strength
 M-FS-2025C B69-10580 03

AEROSPACE SYSTEMS

SUBJECT INDEX

AEROSPACE SYSTEMS

An investigation of phase-lock loop swept-frequency synchronization
M-FS-656 B66-10423 01

Fiber glass reinforced structural materials for aerospace application
M-FS-14806 B68-10360 03

Thermal expansion properties of aerospace materials
M-FS-18335 B69-10055 03

Diffusion of trace gases for leak detection - A study
M-FS-20254 B69-10067 03

A new method for the determination of particulate contamination levels for surface cleanliness of fluid systems
KSC-10267 B69-10520 02

AEROSPACE VEHICLES

Study of hydrogen slush-hydrogen gel utilization
M-FS-13068 B67-10413 02

Precise gimballing mechanism
NPO-11057 B69-10270 01

Optimum structural design based on reliability and proof-load testing
NPO-11228 B69-10723 31

AEROZINE

Addition of solid oxidizer increases liquid fuel specific impulse
JPL-861 B67-10058 03

Effects of helium and nitrogen as pressurants in nitrogen tetroxide transfer
MSC-924 B67-10083 03

AFTERBURNING

Ultraviolet photographic pyrometer used in rocket exhaust analysis
M-FS-499 B66-10095 02

Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons
LEWIS-263 B66-10104 03

AGE FACTOR

Study of radiation effects on mammalian cells in vitro
ARG-10191 B68-10294 02

AGGLOMERATION

Experiments to investigate particulate materials in reduced gravity fields
M-FS-13308 B67-10394 02

AGGREGATES

Aggregation of metallochlorophylls - Examination by spectroscopy
ARG-10273 B69-10163 04

AGING

Development of technology for hot-drape forming of large torus sections
M-FS-12141 B67-10341 05

Magnesium-lithium alloys developed for low temperature use
M-FS-1541 B67-10365 03

Scribable coating for plastic films
MSC-11194 B67-10409 03

AGING (BIOLOGY)

Investigation of temperature dependence of development and aging
ARG-10145 B69-10022 04

Rapid and precise analysis for calcium in blood serum
ARG-10246 B69-10160 04

AGING (METALLURGY)

Thermal stress-relief treatments for 2219 aluminum alloy are evaluated
M-FS-1213 B66-10448 03

Treatment increases stress-corrosion resistance of aluminum alloys
M-FS-1840 B66-10595 05

New weldable high strength aluminum alloy developed for cryogenic service
M-FS-737 B66-10613 05

Heat treatment study of aluminum casting alloy M45
M-FS-2397 B67-10159 03

Excellent spring properties developed in two nickel alloys for use at cryogenic temperatures
NUC-10084 B67-10349 03

Stress-corrosion characteristics of aluminum casting alloy M-45
M-FS-14817 B68-10184 03

Resistivity measurements of neutron-irradiated pure metals and Al-Zn alloys
ARG-10108 B68-10200 03

Strain-age cracking in Rene 41 alloy
M-FS-18650 B69-10605 03

AGITATION

Large volume continuous counterflow dialyzer has high efficiency
HQ-10055 B67-10395 04

Shortened processing time technique for color industrial radiography
ARG-10235 B69-10001 02

AGRICULTURE

Sampling and handling of desert soils
NPO-11171 B69-10304 04

AIR

Rapid helium-air analyzer can measure other binary gas mixtures
LANGLEY-16 B63-10557 03

Sniffer used as portable hydrogen leak detector
M-FS-846 B66-10356 01

Brazing retort manifold design concept may minimize air contamination and enhance uniform gas flow
M-FS-707 B66-10371 05

Air bearing provides friction-free support for shaker system slip table
NU-0086 B66-10708 05

High conductance vapor thermal switch
GSFC-10109 B68-10519 02

Prediction of friction coefficients for gases
LEWIS-10774 B69-10112 02

Plasma-heating by induction
LEWIS-10528 B69-10185 02

Properties of air and combustion products of fuels with air
LEWIS-11030 B69-10711 03

Chromatographic detection and analysis of traces of hydrocarbons
KSC-10388 B69-10716 02

Surface-renewal models for heat-transfer between walls and fluidized beds
ARG-10372 B69-10772 02

AIR CONDITIONING

New nut and sleeve improve flared connections

SUBJECT INDEX

AIRCRAFT INDUSTRY

M-FS-194	B65-10180	05	M-FS-2221	B67-10076	01
Bench vise adapter grips tubing securely and safely			Air sampler collects and protects minute particles		
MSC-279	B66-10056	05	HQ-10037	B67-10661	01
Tool for reading psychrometric charts			Rocket sonde measurements of ozone in the upper atmosphere		
KSC-10358	B69-10527	05	GSFC-1058C	B69-10077	02
AIR FLOW			Automated microorganism Sample Collection Module		
Electron beam seals outer surfaces of porous bodies			HQ-10421	B69-10223	04
M-FS-562	B66-10033	03	Health hazards of ultrafine metal and metal oxide powders		
Noise study of single stage compressor rotor-stator interaction			LEWIS-10878	B69-10268	04
LANGLEY-137	B67-10516	02	AIRBORNE EQUIPMENT		
Vacuum probe sampler removes micron-sized particles from surfaces			Frequency offset in linear FM/CW transponder eliminates clutter		
SAN-10003	B68-10231	04	M-FS-249	B65-10146	01
Modified sine bar device measures small angles with high accuracy			Video synchronization processor overcomes poor signal-to-noise ratio		
GSFC-438	B68-10322	02	KSC-10002	B67-10515	01
Analysis of annular combustors			AIRCRAFT		
LEWIS-10399	B68-10356	06	Device measures fluid drag on test vehicles		
Automatic patient respiration failure detection system with wireless transmission			LANGLEY-34	B65-10195	01
ARC-10174	B68-10365	01	Control of component differential hardness increases bearing life		
An investigation of particle mixing in a gas-fluidized bed			LEWIS-190	B65-10251	05
ARG-10182	B68-10407	05	Plastic bags in evacuated chamber make lightweight gas sampling system		
Combination probe for airflow measurements			PRC-31	B65-10264	01
LEWIS-10281	B68-10558	01	Communication system features dual mode range acquisition plus time delay measurement		
Propagation of density disturbances in air-water flow			M-FS-14323	B68-10306	01
ARG-10260	B69-10043	02	AIRCRAFT COMMUNICATION		
Instrumentation for nondestructive testing of composite honeycomb materials			Single-sideband modulator accurately reproduces phase information in 2-Mc signals		
M-FS-20405	B69-10366	03	M-FS-664	B66-10437	01
AIR POLLUTION			AIRCRAFT CONFIGURATIONS		
Improved atmospheric particle analyzer			Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds		
ERC-33	B67-10231	01	LANGLEY-10191	B67-10666	06
Analytical technique characterizes all trace contaminants in water			AIRCRAFT DESIGN		
MSC-11032	B67-10243	03	Modified Multhopp lifting surface loading program		
Air sampler collects and protects minute particles			LANGLEY-10375	B68-10452	06
HQ-10037	B67-10661	01	AIRCRAFT DETECTION		
Repetitively pulsed, wavelength-selective carbon dioxide laser			Frequency offset in linear FM/CW transponder eliminates clutter		
ERC-10178	B68-10564	02	M-FS-249	B65-10146	01
Health hazards of ultrafine metal and metal oxide powders			AIRCRAFT ENGINES		
LEWIS-10878	B69-10268	04	Centrifugal device separates liquid from gas		
Development and test of flexible film coupon strips for use as a sampling technique			MSC-282	B65-10394	05
M-FS-20448	B69-10339	03	AIRCRAFT EQUIPMENT		
Automatic filter-blowback systems used with sintered-metal filters			Rack mount device quickly inserts or extracts chassis units		
ARG-10324	B69-10342	05	MSC-244	B65-10385	05
Conditioning of pulses from aerosol-particle detectors			AIRCRAFT INDUSTRY		
ERC-10250	B69-10691	01	Study to minimize hydrogen embrittlement of ultrahigh-strength steels		
AIR PURIFICATION			M-FS-2455	B67-10141	03
Gas diffusion cell removes carbon dioxide from occupied airtight enclosures			Two-step rocket engine bipropellant valve concept		
MSC-118	B64-10319	03	MSC-10951	B69-10280	05
AIR SAMPLING			Countersunk headscrew retainer		
Cleanroom air sampler counts, categorizes, and records particle data			M-FS-16481	B69-10282	05
			Design of a strain-gage probe		
			ARG-10338	B69-10343	05

AIRCRAFT INSTRUMENTS

SUBJECT INDEX

Flexible rivet-set
M-FS-20317 B69-10459 05

Nondestructive determination of cohesive strength of adhesive-bonded composites
M-FS-20397 B69-10464 03

Literature review on pickling inhibitors and cadmium electroplating processes
M-FS-14421 B69-10606 03

Explosive bonding of metal-matrix composites
M-FS-20657 B69-10804 05

AIRCRAFT INSTRUMENTS

FM/CW system measures aircraft attitude
M-FS-276 B65-10290 01

Alternating current electromagnetic servo induction meter
XFR-03838 B68-10100 01

AIRCRAFT LANDING

New anemometer has fast response, measures dynamic pressure directly
LANGLEY-28 B63-10530 05

AIRCRAFT MODELS

Built-in templates speed up process for making accurate models
LANGLEY-23 B63-10526 05

AIRCRAFT STRUCTURES

Drill bit design assures clean holes in laminated materials
WOO-098 B65-10386 05

Program computes zero lift wave drag of entire aircraft
LANGLEY-10079 B67-10530 06

AIRFOILS

Program computes zero lift wave drag of entire aircraft
LANGLEY-10079 B67-10530 06

AIRFRAMES

Material fatigue data obtained by card-programmed hydraulic loading system
LANGLEY-10042 B67-10491 03

AIRPORTS

Scanning photometer system automatically determines atmospheric layer height
MSC-245 B66-10170 01

ALBEDO

N-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program
NUC-10126 B67-10536 06

ALCOHOLS

Surfactant for dye-penetrant inspection is insensitive to liquid oxygen
M-FS-475 B66-10131 03

Gas chromatographic column enables analysis of propellant hydrazines
MSC-1161 B66-10586 03

Preparation of silver-activated zinc sulfide thin films
GSFC-10687 B68-10271 03

Measurement of gas flow at extremely low pressures
MSC-13261 B69-10522 03

ALDEHYDES

Microdetermination of urea in urine using p-dimethylaminobenzaldehyde /PDAB/
WFO-10715 B69-10317 04

ALERTNESS

Improved electrode paste provides reliable measurement of galvanic skin response
MSC-146 B66-10049 04

ALGAE

Cytology is advanced by studying effects of deuterium environment
ARG-205 B67-10304 04

The preparation, identification and properties of chlorophyll derivatives
ARG-10205 B68-10409 03

ALGEBRA

Algebraic Monte Carlo procedure reduces statistical analysis time and cost factors
M-FS-1887 B67-10434 01

Technique for predicting temperature distribution in gases
LEWIS-10918 B69-10329 01

Numerical inversion of finite Toeplitz matrices and vector Toeplitz matrices
ARG-10445 B69-10415 02

COGENT programming manual
ARG-10463 B69-10656 06

ALGORITHMS

Binary sequence detector uses minimum number of decision elements
JPL-673 B66-10264 01

Computer program calculates monotonic maximum likelihood estimates using method of reversals
M-FS-1516 B67-10136 01

Computer program provides linear sampled-data analysis for high order systems
M-FS-12821 B67-10287 06

Digital filter synthesis computer program
ARC-10130 B68-10164 06

Linear systems of equations solved using mathematical algorithms
ARG-10146 B68-10292 06

Computer program for parameter optimization
ARC-10168 B68-10453 06

Improved first order interpolator
MSC-11085 B69-10291 02

Sonic boom propagation in stratified atmosphere
LANGLEY-10480 B69-10391 06

Numerical inversion of finite Toeplitz matrices and vector Toeplitz matrices
ARG-10445 B69-10415 02

Fast Fourier Transform Spectral Analysis Program
M-FS-15062 B69-10434 06

Special purpose computer provides programmable digital filter for sampled-data control systems
M-FS-20290 B69-10454 06

ALIGNMENT

Design of valve permits sealing even if the stem is misaligned
LEWIS-38 B63-10341 05

Novel clamps align large rocket cases, eliminate back-up bars
M-FS-1 B63-10376 05

Mirror device aligns machine surface perpendicular to sight lines
WOO-5 B63-10421 02

Tool facilitates sealing of metal fill tubes
MSC-24 B63-10519 05

Guide for extrusion dies eliminates straightening operation
LEWIS-152 B64-10014 05

SUBJECT INDEX

ALKALI HALIDES

Pressure transducer 3/8-inch in size can be faired into surface WOO-065	B64-10021	05	alignment of an optical target M-FS-1181	B66-10556	01
Attachment converts microscope to point source autocollimator JPL-499	B64-10124	05	Turbine blade root design concept promises superior alignment M-FS-1685	B66-10620	05
Simple optical system used to align spectrograph LANGLEY-92	B65-10071	02	Teflon sheet permits valve and valve operator to move as a single unit in a cryogenic pipe line NU-0077	B66-10702	05
New coupling compensates for shaft misalignment NU-0013	B65-10077	05	Visual attitude orientation and alignment system MSC-647	B67-10120	02
Light ray modulation controls optical system alignment GSFC-171	B65-10211	02	Spherical joint connects axially misaligned flanges M-FS-2238	B67-10273	05
Voltage controlled oscillator is easily aligned, has low phase noise JPL-510	B65-10223	01	Precision metal molding M-FS-13305	B67-10423	05
Lightweight coaxial cable connector reduces signal loss JPL-720	B65-10244	01	Lamb waves increase sensitivity in nondestructive testing ARG-10009	B67-10605	02
Oil-damped mercury pool makes precise optical alignment tool GSFC-353	B65-10253	02	Tensile testing grips are easily assembled under liquid nitrogen NUC-10524	B67-10628	05
Titanium diaphragm makes excellent amplitron cathode support GSFC-394	B65-10298	01	Connector shorting cap provides pin alignment, inspection, and stray voltage protection M-FS-13111	B67-10635	01
Modified procedure speeds camera copy layout for offset printing GSFC-424	B65-10373	02	Reconnect mechanism M-FS-12968	B67-10670	05
Photosensors used to maintain welding electrode-to-joint alignment MSC-243	B65-10401	05	Telescope mount with azimuth-only primary NPO-10468	B67-10671	02
Instrument quickly transposes ground reference target to eye level MSC-275	B66-10061	05	Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02
Threaded pilot insures cutting tool alignment M-FS-527	B66-10074	05	Machining technique prevents undercutting in tensile specimens LANGLEY-10281	B68-10352	05
Tool post modification allows easy turret lathe cutting-tool alignment M-FS-581	B66-10191	05	High-torque precision stepping drive M-FS-14772	B68-10549	05
Mount enables precision adjustment of optical-instrumentation mirror MSC-184	B66-10199	02	Ring laser angle encoder MSC-13099	B69-10115	01
Tool enables proper mating of accelerometer and cable connector M-FS-611	B66-10208	05	Proposed technique for vertical alignment of a crane's cable M-FS-16496	B69-10202	05
Adjustable cutting guide aligns and positions stacks of material MSC-321	B66-10210	05	Technique for anchoring fasteners to honeycomb panels LEWIS-10888	B69-10265	03
Fastener provides for bolt misalignment and quick release of flange NU-0074	B66-10275	05	Precision mounting for instrument optical elements provided by polyimide bonding M-FS-20293	B69-10310	05
Friction loading device enables accurate testing of brittle materials NU-0051	B66-10345	05	Improved design of item in high speed rotating machinery M-FS-18441	B69-10373	05
Direction indicator system does not require complicated optics WOO-305	B66-10407	01	Quick-acting backup tool for welding ducts M-FS-18404	B69-10396	05
Alignment tool facilitates pin placement on irregular horizontal surfaces LANGLEY-219	B66-10410	05	Method of directing a laser beam with very high accuracy NPO-11087	B69-10508	02
Heavy duty precision leveling jacks expedite setup time on horizontal boring mill M-FS-1084	B66-10411	05	Improved camera for better X-ray powder photographs HQ-10424	B69-10537	01
Simplified fixture permits precision			ALIPHATIC COMPOUNDS		
			Flowmeter determines mix ratio for viscous adhesives M-FS-2308	B67-10378	01
			ALKALI HALIDES		
			Zone purification of potassium chloride		

ALKALI METAL COMPOUNDS

SUBJECT INDEX

ARG-10377	B69-10241	03	internal gas pressure GSFC-555	B66-10692	01
Self-discharge in bimetallic cells containing alkali metal			Battery-package design provides for cell cooling and constraint	MSC-11839	05
ARG-10347	B69-10631	01	Separator for alkaline batteries GSFC-10173	B68-10557	03
ALKALI METAL COMPOUNDS			ALKALINE EARTH OXIDES		
Double gloves reduce contamination of dry box atmosphere			Electrolytic separation of crystals of transition-metal oxides		
LEWIS-211	B65-10147	03	ARG-10506	B69-10642	03
Synthesis of polyethers of hexafluorobenzene and hexafluoropentandiol			ALKENES		
M-FS-14962	B69-10636	03	Xenon fluorides show potential as fluorinating agents	ARG-113	B67-10185 03
ALKALI METALS			ALKYL COMPOUNDS		
Elastomers bonded to metal surfaces seal electrochemical cells			Substituted silane-diol polymers have improved thermal stability	M-FS-469	B66-10259 03
GSFC-168	B64-10113	03	ALLOCATIONS		
Apparatus enables accurate determination of alkali oxides in alkali metals			Probabilistic approach to long range planning of manpower	MSC-11524	B67-10510 06
LEWIS-256	B66-10296	03	ALLOWANCES		
Process for preparing dispersions of alkali metals			Static seal concept to accommodate seat tolerances	M-FS-1854	B67-10285 05
JPL-734	B66-10639	03	ALLOYS		
Radiation counting technique allows density measurement of metals in high-pressure/ high-temperature environment			New method used to fabricate light-weight heat exchanger for rocket motor	LEWIS-43	B63-10346 02
ARG-124	B67-10316	02	Integral coolant channels supply made by melt-out method	M-FS-91	B63-10497 05
Precise doping of metals by small gas flows			New alloy brazes titanium to stainless steel	MSC-102	B65-10060 05
LEWIS-10444	B68-10526	03	New brazing alloy eliminates metal-stress cracking	WOO-249	B65-10397 03
Performance of low-pressure thermionic converters is evaluated			Braze alloys used as temperature indicators	NU-0063	B66-10274 01
ARG-10276	B69-10090	01	Union would facilitate joining of tubing, minimize braze contamination	MSC-777	B66-10311 05
Separation of traces of metal ions from sodium matrices			Use of steel and tantalum apparatus for molten Cd-Hg-Zn alloys	ARG-199	B66-10594 03
ARG-10341	B69-10168	03	Thermoelectric metal comparator determines composition of alloys and metals	ARG-235	B67-10035 01
Zone purification of potassium chloride			Recommended values of the thermophysical properties of eight alloys, their major constituents and oxides	NU-0095	B67-10062 03
ARG-10377	B69-10241	03	Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique	ARG-277	B67-10324 03
Channel-wall limitations in the magnetohydrodynamic induction generator			Braze joint quality tested electromagnetically	M-FS-12795	B67-10333 01
ARG-10128	B69-10255	02	Development of technology for hot-drape forming of large torus sections	M-FS-12141	B67-10341 05
Production of solvated electrons			Study made of procedures for externally loading and corrosion testing stress corrosion specimens	M-FS-12064	B67-10451 03
ARG-10416	B69-10430	03			
Self-discharge in bimetallic cells containing alkali metal					
ARG-10347	B69-10631	01			
Device separates hydrogen from solution in water at ambient temperatures					
MSC-13335	B69-10635	03			
ALKALIES					
Method of welding joint in closed vessel improves quality of seam					
JPL-170	B63-10139	05			
Electroless nickel resist used in alkali etching of aluminum					
GSFC-284	B65-10162	03			
Chemical milling solution produces smooth surface finish on aluminum					
MSC-549	B66-10312	03			
Primary radical yields in pulse irradiated alkaline aqueous solution					
ARG-10322	B69-10167	02			
ALKALINE BATTERIES					
Apparatus measures swelling of membranes in electrochemical cells					
GSFC-280	B65-10087	01			
Composite seal reduces alkaline battery leakage					
GSFC-337	B65-10271	01			
Hermetically sealed cells protected from					

SUBJECT INDEX

ALTERNATING CURRENT

Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes NUC-10143	B67-10665	06	Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter NUC-10044	B67-10222	06
Twin solution calorimeter determines heats of formation of alloys at high temperatures ARG-10114	B68-10083	01	Encode/Decode facility for FORTRAN 4 ARG-10335	B69-10169	06
High temperature alloy LEWIS-10377	B68-10253	03	ALTERNATING CURRENT Dc to ac converter operates efficiently at low input voltages GSFC-130	B65-10178	01
Dual wire weld feed proportioner M-PS-18037	B68-10332	05	Logic circuit exhibits optimum performance LANGLEY-129	B65-10193	01
Electromotive series established for metals used in aerospace technology M-PS-18327	B68-10385	03	Field effect transistor presents high input impedance in ac amplifier JPL-500	B65-10232	01
Levitation-melting technique for metals and alloys ARG-10240	B69-10006	03	High-speed square-wave current limiter operates efficiently JPL-SC-073	B65-10233	01
Welding, brazing, and soldering handbook M-PS-20504	B69-10264	05	Added diodes increase output of balanced mixer circuit GSFC-354	B65-10276	01
Metallic diffusion measured by a modified Knudsen technique HQ-10145	B69-10309	03	Electrostatically driven dynamic capacitor employs capacitive feedback JPL-771	B65-10293	01
Improved method of producing oxide-dispersion-strengthened alloys HQ-10461	B69-10536	03	Vibrating diaphragm measures high electrostatic field strengths MSC-189	B65-10352	01
Technique for predicting the thermal expansion coefficients of cryogenic metallic alloys NUC-10554	B69-10707	02	Noncontacting vibration transducer has constant sensitivity LANGLEY-99	B65-10392	01
ALPHA PARTICLES Instrument performs nondestructive chemical analysis, data can be telemetered JPL-SC-078	B65-10317	01	Dual-voltage power supply has increased efficiency LEWIS-107A	B66-10002	01
Self-supported aluminum thin films produced by vacuum deposition process ARG-58	B66-10387	03	Two-light circuit continuously monitors ac ground, phase, and neutral wires MSC-356	B66-10163	01
Status of ultrachemical analysis for semiconductors M-PS-2254	B67-10138	03	Substituting transistor for diode improves rectifying means GSFC-474	B66-10295	01
Alpha particle backscattering measurements used for chemical analysis of surfaces ARG-116	B67-10186	03	Solid state detectors monitor relay contacts JPL-785	B66-10396	01
Aluminum-titanium hydride-boron carbide composite provides lightweight neutron shield material NUC-10069	B67-10265	03	Electronic bidirectional valve circuit prevents crossover distortion and threshold effect MSC-193	B66-10420	01
Training course for radiation safety technicians ARG-216	B67-10477	02	Remote preamplifier circuit maintains stability over wide temperature range WOO-278	B66-10432	01
Neutron irradiation of Am-241 effectively produces curium ARG-10030	B67-10501	03	Shaft encoder presents digital output JPL-SC-191	B66-10436	01
Compilation of detection sensitivities in thermal-neutron activation ARG-10068	B67-10641	03	Thermionic scanner pinpoints work function of emitter surfaces JPL-SC-177	B66-10444	01
Isothermal drop calorimeter provides measurements for alpha active, pyrophoric materials ARG-10186	B69-10002	02	Rectilinear accelerometer possesses self-calibration feature M-PS-1480	B66-10452	01
Recent development in organic scintillators ARG-10344	B69-10198	03	Instrument automatically selects peak acceleration signal from several accelerometers JPL-816	B66-10462	01
ALPHANUMERIC CHARACTERS Density trace made with computer printout GSFC-322	B65-10200	01	Solid state circuit switches ac load JPL-798	B66-10465	01
Automated drafting system uses computer techniques M-PS-788	B66-10362	01	Simple technique determines ac properties of hard superconductive materials M-PS-1818	B66-10657	02
			Instrument sequentially samples ac signals from several accelerometers JPL-884	B67-10029	01

ALTIMETERS

SUBJECT INDEX

Plotter design simplifies determination of image sensor transfer characteristic NPO-10164	B67-10206	01	JPL-398	B63-10251	05
Glow discharge density sensor probe life is extended M-FS-1707	B67-10229	01	Novel clamps align large rocket cases, eliminate back-up bars M-FS-1	B63-10376	05
Improved television signal processing system NPO-10140	B67-10246	01	Flexible honeycomb structure can bend to fit compound curves M-FS-13	B63-10385	05
Vibrator elapsed time is automatically controlled M-FS-2573	B67-10284	01	Portable flooring protects finished surfaces, is easily moved M-FS-15	B63-10387	05
Portable spectrometer monitors inert gas shield in welding process M-FS-12144	B67-10326	02	Improved sensor counts micrometeoroid penetrations LEWIS-76	B63-10443	01
General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-FS-13094	B67-10331	06	Built-in templates speed up process for making accurate models LANGLEY-23	B63-10526	05
High power dc/dc and dc/ac electrical power conversion techniques developed M-FS-13227	B67-10390	01	Hot-air soldering technique prevents overheating of electrical components GSFC-91	B63-10536	01
Stable ac phase and amplitude comparator M-FS-13086	B67-10459	01	Unmanned seismometer levels self, corrects drift errors GSFC-100	B63-10551	01
Precision bolometer bridge MSC-11473	B68-10156	01	Plastic molds reduce cost of encapsulating electric cable connectors M-FS-69	B63-10568	05
Semiconductor ac static power switch LEWIS-10344	B68-10224	01	Simple transducer measures low heat-transfer rates JPL-466	B64-10122	01
Analysis and design of a class-D amplifier M-FS-14803	B68-10313	01	Stringent cleaning technique assures reliable epoxy bond GSFC-161	B64-10142	03
Concept to convert electrical power GSFC-10222	B68-10321	01	Solder flux leaves corrosion-resistant coating on metal JPL-611	B64-10206	03
Spectrographic analysis of bismuth-tin eutectic alloys by spark-ignited low-voltage ac-arc excitation ARG-10288	B69-10081	03	Fine-mesh screen made by simplified method WOO-104	B64-10282	03
Plasma-heating by induction LEWIS-10528	B69-10185	02	Thermistor connector assembly increases accuracy of measurements LANGLEY-62	B65-10045	01
Generation of sonic power during welding M-FS-20339	B69-10404	05	Microparticle impact sensor measures energy directly GSFC-252	B65-10048	01
Synchronous charge-constrained electroquasistatic generator HQ-10231	B69-10461	01	Magnetic field test coils are temperature compensated GSFC-294	B65-10081	02
ALTIMETERS Frequency offset in linear FM/CW transponder eliminates clutter M-FS-249	B65-10146	01	Transducer senses displacements of panels subjected to vibration ARC-37	B65-10085	01
ALTITUDE Scanning photometer system automatically determines atmospheric layer height MSC-245	B66-10170	01	Lightweight aluminum casting alloy is useful at cryogenic temperatures M-FS-267	B65-10092	03
ALUMINATES Refractory thermal insulation for smooth metal surfaces M-FS-160	B64-10099	03	Cutter and stripper reduces coaxial cable connection time ARC-40	B65-10094	05
Chemical milling solution produces smooth surface finish on aluminum MSC-549	B66-10312	03	Magnets position X-ray film for weld inspection M-FS-253	B65-10110	05
ALUMINUM Chain friction system gives positive, reversible drive ARC-8	B63-10009	05	Galvanic corrosion reduced in aluminum fabrications M-FS-272	B65-10140	03
Method of welding joint in closed vessel improves quality of seam JPL-170	B63-10139	05	Electroless nickel resist used in alkali etching of aluminum GSFC-284	B65-10162	03
Helium tube separates nitrogen gas from liquid nitrogen			Epoxy-resin patterns speed shell-molding of aluminum parts M-FS-303	B65-10177	05

SUBJECT INDEX

ALUMINUM CONT

Weld leaks rapidly and safely detected M-FS-362	B65-10265	01	ARC-58	B66-10387	03
Anodization process produces opaque, reflective coatings on aluminum M-FS-348	B65-10336	03	System for etching thick aluminum layers minimizes bridging and undercutting M-FS-1366	B66-10400	03
Electromagnetic hammer removes weld distortions from aluminum tanks M-FS-287	B65-10342	05	Special tool kit aids heavily garmented workers MSC-163	B66-10403	05
Fastener distributes stress evenly from sandwich-panel-hung items MSC-236	B65-10358	05	New backup-bar groove configuration improves heliarc welding of 2014-T6 aluminum MSC-806	B66-10443	05
Improved wire memory matrix uses very little power JPL-SC-167	B65-10359	01	Rectilinear accelerometer possesses self- calibration feature M-FS-1480	B66-10452	01
High-intensity flashing beacon powered by mercury cells LANGLEY-80	B65-10361	01	Heat treatment stabilizes welded aluminum jigs and tool structures MSC-800	B66-10458	03
PTFE-aluminum films serve as neutral density filters LANGLEY-189	B66-10017	02	Heat flux sensor design reduces extraneous source effects MSC-400	B66-10531	01
Flexible protective coatings made from silicon-nitrogen materials M-FS-528	B66-10027	03	Nonelectrolytic tantalum capacitors developed M-FS-1546	B66-10552	01
Reflective insulator layers separated by bonded silica beads MSC-215	B66-10070	03	Device accurately measures and records low gas-flow rates M-FS-1077	B66-10569	01
New television camera eliminates vidicon tube M-FS-472	B66-10112	01	Lateral ring metal elastic wheel absorbs shock loading M-FS-1312	B66-10663	05
Chart case opens to form briefing easel MSC-349	B66-10135	05	Mechanism facilitates coating of inner surfaces of metal cylinders GSPC-515	B66-10698	05
Cryogenic trap valve has no moving parts M-FS-487	B66-10136	05	Air bearing provides friction-free support for shaker system slip table NU-0086	B66-10708	05
Bismuth alloy potting seals aluminum connector in cryogenic application WOO-260	B66-10138	03	Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels ARG-232	B67-10032	03
Aluminum doping improves silicon solar cells LEWIS-206	B66-10181	02	Nonwoven glass fiber mat reinforces polyurethane adhesive M-FS-2309	B67-10113	03
Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02	Silver plating ensures reliable diffusion bonding of dissimilar metals M-FS-1975	B67-10124	03
Adjustable knife cuts honeycomb material to specified depth MSC-475	B66-10237	05	Cryogenic seal remains leaktight during thermal displacement ARG-96	B67-10134	02
Jig protects transistors from heat while tinning leads MSC-515	B66-10240	05	Thin film process forms effective electrical contacts on semiconductor crystals M-FS-2343	B67-10142	01
Pressure-welded flange assembly provides leaktight seal at reduced bolt loads M-FS-640	B66-10247	05	Inexpensive cryogenic insulation replaces vacuum jacketed line NUC-10061	B67-10264	02
Critical parts are stored and shipped in environmentally controlled reusable container M-FS-703	B66-10258	05	Aluminum-titanium hydride-boron carbide composite provides lightweight neutron shield material NUC-10069	B67-10265	03
High-speed furnace uses infrared radiation for controlled brazing NU-0047	B66-10268	02	Pipe joints reinforced in place with fitted aluminum sleeves MSC-11109	B67-10271	05
Fixed vacuum plate clamps styrofoam for machining M-FS-683	B66-10283	05	Method of improving contact bonds in silicon integrated circuits M-FS-1753	B67-10335	01
Chemical milling solution produces smooth surface finish on aluminum MSC-549	B66-10312	03	Low-energy gamma ray inspection of brazed aluminum joints MSC-1189	B67-10337	02
Hollow spherical rotors fabricated by electroplating JPL-SC-117	B66-10366	05	Crack growth measured on flat and curved surfaces at cryogenic temperatures		
Self-supported aluminum thin films produced by vacuum deposition process					

ALUMINUM ALLOYS

SUBJECT INDEX

LEWIS-389	B67-10384	01	An improved atomic hydrogen frequency and time standard GSPC-10706	B69-10341	02
Study made of anodized aluminum circuit boards M-FS-13580	B67-10425	01	Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03
Aluminum heat sink enables power transistors to be mounted integrally with printed circuit board M-FS-13663	B67-10426	01	One-handed hammer-spanner for chucks M-FS-18581	B69-10398	05
Aluminum and stainless steel tubes joined by simple ring and welding process M-FS-13120	B67-10472	05	Radiographic threshold detection levels of aluminum weld defects M-FS-20487	B69-10418	01
Tool samples subsurface soil free of surface contaminants MSC-10988	B67-10473	05	A method for precision anodize stripping MSC-15040	B69-10581	03
Lead plated aluminum ring provides static high pressure seal for large diameter pressure vessel NUC-10008	B67-10539	05	Sprayed shielding of plastic-encapsulated electronic modules M-FS-13570	B69-10607	01
Study of corrosion of 1100 aluminum ARG-10045	B67-10578	03	Electron interaction in matter M-FS-14886	B69-10674	02
Laminated sheet composites reinforced with modular filament sheet M-FS-14575	B68-10146	03	Reducing contact resistance at semiconductor to metal or aluminum to metal interfaces ERC-10254	B69-10689	01
Study reveals effect of aluminum on saturation moment of Fe-Ni alloys ARG-90259	B68-10172	03	Mixed ether bath for electrodeposition of aluminum LANGLEY-10200	B69-10737	03
Conceptual dead weight device to provide pressure calibration M-FS-14672	B68-10264	01	Surface-renewal models for heat-transfer between walls and fluidized beds ARG-10372	B69-10772	02
Thermal protective visor for entering high temperature areas MSC-10285	B68-10277	05	ALUMINUM ALLOYS		
Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide ARG-10154	B68-10293	02	Break-up of metal tube makes one-time shock absorber, bars rebound LANGLEY-1A	B63-10304	05
Improved electro-optical tracking system M-FS-14791	B68-10311	01	Upsetting butt edge increases weld-joint strength M-FS-175	B64-10164	05
Compressible sleeve provides automatic centering for grinding or turning of cylinders SAN-10021	B68-10318	05	Lightweight aluminum casting alloy is useful at cryogenic temperatures M-FS-267	B65-10092	03
Microprobe investigation of brittle segregates in aluminum MIG and TIG welds M-FS-14720	B68-10334	03	Aluminum alloys protected against stress-corrosion cracking M-FS-235	B65-10172	03
X-ray film holder permits single continuous picture of tubing joint LEWIS-10382	B68-10343	05	Anodization process produces opaque, reflective coatings on aluminum M-FS-348	B65-10336	03
Nickel base alloy with improved stress rupture properties LEWIS-10283	B68-10344	03	Aluminum oxide filler prevents obstructions in tubing during welding MSC-222	B66-10125	05
One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06	Diffusion technique stabilizes resistor values MSC-205	B66-10142	01
Heat-load simulator for heat sink design MSC-15170	B68-10510	02	White primer permits a corrosion-resistant coating of minimum weight M-FS-304	B66-10207	03
Isothermal drop calorimeter provides measurements for alpha active, pyrophoric materials ARG-10186	B69-10002	02	Nickel-base superalloys developed for high-temperature applications LEWIS-226	B66-10222	03
Electrochemical study of aluminum corrosion in boiling high purity water ARG-10306	B69-10033	03	Brazing process using Al-Si filler alloy reliably bonds aluminum parts MSC-448	B66-10241	05
High strength, superplastic superalloy LEWIS-10805	B69-10293	03	Aluminum/steel wire composite plates exhibit high tensile strength M-FS-401	B66-10262	05
Masking of aluminum surface against anodizing M-FS-12964	B69-10335	05	Differential expansion provides pressure for diffusion bonding of large diameter rings M-FS-588	B66-10269	05
			Valve seat pores sealed with thermosetting monomer M-FS-900	B66-10322	03

SUBJECT INDEX

ALUMINUM ALLOYS CONT

Bimetallic devices help maintain constant sealing forces down to cryogenic temperatures M-FS-800	B66-10325	02	Variable-speed, portable routing skate M-FS-13772	B67-10525	05
Brazing process provides high-strength bond between aluminum and stainless steel M-FS-803	B66-10352	05	Study of stress corrosion in aluminum alloys M-FS-13906	B67-10533	03
Suppressor plate eliminates undesired arcing during electron beam welding M-FS-1126	B66-10357	05	Study of crevice-galvanic corrosion of aluminum ARG-10013	B67-10583	03
Aluminum core structures brazed without use of flux M-FS-659	B66-10360	05	Mechanical shielding reduces weld surface cracking in 6061 T6 aluminum MSC-11494	B68-10022	05
Weldable aluminum alloy has improved mechanical properties M-FS-295	B66-10445	03	Study of crack initiation phenomena associated with stress corrosion of aluminum alloys M-FS-14283	B68-10153	03
Thermal stress-relief treatments for 2219 aluminum alloy are evaluated M-FS-1213	B66-10448	03	Stress-corrosion characteristics of aluminum casting alloy M-45 M-FS-14817	B68-10184	03
Electroless nickel plating on stainless steels and aluminum GSPC-533	B66-10479	03	Welding of commercial base plates is investigated M-FS-13649	B68-10192	03
Composite bulkhead fabrication development M-FS-1264	B66-10582	05	Resistivity measurements of neutron-irradiated pure metals and Al-Zn alloys ARG-10108	B68-10200	03
Treatment increases stress-corrosion resistance of aluminum alloys M-FS-1840	B66-10595	05	Effects of surface preparation on quality of aluminum alloy weldments M-FS-13152	B68-10302	03
New weldable high strength aluminum alloy developed for cryogenic service M-FS-737	B66-10613	05	Fiber glass reinforced structural materials for aerospace application M-FS-14806	B68-10360	03
Preformed stiffeners used to fabricate structural components for pressurized tanks M-FS-1796	B66-10688	05	Tungsten fiber-reinforced nickel superalloy LEWIS-10424	B68-10369	03
Tests show that aluminum welds are improved by bead removal M-FS-1817	B67-10023	05	Effects of high frequency current in welding aluminum alloy 6061 M-FS-18337	B68-10383	05
Materials data handbooks prepared for aluminum alloys 2014, 2219, and 5456, and stainless steel alloy 301 M-FS-1959	B67-10089	03	Improved thermal treatment of aluminum alloy 7075 M-FS-20083	B68-10534	05
Heat treatment study of aluminum casting alloy M-45 M-FS-2397	B67-10159	03	A rapid stress-corrosion test for aluminum alloys M-FS-20175	B68-10536	03
Effect of welding position on porosity formation in aluminum alloy welds M-FS-2318	B67-10177	05	Weld joint strength and mechanical properties in 2219-T81 aluminum alloy LEWIS-10479	B68-10561	03
Continuous internal channels formed in aluminum fusion welds M-FS-2399	B67-10183	05	Stress-corrosion-induced property changes in aluminum alloys M-FS-20209	B68-10568	03
Materials data handbook, aluminum alloy 7075 M-FS-2349	B67-10301	03	Corrosion reduction of aluminum alloys in flowing high-temperature water ARG-10244	B69-10029	03
Study made of ductility limitations of aluminum-silicon alloys M-FS-12524	B67-10392	03	Welded repairs of punctured thin-walled aluminum pressure vessels M-FS-14836	B69-10051	05
Study made to establish parameters and limitations of explosive welding M-FS-13006	B67-10393	05	Refractory oxide insulated thermocouple designed and analyzed for high temperature applications ARG-10202	B69-10053	03
Corrosion of aluminum alloys by chlorinated hydrocarbon/methanol mixtures MSC-11365	B67-10442	03	Materials data handbook, aluminum alloy 6061 M-FS-20381	B69-10065	03
Study made of procedures for externally loading and corrosion testing stress corrosion specimens M-FS-12064	B67-10451	03	Improved pH buffering agent for sodium hypochlorite MSC-15443	B69-10084	03
Acid spray technique mills aluminum alloy materials without immersion M-FS-12500	B67-10463	03	Techniques for controlling warpage and residual stresses in welded structures M-FS-20307	B69-10086	05

ALUMINUM CHLORIDES

SUBJECT INDEX

Corrosion protection of aluminum alloys in contact with other metals M-FS-18526	B69-10098	03	Dry film lubricant is effective at extreme loads M-FS-628	B66-10256	03
Mixing weld gases offers advantages M-FS-16413	B69-10145	05	ALUMINUM OXIDES		
Renewal of corrosion protection of coated aluminum after welding M-FS-20361	B69-10150	05	Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen LEWIS-15	B63-10340	05
Astronaut's tool for withdrawing/replacing computer cards M-FS-20453	B69-10183	05	Gate valve with ceramic-coated base operates at high temperatures ARC-23	B63-10562	03
Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456	B69-10192	03	Fabrication method produces high-grade alumina crucibles M-FS-216	B65-10078	05
Tool simplifies machining of pipe ends for precision welding KSC-10361	B69-10231	05	Special coatings control temperature of structures GSFC-444	B65-10337	03
Handbook for design of containers of fluids and gases for spacecraft M-FS-20502	B69-10279	05	Hydrogen-atmosphere induction furnace has increased temperature range LEWIS-153	B66-10055	05
A biaxial weld strength prediction method M-FS-20019	B69-10471	05	Aluminum oxide filler prevents obstructions in tubing during welding MSC-222	B66-10125	05
Boron fiber-reinforced aluminum alloy tubing /experimental/ MSC-15633	B69-10509	05	Fibers of newly developed refractory ceramics produced by improved process WOO-169	B66-10196	03
Testing the flammability of materials exposed to arcs MSC-15225	B69-10531	03	Chromium oxide coatings improve thermal emissivity of alumina WOO-263	B66-10227	03
Explosive bonding of metal-matrix composites M-FS-20657	B69-10804	05	Improved thermal insulation materials made of foamed refractory oxides M-FS-735	B66-10288	03
ALUMINUM CHLORIDES			Rubber and alumina gaskets retain vacuum seal in high temperature EMF cell ARG-17	B66-10472	05
Crack detection method is safe in presence of liquid oxygen M-FS-236	B65-10107	03	Crucible cast from beryllium oxide and refractory cement is impervious to flux and molten metal ARG-22	B66-10527	03
Mixed ether bath for electrodeposition of aluminum LANGLEY-10200	B69-10737	03	Ductile mandrel and parting compound facilitate tube drawing ARG-43	B66-10571	05
ALUMINUM COATINGS			Glass formulation has high coefficient of thermal expansion NU-0084	B66-10705	03
Fresnel cup reflector directs maximum energy from light source JPL-424	B63-10263	03	An improved soft X-ray photoionization detector GSFC-540	B67-10072	02
Aluminized fiber glass insulation conforms to curved surfaces M-FS-477	B66-10024	03	Xenon fluoride solutions effective as fluorinating agents ARG-217	B67-10133	03
Spray-on technique simplifies fabrication of complex thermal insulation blanket M-FS-497	B66-10053	03	Coating protects magnesium-lithium alloys against corrosion M-FS-2446	B67-10149	03
Process sequence produces strong, lightweight reflectors of excellent quality LEWIS-331	B67-10010	05	Tritiated alumina serves as reagent for self-labeling analysis ARG-209	B67-10315	03
Aluminized thin-window proportional-counter tube is stronger, more responsive in long wavelength region JPL-689	B67-10015	01	Metal flame spray coating protects electrical cables in extreme environment NUC-10077	B67-10351	03
Cone and column solar energy concentrator LANGLEY-210	B67-10517	01	Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01
Gage measures total radiation, including vacuum UV, from ionized high-temperature gases XNP-09802	B69-10028	02	A ceramic composite thermal insulation M-FS-13991	B67-10608	03
ALUMINUM COMPOUNDS			Multichip packaging with thermal insulation M-FS-14076	B68-10119	02
Inorganic paint is durable, fireproof, easy to apply GSFC-366	B65-10156	03	Manganese-alumina-ceramic glass eliminates		
Chromium oxide coatings improve thermal emissivity of alumina WOO-263	B66-10227	03			

- rigid controls necessary in bonding metals to ceramics
SAN-10012 B68-10204 03
- Characteristics of fluidized-packed beds
ARG-10049 B68-10278 03
- Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide
ARG-10154 B68-10293 02
- New bimetallic EMF cell shows promise in direct energy conversion
ARG-10183 B68-10415 01
- High dielectric thick films for screened circuit capacitors
LANGLEY-10294 B68-10542 01
- Corrosion reduction of aluminum alloys in flowing high-temperature water
ARG-10244 B69-10029 03
- Abrasion and resistant discharge valve developed
ARG-10219 B69-10044 05
- High temperature coatings for gas bearings
LEWIS-10793 B69-10200 03
- Improved method of producing oxide-dispersion-strengthened alloys
HQ-10461 B69-10536 03
- A comparison of two methods of measuring particle size of Al2O3 produced by a small rocket motor
NFO-11198 B69-10572 03
- ALUMINUM SILICATES**
- Improved thermal insulation materials made of foamed refractory oxides
M-FS-735 B66-10288 03
- Aluminum and stainless steel tubes joined by simple ring and welding process
M-FS-13120 B67-10472 05
- Transplutonium elements processed from rock debris of underground detonations
ARG-10222 B69-10054 03
- AMBIENT TEMPERATURE**
- Thermistor connector assembly increases accuracy of measurements
LANGLEY-62 B65-10045 01
- Detector measures power in 50 to 30,000 GHz radiation band
ERC-26 B66-10581 01
- Materials data handbook, aluminum alloy 7075
M-FS-2349 B67-10301 03
- Soft metal plating enables hard metal seal to operate successfully in low temperature, high pressure environment
NUC-10083 B67-10350 03
- Stabilizing stainless steel components for cryogenic service
M-FS-13127 B67-10377 05
- Technique eliminates high voltage arcing at electrode-insulator contact area
LEWIS-10133 B67-10470 01
- Improved atomic resonance gas cell for use in frequency standards
MSC-11666 B68-10230 01
- Fluidic-thermochromic display device
ERC-10031 B68-10350 01
- Investigation of temperature dependence of development and aging
ARG-10145 B69-10022 04
- Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes
ARG-10274 B69-10047 02
- Materials data handbook, aluminum alloy 6061
M-FS-20381 B69-10065 03
- A laboratory method for precisely determining the micro-volume-magnitudes of liquid efflux
ARC-10052 B69-10295 05
- Development and test of flexible film coupon strips for use as a sampling technique
M-FS-20448 B69-10339 03
- Self-lubricating gear
M-FS-14971 B69-10408 05
- Nondestructive determination of cohesive strength of adhesive-bonded composites
M-FS-20397 B69-10464 03
- Inhibition of browning in foodstuffs
HQ-10177 B69-10493 04
- Epitaxial crystalline growth upon cold substrates
MSC-11196 B69-10494 01
- A new method for fabrication of flexible vacuum purge jackets
M-FS-12646 B69-10564 03
- Balloon batteries, charged and heated by solar energy
GSFC-10769 B69-10585 01
- Device separates hydrogen from solution in water at ambient temperatures
MSC-13335 B69-10635 03
- Thermal conductivity probe
M-FS-20566 B69-10780 03
- AMBIGUITY**
- Parallel line raster eliminates ambiguities in reading timing of pulses less than 500 microseconds apart
JPL-805 B66-10386 01
- AMBULANCES**
- Electrocardiograph transmitted by RF and telephone links in emergency situations
FRC-10031 B68-10233 01
- AMERICIUM**
- Apparatus for fabrication of americium-beryllium neutron sources prevents capsule contamination
ARG-184 B67-10202 05
- Portable, high intensity isotopic neutron source provides increased experimental accuracy
ARG-90250 B68-10243 02
- Study of actinide chemistry in saturated potassium fluoride solution
ARG-10204 B69-10004 03
- AMERICIUM 241**
- Alpha particle backscattering measurements used for chemical analysis of surfaces
ARG-116 B67-10186 03
- Low-energy gamma ray inspection of brazed aluminum joints
MSC-1189 B67-10337 02
- Neutron irradiation of Am-241 effectively produces curium
ARG-10030 B67-10501 03
- Detection sensitivities in 3-8 MeV

AMINES

SUBJECT INDEX

neutron activation
ARG-10210 B68-10298 02

AMINES

Sprayable birefringent coating enables strain measurements on large surfaces
M-FS-1484 E66-10578 03

Gas chromatographic column enables analysis of propellant hydrazines
MSC-1161 B66-10586 03

Flowmeter determines mix ratio for viscous adhesives
M-FS-2308 E67-10378 01

Synthesis of pure aromatic glycidyl esters for use as adhesives
M-FS-12705 E67-10647 03

AMINO ACIDS

Rate constants measured for hydrated electron reactions with peptides and proteins
ARG-10195 E68-10424 04

Purification and characterization of two fully deuterated enzymes
ARG-10314 B69-10207 04

Microdetermination of urea in urine using p-dimethylaminobenzaldehyde /PDAB/
NFO-10715 B69-10317 04

Inhibition of browning in foodstuffs
HQ-10177 B69-10493 04

ANNETTERS

Braze joint quality tested electromagnetically
M-FS-12795 B67-10333 01

Areas of irregular, discontinuous patterns rapidly and accurately measured
GSFC-10184 B67-10674 01

ANNONIA

Silazane elastomer remains resilient at 400 deg C
M-FS-1144 B66-10667 05

Development of low temperature battery
LEWIS-10326 B67-10546 01

Preparation of silver-activated zinc sulfide thin films
GSFC-10687 B68-10271 03

Laser action from a terbium beta-ketoenolate at room temperature
GSFC-10593 B69-10324 02

AMMONIUM CHLORIDES

Zone purification of potassium chloride
ARG-10377 B69-10241 03

AMMONIUM COMPOUNDS

Ceric and ferrous dosimeters show precision for 50-5000 rad range
ARG-10173 B68-10426 02

Transplutonium elements processed from rock debris of underground detonations
ARG-10222 B69-10054 03

AMMONIUM PERCHLORATES

Addition of solid oxidizer increases liquid fuel specific impulse
JPL-861 B67-10058 03

AMOEBAS

Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations
ARG-251 B67-10305 04

Stratification of centrifuged amoeba nuclei investigated by electron microscopy
ARG-10161 B68-10366 04

AMORPHOUS MATERIALS

Selenium bond decreases ON resistance of light-activated switch
JPL-SC-101 B65-10324 01

AMOUNT

Rapid and precise analysis for calcium in blood serum
ARG-10246 B69-10160 04

Substitution of stable isotopes in Chlorella
ARG-10258 B69-10197 04

AMPLIFICATION

Temperature transducer has high output, is time stable
GSFC-446 B65-10362 01

Automatic gain control circuit handles wide input range
MSC-166 B66-10089 01

High-performance RC bandpass filter is adapted to miniaturized construction
ARC-60 B66-10309 01

Neon isotopes cancel errors in gas laser
M-FS-1476 B66-10583 02

Study made of application of stereoscopic display system to analog computer simulation
M-FS-1263 B66-10590 01

Treatment increases stress-corrosion resistance of aluminum alloys
M-FS-1840 B66-10595 05

MOSFET analog memory circuit achieves long duration signal storage
M-FS-860 B66-10603 01

Field effect transistors improve buffer amplifier
M-FS-916 B67-10334 01

Limit circuit prevents overdriving of operational amplifier
NUC-10082 B67-10343 01

Infrared radiometer
M-FS-13373 B67-10422 01

Electrocardiograph transmitted by RF and telephone links in emergency situations
FRC-10031 B68-10233 01

Amplifier improvement circuit
LEWIS-10712 B68-10456 01

Rectangular-bore, high-gain laser plasma tube
HQ-10234 B69-10193 02

Automatic Gaussian random-noise limiter
NFO-10169 B69-10349 01

A positive taper traveling-wave tube
LANGLEY-10263 B69-10407 01

AMPLIFIER DESIGN

Amplifier improvement circuit
LEWIS-10712 B68-10456 01

Active rc filter permits easy trade-off of amplifier gain and sensitivity to gain
ARC-10042 B68-10539 01

AMPLIFIERS

Improved variable-reluctance transducer measures transient pressures
LANGLEY-10 B63-10321 01

Rapid helium-air analyzer can measure other binary gas mixtures
LANGLEY-16 B63-10557 03

Device calibrates vibration transducer at amplitudes up to 20 g

SUBJECT INDEX

AMPLIFIERS CONT

M-FS-86	B63-10572	01	GSFC-350	B65-10242	01
Improved insertion-loss tester JPL-358	B64-10080	01	Electromechanical flowmeter accurately monitors fluid flow GSFC-357	B65-10273	01
Field-effect transistor improves electrometer amplifier ARC-36	B64-10143	01	Hybrid circuit achieves pulse regeneration with low power drain GSFC-382	B65-10314	01
Field effect transistors used as voltage controlled resistors M-FS-174	B64-10163	01	Frequency discriminator with binary output eliminates tuned circuits M-FS-376	B65-10349	01
Digital cardiometer computes and displays heartbeat rate MSC-93	B64-10258	01	Seismometer designed for remote operation in random orientation JPL-320	B66-10085	01
Radiation-detector optical-imaging device is of simplified construction GSFC-251	B64-10299	01	Single-sideband modulator accurately reproduces phase information in 2-Mc signals M-FS-664	B66-10437	01
Voltage generator sweeps oscillator frequency linearly with time M-FS-219	B64-10320	01	Instrument automatically selects peak acceleration signal from several accelerometers JPL-816	B66-10462	01
Bandwidth switching is transient-free, avoids loss of loop lock WOO-054	B64-10349	01	Digital system provides superregulation of nanosecond amplifier-discriminator circuit ARG-61	B66-10500	01
Circuit converts AM signals to FM for magnetic recording GSFC-227	B65-10001	01	Helmet system broadcasts electroencephalograms of wearer ARC-70	B66-10536	01
Inexpensive, stable circuit measures heart rate MSC-95	B65-10010	01	Monitoring circuit accurately measures movement of solenoid valve M-FS-1829	B66-10568	01
Stepping motor drive circuit designed for low power drain GSFC-198	B65-10026	01	Electronic circuit provides accurate sensing and control of dc voltage NU-0089	B66-10591	01
Synchronized pulse generator needs no external power GSFC-274	B65-10072	01	Fluid logic control circuit operates nutator actuator motor LEWIS-294	B66-10593	05
System measures angular displacement without contact LANGLEY-46	B65-10073	01	Miniature telemetry system accurately measures pressure ARC-74	B66-10624	01
Photoelectric sensor output controlled by eyeball movements M-FS-274	B65-10079	01	Electrometer amplifier operates over dynamic range of five orders of magnitude ARC-75	B67-10199	01
Phase detector circuit synthesizes own reference signal M-FS-247	B65-10080	01	Solid state phase detector replaces bulky transformer circuit MSC-11007	B67-10253	01
System selects framing rate for spectrograph camera LANGLEY-55	B65-10086	01	Absolute frequency stabilization of laser oscillator against laser amplifier M-FS-2559	B67-10255	01
Digital system accurately controls velocity of electromechanical drive GSFC-287	B65-10096	01	SiC/Si diode trigger circuit provides automatic range switching for log amplifier M-FS-1879	B67-10314	01
Variable voltage supply uses Zener diode as reference GSFC-262	B65-10097	01	Field effect transistors improve buffer amplifier M-FS-916	B67-10334	01
Simple circuit functions as frequency discriminator for PFM signals GSFC-267	B65-10102	01	Accuracy of laser measurements improved by pulse autocorrelator electronic system MSC-10033	B67-10338	01
Traveling-wave tube circuit simplifies microwave relay GSFC-299	B65-10127	01	Vibration analysis utilizing Mossbauer effect M-FS-11974	B67-10339	01
Instrument calibrates low gas-rate flowmeters MSC-134	B65-10137	01	Digital-to-analog converter operates from low level inputs JPL-907	B67-10357	01
Logarithmic amplifier uses field effect transistors JPL-509	B65-10145	01	Machine tests slow-speed sliding friction in high vacuum M-FS-12341	B67-10379	05
Instrument accurately measures extremely low air densities M-FS-193	B65-10221	01	Control apparatus for spectral energy source		
Electrometer has automatic zero bias control					

AMPLITUDE DISTRIBUTION ANALYSIS

SUBJECT INDEX

LEWIS-391	B67-10404	01	Simple, accurate automatic frequency control circuit		
Stable ac phase and amplitude comparator			KSC-10393	B69-10323	01
M-FS-13086	B67-10459	01	Design of a strain-gage probe		
Series transistors isolate amplifier from flyback voltage			ARG-10338	B69-10343	05
MSC-11023	B67-10468	01	Pressure transducer		
Blood pressure reprogramming adapter assists signal recording			NPO-10853	B69-10364	01
MSC-265	B67-10475	01	Accurate nine-decade temperature-compensated logarithmic amplifier		
Improved circuit for measuring capacitive and inductive reactances			ARG-10480	B69-10429	01
M-FS-13083	B67-10513	01	Nondestructive determination of cohesive strength of adhesive-bonded composites		
Solid state zero-bias bilateral switch			M-FS-20397	B69-10464	03
GSFC-532	B67-10559	01	Magnetic field mapper		
Cardiotachometer with linear beat-to-beat frequency response			LEWIS-10782	B69-10476	01
ARC-10033	B67-10598	01	Radiometric temperature reference		
Input gate circuit converted for use as linear amplifier			MSC-13276	B69-10507	01
M-FS-14265	B68-10015	01	Seismographic recording of large rocket engine operation		
Improved traveling wave maser amplifier			M-FS-20545	B69-10756	01
NPO-10548	B68-10244	01	AMPLITUDE DISTRIBUTION ANALYSIS		
Noise figure measurement concept for acoustic amplifiers			Hybrid computer technique yields random signal probability distributions		
GSFC-10066	B68-10272	01	ARC-34	B65-10208	01
Viscosity and density of methanol/water mixtures at low temperatures			Alpha particle backscattering measurements used for chemical analysis of surfaces		
M-FS-14991	B68-10274	03	ARG-116	B67-10186	03
Analysis and design of a class-D amplifier			Survey of man-made electrical noise affecting radio broadcasting		
M-FS-14803	B68-10313	01	HQ-10290	B69-10308	01
Temperature or pressure controller			Optimum FM pre-emphasis		
LEWIS-10297	B68-10337	01	KSC-10151	B69-10359	01
Improved radiographic image amplifier panel			AMPLITUDE MODULATION		
M-FS-14522	B68-10363	02	Solid-state laser transmitter is amplitude modulated		
Improved communication system for large operations center			MSC-121	B65-10238	01
M-FS-15016	B68-10529	01	Electronic bidirectional valve circuit prevents crossover distortion and threshold effect		
Active rc filter permits easy trade-off of amplifier gain and sensitivity to gain			MSC-193	B66-10420	01
ARC-10042	B68-10539	01	Neon isotopes cancel errors in gas laser		
Design of dissipative linear phase filters			M-FS-1476	B66-10583	02
M-FS-14698	B68-10572	01	Optical superheterodyne receiver uses laser for local oscillator		
Microelectronic oscillator			M-FS-1605	B66-10584	01
GSFC-10375	B69-10064	01	Monitor assures availability and quality of communication channels		
Electronic visualization of gas bearing behavior			KSC-66-38	B67-10028	01
LEWIS-10711	B69-10073	01	Absolute frequency stabilization of laser oscillator against laser amplifier		
Active frequency control system for argon FM laser			M-FS-2559	B67-10255	01
M-FS-14988	B69-10099	02	Multichannel pulse height analyzer is inexpensive, features low power requirements		
Improved phase-shift-keyed detector			HQN-10020	B67-10258	01
M-FS-20064	B69-10101	01	Stable ac phase and amplitude comparator		
One hundred MHz voltage-controlled oscillator			M-FS-13086	B67-10459	01
NPO-11004	B69-10133	01	Facsimile video enhancement device		
Multichannel analyzers at high rates of input			GSFC-10185	B68-10207	01
ARG-10355	B69-10214	02	Synthesis of electro-optic modulators for amplitude modulation of light		
Self-shielding printed circuit boards for high frequency amplifiers and transmitters			M-FS-14268	B68-10275	02
HQ-10433	B69-10314	01	Improved limiter for turn-on current transient		
Field Effect Transistor /FET/ circuit for variable gain amplifiers			GSFC-10413	B68-10384	01
GSFC-10116	B69-10322	01	New passive telemetry system		

SUBJECT INDEX

ANALOG DATA

HQ-10214	B69-10312	01	Electronic skewing circuit monitors exact position of object underwater	NUC-10146	B67-10629	01
Energy-storage of a prescribed impedance	NPO-10303	B69-10380	01	Pneumatic analog-to-pulse frequency converter	LEWIS-10345	B69-10276 02
AMPLITUDES			Current-switching technique for analog pulse circuits			ARG-10479 B69-10445 01
Increased performance reliability obtained with dual /redundant/ oscillator system	GSFC-36	B63-10027	01	ANALOG COMPUTERS		
Device calibrates vibration transducer at amplitudes up to 20 g	M-FS-86	B63-10572	01	Zener diode function generator requires no external reference voltage	JPL-0031	B65-10013 01
Simple device produces accelerometer calibration pulse	M-FS-363	B65-10269	01	Hybrid computer technique yields random signal probability distributions	ARC-34	B65-10208 01
Noncontacting vibration transducer has constant sensitivity	LANGLEY-99	B65-10392	01	Scanning photometer system automatically determines atmospheric layer height	MSC-245	B66-10170 01
Instrument automatically selects peak acceleration signal from several accelerometers	JPL-816	B66-10462	01	FET comparator detects analog signal levels without loading analog device	M-FS-503	B66-10224 01
Antenna simulator permits preinstallation system checkout	GSFC-522	B66-10518	01	Instrument calculates moments of inertia of complex plane figures	MSC-628	B66-10306 01
System precisely controls oscillation of vibrating mass	M-FS-1875	B67-10276	01	Human transfer functions used to predict system performance parameters	LANGLEY-203	B66-10379 01
Multiplexer uses insulated gate-field effect transistors	M-FS-13096	B67-10396	01	Automatic system determines moments of inertia of asymmetrical objects	M-FS-1769	B66-10636 01
Transient sensor development	M-FS-13370	B67-10471	01	Fluidic oscillator used as humidity sensor	LEWIS-340	B67-10063 05
Amplitude and frequency readout overlay	GSFC-10183	B68-10054	01	CINDA - Chrysler Improved Numerical Differencing Analyzer computer program	M-FS-2298	B67-10278 06
Large-amplitude inviscid fluid motion in an accelerating container	MSC-11560	B68-10170	02	Analog voicing detector responds to pitch	GSFC-10085	B67-10571 01
Electro-optic modulator for infrared laser using gallium arsenide crystal	GSFC-10686	B68-10255	02	Versatile analog pulse height computer performs real-time arithmetic operations	ARG-10052	B67-10626 06
Positive and negative output circuits	LEWIS-10715	B69-10151	01	Digital computer technique for setup and checkout of an analog computer	M-FS-13969	B68-10576 06
Instrumentation for nondestructive testing of composite honeycomb materials	M-FS-20405	B69-10366	03	Electronic visualization of gas bearing behavior	LEWIS-10711	B69-10073 01
Magnetic forming of resistive materials	M-FS-20417	B69-10397	03	Reducing quantizer deadband with a **range switching** digital filter	M-FS-20419	B69-10259 01
A theoretical study of radar backscatter from distributed targets with emphasis on polarization dependence	M-FS-13775	B69-10560	02	Electronic analog equalization for vibrational testing	NPO-10544	B69-10472 01
Pulse-height analyzer with digital readout	ARG-10503	B69-10640	01	Water-glycol system volume calculation	MSC-15193	B69-10563 02
AMPOULES			Airborne Fraunhofer Line Discriminator			MSC-13146 B69-10594 02
Radon gas, useful for medical purposes, safely fixed in quartz	ARG-2	B66-10468	04	ANALOG DATA		
ANALOG CIRCUITS			Auxiliary circuit enables automatic monitoring of ERG*S			MSC-106 B65-10142 01
Field-effect transistor replaces bulky transformer in analog-gate circuit	GSFC-351	B65-10284	01	Plant respirometer enables high resolution of oxygen consumption rates	HQ-47	B66-10406 04
Circuit measures hysteresis loop areas at 30 Hz	M-FS-13069	B67-10519	01	MOSFET analog memory circuit achieves long duration signal storage	M-FS-860	B66-10603 01
Analog buffer isolates high impedance source from low impedance load	M-FS-13481	B67-10544	01			

ANALOG SIMULATION

SUBJECT INDEX

Fast-response frequency-to-analog converter M-FS-709	B67-10257	01	without loading analog device M-FS-503	B66-10224	01
Multiplexer uses insulated gate-field effect transistors M-FS-13096	B67-10396	01	Computer program performs statistical analysis for random processes M-FS-723	B66-10525	01
Study made of acoustical monitoring for mechanical checkout M-FS-13372	B67-10430	02	Monitoring system determines amplitude and time of vibration channel peaks JPL-879	B66-10699	01
Automatic testing device facilitates noise checks and electronic calibrations LEWIS-10173	B67-10467	01	A conceptual, parallel operating data compression processor NPO-10068	B67-10204	01
Computer program for Video Data Processing System /VDPS/ NPO-10042	B67-10630	06	Multiplexer uses insulated gate-field effect transistors M-FS-13096	B67-10396	01
Dynamic linearity measurement technique KSC-10186	E68-10290	01	Automatic telemetry checkout system M-FS-12580	B67-10402	01
Two devices for analysis of nystagmus HQ-10273	E69-10224	01	Simple first order data compression processor concept NPO-10338	B67-10553	01
Improved VHF direction finding system M-FS-20439	B69-10378	01	Improved digital TV encoding and decoding system MSC-11147	B67-10562	01
Battery charge-discharge controller MSC-11836	B69-10747	01	Computer program for Video Data Processing System /VEPS/ NPO-10042	B67-10630	06
ANALOG SIMULATION			Linear analog dc voltage-to-pulse-width converter GSFC-556	B68-10003	01
Analog device simulates physiological waveforms MSC-51	B64-10109	01	Small, low power analog-to-digital converter M-FS-13954	B68-10016	01
Analog solar system model relates celestial bodies spatially JPL-195	B66-10413	01	High resolution Ge/Li/ spectrometer reduces rate-dependent distortions at high counting rates ARG-10144	B68-10420	01
Study made of application of stereoscopic display system to analog computer simulation M-FS-1263	B66-10590	01	Automatic calibration apparatus for telemetry systems NPO-10560	B68-10514	01
Computer program simulates physical systems by solving the simultaneous differential equations describing the systems NPO-10019	B67-10193	06	Mossbauer-effect data-collection system ARG-10282	B69-10027	01
Rocket engine analog simulation M-FS-14511	B68-10511	01	Improved phase-shift-keyed detector M-FS-20064	B69-10101	01
ANALOG TO DIGITAL CONVERTERS			Linear voltage-to-frequency converter GSFC-10546	B69-10220	01
Computer determines high-frequency phase stability GSFC-113	B63-10555	01	Highly linear, sensitive analog-to-digital converter MSC-13110	B69-10230	01
Field effect transistors used as voltage controlled resistors M-FS-174	B64-10163	01	Data processing method for a weak, moving telemetry signal NPO-11003	B69-10639	01
Pneumotachometer counts respiration rate of human subject MSC-92	E64-10259	01	Pulse-height analyzer with digital readout ARG-10503	B69-10640	01
Analog-to-digital converter has increased reliability and reduced power consumption GSFC-246	E65-10194	01	Biomedical bulk data processing program FRC-10015	B69-10720	06
Simple pulse counting circuit computes sum of squares GSFC-391	B65-10260	01	ANALOGS		
Electronic ohmmeter provides direct digital output GSFC-363	B65-10274	01	Thermal Network Analyzer Program NUC-10540	B69-10239	06
Nonlinear feedback reduces analog-to-digital converter error ARC-46	B65-10277	01	ANALYSIS (MATHEMATICS)		
Variable word length encoder reduces TV bandwidth requirements LANGLEY-87	B65-10345	01	Design techniques - Stochastic controllers MSC-11554	B68-10234	02
Control system maintains selected liquid level M-FS-470	B66-10039	01	New method for critical failure prediction of complex systems M-FS-14133	B68-10252	02
FET comparator detects analog signal levels			Two devices for analysis of nystagmus HQ-10273	B69-10224	01

SUBJECT INDEX

ANGLES (GEOMETRY)

Instrumentation for nondestructive testing of composite honeycomb materials M-FS-20405	B69-10366	03	ARG-10282	B69-10027	01
Sonic boom propagation in stratified atmosphere LANGLEY-10480	B69-10391	06	ANALYZING		
Root-cubing and general root-powering methods for finding the zeros of polynomials ARG-10444	B69-10424	02	Computer program performs flow analysis through turbines LEWIS-236	B66-10496	01
Energy-storage of a prescribed impedance ARG-10428	B69-10431	02	System automatically supplies precise analytical samples of high-pressure gases M-FS-1814	B67-10090	01
Optimizing solar-cell grid geometry HQ-10417	B69-10460	01	Transient Analysis Generator /TAG/ simulates behavior of large class of electrical networks NPO-10031	B67-10319	06
ANALYTIC FUNCTIONS			Spectrophotometric technique quantitatively determines NaMBT inhibitor in ethylene glycol-water solutions MSC-11496	B67-10573	03
An orthonormalization procedure for multivariable function approximation M-FS-1313	B66-10579	01	Hastelloy X properties, data, and metallurgical characteristics NUC-10302	B68-10023	03
Analytical drafting curves provide exact equations for plotted data LANGLEY-285	B67-10601	02	Microprobe investigation of brittle segregates in aluminum MIG and TIG welds M-FS-14720	B68-10334	03
Analysis of magnetically-controlled processes in pulse-modulation systems GSFC-10241	B69-10070	01	Qualitative and quantitative analysis of mixtures of compounds containing both hydrogen and deuterium ARG-10312	B69-10177	04
Prediction of thermal radiation from a rocket's exhaust plume M-FS-20414	B69-10371	02	Application of cryptanalytic techniques to the analysis of NiCd space batteries GSFC-10569	B69-10731	01
ANALYTIC GEOMETRY			ANCHORS (FASTENERS)		
Instrument calculates moments of inertia of complex plane figures MSC-628	B66-10306	01	Oceanborne transponder platform has good stability M-FS-171	B65-10035	05
Analytical drafting curves provide exact equations for plotted data LANGLEY-285	B67-10601	02	Expandable insert serves as screw anchor MSC-301	B66-10132	05
ANALYTICAL CHEMISTRY			Rock anchors restore broken swamp anchors economically WLP-10004	B67-10498	05
Reusable chelating resins concentrate metal ions from highly dilute solutions JPL-758	B66-10451	03	Novel terminal strips for transformers NPO-10842	B69-10246	01
Xenon forms stable compound with fluorine ARG-4	B66-10467	03	ANECHOIC CHAMBERS		
Product identification techniques used as training aids for analytical chemists SAN-10025	B68-10373	03	Improved fire resistant radio frequency anechoic materials M-FS-16600	B69-10450	05
ANALYZERS			ANEMOMETERS		
Servo system facilitates photoelastic strain measurements on resins JPL-504	B64-10280	01	New anemometer has fast response, measures dynamic pressure directly LANGLEY-28	B63-10530	05
Pulse height analyzer operates at high repetition rates, low power WOO-046	B65-10041	01	Fast-response cup anemometer features cosine response ARG-90193	B68-10202	01
Multiaxial analyzer detects low-energy electrons GSFC-329	B65-10213	01	Compact rotating cup anemometer NPO-10563	B68-10436	01
Highly sensitive solids mass spectrometer uses inert-gas ion source ERC-11	B66-10114	02	Dewpoint temperature inversions analyzed ARG-10316	B69-10057	02
New electron microscope employs new video display technique ARG-158	B67-10312	03	ANESTHESIA		
Analytical techniques for determining boron in graphite ARG-10087	B68-10102	03	Hand-held instrument should relieve hematoma pressure MSC-599	B67-10332	04
Welder analyzer MSC-12068	B68-10242	01	ANESTHESIOLOGY		
Harmonic distortion analyzer speeds setup of magnetic tape recorders GSFC-10198	B68-10254	01	Test monkeys anesthetized by routine procedure HQ-18	B65-10332	04
Mossbauer-effect data-collection system			ANESTHETICS		
			A technique for making animal restraints ARC-25	B63-10564	05
			ANGLES (GEOMETRY)		
			Reference black body is compact, convenient to use		

ANGULAR ACCELERATION

SUBJECT INDEX

ARC-3	B63-10004	03	ANGULAR CORRELATION		
Setting of angles on machine tools speeded by magnetic protractor			Ring laser angle encoder		
ARC-5	B63-10006	01	MSC-13099	B69-10115	01
Spherical model provides visual aid for cubic crystal study			ANGULAR DISTRIBUTION		
LEWIS-108	B65-10065	03	Device measures reaction engine thrust vector deviations		
Beam splitter used in dual filming technique			JPL-SC-163	B66-10642	05
M-FS-501	B66-10072	02	Helical tape forming device		
Speciman holder design improves accuracy of X-ray powder analysis			GSFC-10830	B69-10137	05
JPL-SC-165	B66-10075	02	ANGULAR VELOCITY		
Sextant measures spacecraft altitude without gravitational reference			System measures angular displacement without contact		
MSC-200	B66-10143	02	LANGLEY-46	B65-10073	01
Multisurface fixture permits easy grinding of tool bit angles			Variable-capacitance tachometer eliminates troublesome magnetic fields		
M-FS-586	B66-10171	05	GSFC-435	B66-10126	01
Mount enables precision adjustment of optical-instrumentation mirror			Mount enables precision adjustment of optical-instrumentation mirror		
MSC-184	B66-10199	02	MSC-184	B66-10199	02
Adjustable cutting guide aligns and positions stacks of material			Modified hydraulic braking system limits angular deceleration to safe values		
MSC-321	B66-10210	05	GSFC-476	B66-10310	05
Tool forms right angles in component leads			Flexible arms provide constant force for pressure switch calibration		
M-FS-722	B66-10346	05	HQ-38	B66-10317	05
Versatile machine mills, saws light materials			Spherical pipe joint delivers loads equally to mating flange		
M-FS-827	B66-10364	05	M-FS-807	B66-10665	05
Effect of welding position on porosity formation in aluminum alloy welds			Motion drive system is accurately controlled in the 1-micron range		
M-FS-2318	B67-10177	05	JPL-864	B66-10695	05
System enables dimensional inspection of very large structures			Gimbal angle sensor		
M-FS-2477	B67-10214	05	GSFC-10305	B68-10315	01
Flow liner extends operating life of high-angulation bellows			Precisely repeatable rotary mechanism		
M-FS-12023	B67-10512	05	NPO-10679	B69-10696	05
Precision trimmer aids in preparing biomedical specimen blocks for ultrathin sectioning			ANHYDRIDES		
ARG-242	B67-10541	05	Xenon fluoride solutions effective as fluorinating agents		
Plastic shoe facilitates ultrasonic inspection of thin wall metal tubing			ARG-217	B67-10133	03
NUC-10010	B67-10542	02	Synthesis of pure aromatic glycidyl esters for use as adhesives		
Flare angles measured with ball gage			M-FS-12705	B67-10647	03
M-FS-14690	B68-10030	01	Quick don-doff electrode pastes		
Modified sine bar device measures small angles with high accuracy			MSC-13249	B69-10598	04
GSFC-438	B68-10322	02	ANILINE		
Automatic star-horizon angle measurement system			Substituted silane-diol polymers have improved thermal stability		
MSC-11585	B69-10597	01	M-FS-469	B66-10259	03
Electron interaction in matter			ANIMALS		
M-FS-14886	B69-10674	02	A technique for making animal restraints		
Photomicrometry			ARC-25	B63-10564	05
M-FS-14556	B69-10736	01	Miniature bioelectric device accurately measures and telemeters temperature		
ANGULAR ACCELERATION			ARC-52	B66-10057	01
Angular acceleration measured by deflection in sensing ring			Uranyl phthalocyanines show promise in the treatment of brain tumors		
MSC-250	B66-10105	01	ARG-100	B67-10188	04
Switching mechanism senses angular acceleration			Experimental study and evaluation of radioprotective drugs		
GSFC-462	B66-10158	01	ARG-10196	B68-10320	04
Precision CW laser automatic tracking system investigated			Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna		
M-FS-1606	B66-10629	01	ARG-10345	B69-10258	02
			Automatic bird watcher		
			ARG-10342	B69-10286	02

ANIONS

- Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination
ARG-262 B67-10421 03
- Nitric acid-organic mixtures surveyed for use in separation by anion exchange methods
ARG-10065 B68-10425 03
- Separation of the rare earths by anion-exchange in the presence of lactic acid
ARG-10436 B69-10377 03

ANISOLE

- Mixed ether bath for electrodeposition of aluminum
LANGLEY-10200 B69-10737 03

ANISOTROPIC MEDIA

- Finite element analysis of compressible solids with nonlinear material properties
NUC-10342 B69-10238 06
- Proposed acousto-optic filter
HQ-10440 B69-10466 02
- Production of crystalline polymers via liquid crystal monomers
HQ-10235 B69-10744 03

ANISOTROPIC SHELLS

- Buckling strength of filament-wound cylinders under axial compression is investigated
HQ-10032 B67-10659 03

ANISOTROPY

- Test device prevents molecular bounce-back
GSFC-82 B63-10546 03
- Ignition of binary alloys of uranium
ARG-10057 B68-10280 01
- Study of behavior of sterols at interfaces
ARG-10085 B68-10281 03
- Correction for losses in optical birefringent networks, a concept
M-FS-20088 B68-10571 02
- Measurements of thermoelectric power in annealed and quenched gold-platinum alloys
ARG-10303 B69-10206 03

ANNEALING

- Integral ribs formed in metal panels by cold-press extrusion
M-FS-230 B65-10141 05
- Angular glass tubing drawn from round tubing
HQ-20 B65-10235 05
- Etching process mills PH 14-8 Mo alloy steel to precise tolerances
MSC-270 B66-10110 03
- Gage of 6.5 per cent Si-Fe sheet is chemically reduced
MSC-537 B66-10454 03
- Process yield Co-Fe alloys with superior high temperature magnetic properties
LEWIS-333 B66-10535 03
- Treatment increases stress-corrosion resistance of aluminum alloys
M-FS-1840 B66-10595 05
- Machining heavy plastic sections
M-FS-12720 B67-10381 03
- Aluminum and stainless steel tubes joined by simple ring and welding process
M-FS-13120 B67-10472 05
- Double copper sheath multiconductor instrumentation cable is durable and

easily installed in high thermal or nuclear radiation area
NUC-10007 B67-10538 01

Weld microfissuring in Inconel 718 minimized by minor elements
M-FS-18185 B68-10251 03

Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/
ARG-10148 B68-10368 03

Inverted grounding technique for electron beam heating
LEWIS-10543 B68-10411 01

Conditioning flat conductors for flat conductor cable production
M-FS-14914 B68-10429 01

Superconductivity in zirconium-rhodium alloys
ARG-10223 B69-10010 03

Measurements of thermoelectric power in annealed and quenched gold-platinum alloys
ARG-10303 B69-10206 03

Evaluation of magnetic materials for static inverters and converters
LEWIS-10343 B69-10306 01

Basal-plane metallography of deformed pyrolytic carbon
NPO-11196 B69-10488 03

Strain-age cracking in Rene 41 alloy
M-FS-18650 B69-10605 03

ANNULAR FLOW

Fluid check valve has fail-safe feature
JPL-0019 B65-10207 05

Miniature valve accurately controls small volume fluid flow
ARG-66 B66-10473 05

Cryogenic fluid flow instabilities in heat exchangers
M-FS-20438 B69-10541 02

ANNULAR NOZZLES

Hydraulic calipers
M-FS-18052 B69-10399 05

ANNULAR PLATES

Sleeve and cutter simplify disconnecting welded joint in tubing
JPL-384 B63-10240 05

ANNULI

Analysis of annular combustors
LEWIS-10399 B68-10356 06

Liquid-metal heat transfer in a cocurrent-flow, double-pipe heat exchanger is investigated
ARG-10261 B69-10091 02

Single-element coaxial injector for rocket fuel
NPO-11095 B69-10547 05

ANODES

High purity electroforming yields superior metal models
ARC-6 B63-10007 05

Ring counter may be advanced or retarded by command signal
GSFC-101 B64-10144 01

Tantalum cathode improves electron-beam evaporation of tantalum
JPL-W00-021 B65-10175 03

Titanium diaphragm makes excellent amplitron cathode support
GSFC-394 B65-10298 01

ANODIC COATINGS

SUBJECT INDEX

New energy storage concept uses tapes LEWIS-239	B66-10098	02	Anodization process produces opaque, reflective coatings on aluminum M-FS-348	B65-10336	03
Dust particle injector for hypervelocity accelerators provides high charge-to-mass ratio GSFC-509	B66-10347	01	Gelatin coated electrodes allow prolonged bioelectronic measurements MSC-153	B66-10088	01
Electrochemical milling removes burrs and solder from tubing ends M-FS-714	B66-10358	03	Silver plating ensures reliable diffusion bonding of dissimilar metals M-FS-1975	B67-10124	03
Electroplating eliminates gas leakage in brazed areas M-FS-923	B66-10415	05	Study made of anodized aluminum circuit boards M-FS-13580	B67-10425	01
Nixie tube display unit employs time-shared logic ARG-117	B66-10512	01	Copper and nickel adherently electroplated on titanium alloy M-FS-13952	B67-10532	03
Water cooled anode increases life of high temperature arc lamp NPO-10180	B67-10247	02	Effects of surface preparation on quality of aluminum alloy weldments M-FS-13152	B68-10302	03
Control apparatus for spectral energy source LEWIS-391	B67-10404	01	Corrosion protection of aluminum alloys in contact with other metals M-FS-18526	B69-10098	03
Development of low temperature battery LEWIS-10326	B67-10546	01	Advances in aluminum anodizing M-FS-14600	B69-10144	05
Application of the solid lubricant molybdenum disulfide by sputtering LEWIS-10544	B68-10340	03	ANTENNA ARRAYS		
Inverted grounding technique for electron beam heating LEWIS-10543	B68-10411	01	Modified interelement spacing improves Yagi antenna array LANGLEY-130	B65-10183	01
Magnetron tuner has locking feature INP-09771	B69-10119	05	Antenna configurations provide polarization diversity GSFC-74	B66-10066	01
Magnetically coupled emission regulator GSFC-10056	B69-10213	01	A thirty-six element array antenna system M-FS-20435	B69-10390	01
High-temperature, gas-filled ceramic rectifiers, thyristors, and voltage-reference tubes LEWIS-90271	B69-10376	01	An interferometer tracking radar system MSC-10956	B69-10523	01
Analysis of secondary cells with lithium anodes and immobilized fused-salt electrolytes ARG-10452	B69-10613	01	ANTENNA FEEDS		
ANODIC COATINGS			Omnidirectional antennas transmit and receive over large bandwidth GSFC-436	B66-10133	01
Anodization process produces opaque, reflective coatings on aluminum M-FS-348	B65-10336	03	Feed-through connector couples RF power into vacuum chamber NU-0096	B67-10027	01
Gelatin coated electrodes allow prolonged bioelectronic measurements MSC-153	B66-10088	01	Evaporant feed device facilitates flash vapor deposition process in vacuum NPO-10232	B67-10320	03
Valve seat pores sealed with thermosetting monomer M-FS-900	B66-10322	03	Computer programs for antenna feed system design and analysis NPO-10359	B67-10504	06
Study made of dielectric properties of promising materials for cryogenic capacitors M-FS-13620	B67-10366	03	Reflectometer for receiver input system NPO-10843	B67-10657	01
Electrochemical study of aluminum corrosion in boiling high purity water ARG-10306	B69-10033	03	ANTENNA RADIATION PATTERNS		
Masking of aluminum surface against anodizing M-FS-12964	B69-10335	05	Modified interelement spacing improves Yagi antenna array LANGLEY-130	B65-10183	01
A method for precision anodize stripping MSC-15040	B69-10581	03	Broadband choke suppresses spurious currents in antenna structure MSC-10013	B67-10675	01
ANODIZING			Computer program for machine design of Cassegrain feed systems NPO-10588	B68-10421	06
Galvanic corrosion reduced in aluminum fabrications M-FS-272	B65-10140	03	ANTENNAS		
			Polychart contour plotter enables data extrapolation from multiple plotting charts M-FS-37	B64-10406	05
			Helical coaxial-resonator makes excellent RF filter GSFC-243	B65-10012	01
			Oceanborne transponder platform has good		

SUBJECT INDEX

APERTURES

stability M-FS-171	B65-10035	05	M-FS-14854	B69-10060	02
Solid-state laser transmitter is amplitude modulated MSC-121	B65-10238	01	ANTI-FRICTION BEARINGS Fluoride coatings make effective lubricants in molten sodium environment LEWIS-229	B66-10005	03
Extendable mast used in one shot soil penetrometer JPL-685	B66-10146	05	Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics LEWIS-320	B66-10373	03
Modified hydraulic braking system limits angular deceleration to safe values GSFC-476	B66-10310	05	Low friction servo valve LEWIS-10574	B68-10440	05
Antenna simulator permits preinstallation system checkout GSFC-522	B66-10518	01	Fluid power-transmitting gas bearing EBC-10097	B68-10503	05
Movable RF probe eliminates need for calibration in plasma accelerators LEWIS-10127	B67-10362	01	ANTIRADIATION DRUGS Experimental study and evaluation of radioprotective drugs ARG-10196	B68-10320	04
Range recording technique enables four-way polarization measurements M-FS-12447	B67-10460	01	ANTISEPTICS Improved pH buffering agent for sodium hypochlorite MSC-15443	B69-10084	03
Broadband choke suppresses spurious currents in antenna structure MSC-10013	B67-10675	01	ANVILS Self sealing disconnect for tubing forms metal seal after breakaway JPL-354	B63-10226	05
Diversity RF receiving system with improved phase-lock characteristics XGS-01222	B68-10068	01	Low power heating element provides thermal control during swaging operations M-FS-457	B66-10206	05
Astronaut space suit communication antenna MSC-12101	B68-10238	01	APERTURES Variable light source with a million-to-one intensity ratio JPL-W00-008	B63-10424	03
Deep space FM system, a concept MSC-11825	B68-10289	01	Micromachining produces optical apertures to micron dimensions GSFC-206	B64-10211	05
High-torque precision stepping drive M-FS-14772	B68-10549	05	Wide-aperture solar energy collector is light in weight JPL-SC-055	B65-10046	02
Technique for tuning antenna systems producing negligible signal radiation KSC-10060	B69-10215	01	Improved system measures output energy of pyrotechnic devices W00-256	B66-10159	01
RF noise suppression using the photodiode effect in semiconductors MSC-12259	B69-10225	01	Submicron holes in thin films increase sampling range of mass spectrometers JPL-SC-097	B66-10380	03
High-power microwave power divider concept NPO-11031	B69-10290	01	A radiometer-pyrometer LEWIS-284	B66-10606	01
Combination ranging system and mapping radar NPO-11001	B69-10325	01	A conceptual, parallel operating data compression processor NPO-10068	B67-10204	01
The effect of mismatched components on microwave noise-temperature calibrations NPO-11163	B69-10333	01	Self-sealing closure enables access to several fluid containers NPO-10123	B67-10207	04
Energy-storage of a prescribed impedance NPO-10303	B69-10380	01	Fresnel diffraction plates are simple and inexpensive M-FS-12731	B67-10297	02
Improved circularly polarized planar-array antenna NPO-10301	B69-10382	01	Modified blackbody device emits high-density radiation M-FS-12744	B67-10388	02
Improved fire resistant radio frequency anechoic materials M-FS-16600	B69-10450	05	Aerial-image enables diagrams and animation to be inserted in motion pictures ARG-165	B67-10398	02
Measurement technique for the determination of antenna directivity M-FS-12799	B69-10677	01	Infrared radiometer M-FS-13373	B67-10422	01
A sterilizable high-impact antenna NPO-10231	B69-10697	01	Telescope mount with azimuth-only primary NPO-10468	B67-10671	02
ANTICOAGULANTS Heparin insolubilized with crosslinking agent NPO-10834	B69-10299	03	Electronic aperture control devised for solid state imaging system		
ANTIFERROMAGNETISM Optically exciting a magnetic memory - A feasibility study					

APOLLO PROJECT
SUBJECT INDEX

M-FS-12428	B68-10028	01	M-FS-20419	B69-10259	01
Electro-optic modulator for infrared laser using gallium arsenide crystal GSFC-10686	B68-10255	02	Improved first order interpolator MSC-11085	B69-10291	02
Spherical ion source INP-08898	B69-10186	01	Technique for predicting temperature distribution in gases LEWIS-10918	B69-10329	01
Energy-storage of a prescribed impedance NPO-10303	B69-10380	01	On the bound of first excursion probability NPO-11158	B69-10334	06
Improved circularly polarized planar-array antenna NPO-10301	B69-10382	01	Study of high-speed angular-contact ball bearings under dynamic load M-FS-20562	B69-10367	05
Proposed acousto-optic filter HQ-10440	B69-10466	02	Crossed-beam technique for measuring horizontal winds M-FS-20160	B69-10447	02
Method of directing a laser beam with very high accuracy NPO-11087	B69-10508	02	Optimizing solar-cell grid geometry HQ-10417	B69-10460	01
Fine-line sensitivity for holographic interferograms HQ-10348	B69-10663	02	A theoretical study of radar backscatter from distributed targets with emphasis on polarization dependence M-FS-13775	B69-10560	02
Deposition monitor and control NPO-10706	B69-10722	01	APPLICATIONS TECHNOLOGY SATELLITES An overview of electromagnetic interference problems in spacecraft NPO-11170	B69-10362	01
APOLLO PROJECT Automatic reel controls filler wire in welding machines MSC-416	B66-10236	05	APPROXIMATION An orthonormalization procedure for multivariable function approximation M-FS-1313	B66-10579	01
Logic system aids in evaluation of project readiness MSC-753	B66-10457	05	Linear circuit analysis program for IBM 1620 Monitor 2, 1311/1443 data processing system /CIRCS/ NPO-10131	B67-10173	06
Spiral spring/strain gage combination accurately measures shock induced deflection MSC-789	B66-10488	01	Calculation of resonance neutron absorption in two-region problems /the GAROL code/ NUC-10045	B67-10223	06
New method for critical failure prediction of complex systems M-FS-14133	B68-10252	02	Computer program simplifies design of rotating components of turbomachinery NUC-10046	B67-10235	06
APOLLO SPACECRAFT Predicting surface heating rates and pressures resulting from hot exhaust gases MSC-971	B66-10633	05	Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters M-FS-13594	B67-10527	03
Star/horizon simulator used to test space guidance system MSC-407	B67-10110	02	The X square statistic and goodness of fit test GSFC-10547	B68-10136	02
Analytical technique characterizes all trace contaminants in water MSC-11032	B67-10243	03	Independent doubly truncated gamma variables M-FS-20143	B68-10345	02
Computer program provides steady state analysis for liquid propellant propulsion systems MSC-10064	B67-10414	06	General series solution technique for bending of irregular laterally loaded flat plates NUC-10170	B69-10035	06
APOLLO TELESCOPE MOUNT Improved phase-shift-keyed detector M-FS-20064	B69-10101	01	Advanced mission analysis programs GSFC-10575	B69-10171	06
APPLICATIONS OF MATHEMATICS Contact stresses calculated for miniature slip rings M-FS-280	B65-10098	05	ARC CHAMBERS Electric arc heater is self starting LANGLEY-208	B66-10230	03
Study of random process theory aids digital data processing M-FS-1475	B67-10309	06	ARC DISCHARGES Improved carbon electrode reduces arc spattering MSC-219	B66-10026	01
Controllability of distributed-parameter systems M-FS-14929	B68-10346	02	Electric arc heater is self starting LANGLEY-208	B66-10230	03
Liquid-metal heat transfer in a cocurrent- flow, double-pipe heat exchanger is investigated ARG-10261	B69-10091	02	Cryogenic cooling reduces high voltage arcing between electrodes operating in a vacuum ARG-109	B66-10499	02
Reducing quantizer deadband with a **range switching** digital filter			System measures arc energy dissipated in relay contact cycling		

SUBJECT INDEX

ARGON

M-FS-14541	B68-10312	01	M-FS-12763	B67-10272	05		
Spectrographic analysis of bismuth-tin eutectic alloys by spark-ignited low-voltage ac-arc excitation	ARG-10288	B69-10081	03	Welding, brazing, and soldering handbook	M-FS-20504	B69-10264	05
ARC GENERATORS			AREA				
Magnetic field controls carbon arc tail flame	MSC-139	B65-10108	01	Torque wrench designed for restricted areas	LEWIS-246	B66-10011	05
Control apparatus for spectral energy source	LEWIS-391	B67-10404	01	Beam splitter used in dual filming technique	M-FS-501	B66-10072	02
ARC HEATING			Pipe cutting tool is useful in limited space				
Carbon arc ignition improved by simple auxiliary circuit	MSC-103	B65-10018	01	MSC-36	B66-10102	05	
Segmented electrode increases operating pressure of MHD accelerator	LANGLEY-95	B65-10356	02	Torque wrench allows readings from inaccessible locations	M-FS-598	B66-10204	05
Experimental investigation of megawatt dc arc heating of nitrogen	LEWIS-313	B66-10508	02	Portable sandblaster cleans small areas	MSC-523	B66-10242	05
Laboratory arc furnace features interchangeable hearths	ARG-125	B67-10052	05	Ultrasonic hand tool allows convenient scanning of spot welds	M-FS-539	B66-10289	02
ARC LAMPS			Latching mechanism operates in limited access area				
Igniting system for mercury lamps protects transistorized sustaining supply	JPL-421	B63-10262	01	MSC-230	B66-10338	05	
Water cooled anode increases life of high temperature arc lamp	NPO-10180	B67-10247	02	Single wrench separates nuts from free-floating bolts	NUC-10013	B67-10158	05
Protective clothing for workers with 5-kW and 20-kW short-arc lamps	NPO-11155	B69-10218	01	Self-sealing closure enables access to several fluid containers	NPO-10123	B67-10207	04
ARC MELTING			Cable clamp bolt fixture facilitates assembly in close quarters				
Lower-cost tungsten-rhenium alloys	LEWIS-332	B66-10528	03	KSC-67-80	B67-10244	05	
Process yield Co-Fe alloys with superior high temperature magnetic properties	LEWIS-333	B66-10535	03	Program computes zero lift wave drag of entire aircraft	LANGLEY-10079	B67-10530	06
High-strength tungsten alloy with improved ductility	LEWIS-10257	B67-10340	03	Areas of irregular, discontinuous patterns rapidly and accurately measured	GSPC-10184	B67-10674	01
ARC SPRAYING			Hydraulic calipers				
Intergranular metal phase increases thermal shock resistance of ceramic coating	M-FS-1862	B66-10651	03	M-FS-18052	B69-10399	05	
ARC WELDING			ARGON				
Welding procedures improves quality of welds, offers other advantages	M-FS-32	B64-10309	01	Boron carbide whiskers produced by vapor deposition	HQ-24	B65-10261	03
Photosensors used to maintain welding electrode-to-joint alignment	MSC-243	B65-10401	05	Tungsten wire and tubing joined by nickel brazing	M-FS-394	B65-10391	05
Fingertip current control facilitates use of arc welding gun	MSC-289	B66-10092	05	Argon purge gas cooled by chill box	M-FS-560	B66-10153	02
Standard arc welders provide high amperage direct current source	LANGLEY-267	B66-10441	01	Cold trap increases sensitivity of gas chromatography	M-FS-1617	B66-10517	03
Opposed arcs permit deep weld penetration with only one pass	M-FS-1696	B66-10513	05	Process yield Co-Fe alloys with superior high temperature magnetic properties	LEWIS-333	B66-10535	03
Power arc welder touch-started with consumable electrode	M-FS-1485	B66-10641	05	High intensity radiation heat source is capable of sustained operation	ARC-61	B66-10547	02
Portable machine welding head automatically controls arc				Process reduces secondary resonant emission in electronic components	JPL-934	B66-10685	01
				An improved soft X-ray photoionization detector	GSPC-540	B67-10072	02
				Oxide film on metal substrate reduced to form metal-oxide-metal layer structure	ARG-48	B67-10187	03

ARGON LASERS

SUBJECT INDEX

Welding torch and wire feed manipulator M-FS-13102	B67-10385	05	GSFC-315	B65-10151	01
Protected, high-temperature connecting cable LEWIS-10149	B67-10461	01	Magnetically operated limit switch has improved reliability, minimizes arcing MSC-422	B66-10270	01
Study made of heat transfer and pressure drop through tubes with internal interrupted fins LEWIS-10280	B67-10555	05	Damping technique gives accelerometer flat frequency response M-FS-471	B66-10293	01
Development of dual solid cryogenics for high reliability refrigeration system GSFC-10188	B67-10644	02	Brushless dc motor has high efficiency, long life GSFC-181	B66-10355	01
Reducing bubbles in glass coatings improves electrical breakdown strength LEWIS-10278	B68-10214	03	Fuel and oxidizer valve assembly employs single solenoid actuator MSC-1046	B66-10648	05
Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02	Residual magnetism holds solenoid armature in desired position LEWIS-343	B67-10038	01
Two systems developed for purifying inert atmospheres ARG-10234	B69-10026	03	Simple pump maintains liquid helium level in cryostat M-FS-1763	B67-10039	05
Preparation of thorium magnesium-zinc reduction ARG-10245	B69-10079	03	Vibrator elapsed time is automatically controlled M-FS-2573	B67-10284	01
Active frequency control system for argon FM laser M-FS-14988	B69-10099	02	Solenoid valve design minimizes vibration and sliding wear problem M-FS-14079	B67-10667	05
Mixing weld gases offers advantages M-FS-16413	B69-10145	05	High-torque power wrench, a concept M-FS-18194	B68-10299	05
Plasma-heating by induction LEWIS-10528	B69-10185	02	Improved electromechanical master-slave manipulator ARG-10027	B68-10372	05
A new solid lubricant LEWIS-10812	B69-10250	03	Hermetically sealed pump LEWIS-10837	B69-10320	05
Improved retort for cleaning metal powders with hydrogen LEWIS-10718	B69-10468	03	Improved solenoid valve design GSFC-10607	B69-10704	05
Epitaxial crystalline growth upon cold substrates MSC-11196	B69-10494	01	AROMATIC COMPOUNDS		
Pulsed high-voltage dc RF sputtering LEWIS-10920	B69-10699	01	Irradiation improves properties of an aromatic polyester LANGLEY-115	B65-10164	03
ARGON LASERS			Substituted silane-diol polymers have improved thermal stability M-FS-469	B66-10259	03
Laser system generates single-frequency light M-FS-2556	B67-10288	02	Process for preparing dispersions of alkali metals JPL-734	B66-10639	03
Method of directing a laser beam with very high accuracy NPO-11087	B69-10508	02	Isostatic compression process converts polyaromatics into structural material JPL-892	B67-10168	03
ARITHMETIC			ARRAYS		
Subroutine allows easy computation in extended precision arithmetic M-FS-1136	B66-10504	01	Encode/Decode facility for FORTRAN 4 ARG-10335	B69-10169	06
Versatile analog pulse height computer performs real-time arithmetic operations ARG-10052	B67-10626	06	Journal gas bearing for curved surfaces M-FS-20423	B69-10182	05
ARITHMETIC AND LOGIC UNITS			Phase multiplying electronic scanning array NPO-10302	B69-10381	01
Transfluxor circuit amplifies sensing current for computer memories JPL-406	B63-10255	01	ARSENATES		
Digital data averager improves conventional measurement system performance MSC-12078	B68-10018	01	High-energy, high-power, long-life battery LEWIS-10724	B69-10131	01
Special purpose computer provides programmable digital filter for sampled-data control systems M-FS-20290	B69-10454	06	ARSENIC		
ARMATURES			An integrated circuit switch NPO-11073	B69-10326	01
Rotor position sensor switches currents in brushless dc motors			ARSENIC COMPOUNDS		
			Impurity diffusion process for silicon semiconductors is fast and precise GSFC-397	B65-10300	01
			ARTERIES		
			Direct force-measuring transducer used in		

SUBJECT INDEX

ASTRONOMICAL TELESCOPES

blood pressure research ARC-53	B65-10325	01	Seal allows blind assembly and thermal expansion of components NU-0005	B65-10053	05
ARTIFACTS					
Neutron activation analysis traces copper artifacts to geographical point of origin ARG-119	B67-10036	02	Assembly jig assures reliable solar cell modules GSFC-455	B66-10040	05
ARTIFICIAL INTELLIGENCE					
Review of research and development in fluid logic elements M-FS-420	B67-10438	01	Expandable insert serves as screw anchor MSC-301	B66-10132	05
ASBESTOS					
Refractory thermal insulation for smooth metal surfaces M-FS-160	B64-10099	03	Rotating mandrel speeds assembly of plastic inflatables LANGLEY-155	B66-10137	05
Air-cured ceramic coating insulates against high heat fluxes M-FS-150	B65-10357	03	Solar cell submodule design facilitates assembly of lightweight arrays JPL-728	B66-10231	02
Spray-on technique simplifies fabrication of complex thermal insulation blanket M-FS-497	B66-10053	03	Seal surfaces protected during assembly NU-0067	B66-10266	05
Aluminum oxide filler prevents obstructions in tubing during welding MSC-222	B66-10125	05	Miniature paint-spray gun for recessed areas MSC-13060	B68-10387	05
Improved method facilitates debulking and curing of phenolic impregnated asbestos MSC-949	B66-10459	05	Materials data handbook, aluminum alloy 6061 M-FS-20381	B69-10065	03
Purification train produces ultrapure hydrogen gas M-FS-1913	B67-10078	03	ASTIGMATISM		
A ceramic composite thermal insulation M-FS-13991	B67-10608	03	Two devices for analysis of nystagmus HQ-10273	B69-10224	01
Development of helical seal for high temperature /2000 degrees F/ application M-FS-13304	B67-10655	05	ASTRONAUT LOCOMOTION		
Asbestos and Inconel combined to form hot-gas seal M-FS-14004	B68-10162	05	Technique simulates effect of reduced gravity LANGLEY-44	B64-10146	04
Remote balance weighs accurately amid high radiation ARG-10387	B69-10242	05	Integrated mobility measurement and notation system MSC-726	B67-10114	04
ASPHALT					
Thermoplastic rubberlike material produced at low cost JPL-793	B66-10453	03	ASTRONAUT PERFORMANCE		
ASPHERICITY					
Lathe converted for grinding aspheric surfaces GSFC-115	B63-10556	05	Helmet system broadcasts electroencephalograms of wearer ARC-70	B66-10536	01
ASSAYING					
Technique for highly efficient recovery of microbiological contaminants MSC-13250	B69-10273	04	A phonocardiogram simulator KSC-67-94	B67-10239	01
Development and test of flexible film coupon strips for use as a sampling technique M-FS-20448	B69-10339	03	ASTRONAUT TRAINING		
ASSEMBLER ROUTINES					
Biomedical bulk data processing program FRC-10015	B69-10720	06	Technique simulates effect of reduced gravity LANGLEY-44	B64-10146	04
ASSEMBLIES					
Workmanship standards for fusion welding NUC-10050	B67-10200	05	ASTRONAUTS		
Tool simplifies machining of pipe ends for precision welding KSC-10361	B69-10231	05	Three-axis attitude and direction reference instrument has only one moving part M-FS-1819	B66-10644	01
ASSEMBLING					
New package for Belleville spring permits rate change, easy disassembly JPL-392	B63-10247	05	Astronaut space suit communication antenna MSC-12101	B68-10238	01
			Food products for space applications MSC-11697	B68-10324	04
			Astronaut's tool for withdrawing/replacing computer cards M-FS-20453	B69-10183	05
			Measurement of gas flow at extremely low pressures MSC-13261	B69-10522	03
			ASTRONOMICAL MODELS		
			Analog solar system model relates celestial bodies spatially JPL-195	B66-10413	01
			Solar activity history model M-FS-20525	B69-10776	01
			ASTRONOMICAL OBSERVATORIES		
			Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01
			ASTRONOMICAL TELESCOPES		
			Glancing incidence telescope for far ultraviolet and soft X-rays		

ASTRONOMY
SUBJECT INDEX

GSFC-10052	B67-10508	02	LANGLEY-95	B65-10356	02
ASTRONOMY			Mount makes liquid nitrogen-cooled gamma ray detector portable		
Binary system generates sidereal rate from standard solar rate			LEWIS-259	B66-10103	01
GSFC-190	B64-10200	01	Vacuum test fixture improves leakage rate measurements	MSC-271	B66-10286 01
Electron beam parallel X-ray generator	B67-10372	02	Process reduces secondary resonant emission in electronic components	JPL-934	B66-10685 01
HQ-10222	B69-10529	02	Temperature-sensed cryogenic bleed maintains liquid state in transfer line	M-FS-12681	B67-10424 01
A new method for producing optical mirrors			Propagation of density disturbances in air-water flow	ARG-10260	B69-10043 02
HQ-10227	B69-10574	06	Electrolytic separation of crystals of transition-metal oxides	ARG-10506	B69-10642 03
Spacecraft Thermal Radiation Environment Computer Program			Burn-rate testing apparatus	MSC-10947	B69-10740 03
M-FS-15054			ATMOSPHERIC REFRACTION		
ASTROPHYSICS			Star/horizon simulator used to test space guidance system	MSC-407	B67-10110 02
Method for determining properties of microinstabilities of a magnetized plasma	B69-10462	02	ATMOSPHERIC STRATIFICATION		
HQ-10447			Scanning photometer system automatically determines atmospheric layer height	MSC-245	B66-10170 01
ASYMMETRY			ATMOSPHERIC TURBULENCE		
Automatic system determines moments of inertia of asymmetrical objects	B66-10636	01	Rough surface improves stability of air-sounding balloons	M-FS-320	B65-10326 05
M-FS-1769			ATMOSPHERICS		
Torque meter aids study of hysteresis motor rings	B67-10412	01	Scanning means for Cassegrainian antenna	JPL-946	B67-10174 05
M-FS-12219			ATOMIC PHYSICS		
SEAL /Subnetwork Enumeration And Listing/	B68-10227	06	Handbook explaining the fundamentals of nuclear and atomic physics	NUC-10330	B69-10705 02
ERC-10116			ATOMIC SPECTRA		
ASYMPTOTIC METHODS			Status of ultrachemical analysis for semiconductors	M-FS-2254	B67-10138 03
Dynamics of moving bubbles in single and binary component systems	B68-10339	02	Uranium isotopes quantitatively determined by modified method of atomic absorption spectrophotometry	ARG-210	B67-10236 03
M-FS-14845			ATOMIC STRUCTURE		
ATMOSPHERES			Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique	ARG-277	B67-10324 03
High temperature thermocouple operates in reduction atmosphere	B66-10134	01	Study reveals effect of aluminum on saturation moment of Fe-Ni alloys	ARG-90259	B68-10172 03
NU-0046			Improved atomic resonance gas cell for use in frequency standards	MSC-11666	B68-10230 01
High voltage pulse generator	B69-10548	01	ATOMIZERS		
MSC-12178			Quick-hardening problems are eliminated with spray gun modification which mixes resin and accelerator liquids during application	LANGLEY-6A	B63-10318 03
ATMOSPHERIC ATTENUATION			Miniature paint-spray gun for recessed areas	MSC-13060	B68-10387 05
Optical automatic gain channel	B66-10596	02	ATOMIZING		
M-FS-1550			Two-fluid, impinging-sheet injector		
Millimeter-wave atmospheric loss prediction method	B69-10584	01			
NPO-11054					
ATMOSPHERIC COMPOSITION					
Improved atmospheric particle analyzer	B67-10231	01			
ERC-33					
Testing the flammability of materials exposed to arcs	B69-10531	03			
MSC-15225					
ATMOSPHERIC DENSITY					
Pneumatic power is transmitted through air bearing	B64-10141	05			
MSC-8					
Coatings decrease metal fatigue failure	B69-10176	03			
ARC-10015					
ATMOSPHERIC ENTRY					
High intensity radiation heat source is capable of sustained operation	B66-10547	02			
ARC-61					
ATMOSPHERIC ENTRY SIMULATION					
Colloidal suspension simulates linear dynamic pressure profile	B66-10214	05			
WOO-266					
ATMOSPHERIC MODELS					
Design of multilayer insulation systems	B69-10615	05			
ARC-10166					
ATMOSPHERIC PRESSURE					
Segmented electrode increases operating pressure of MHD accelerator					

SUBJECT INDEX

AUDIO FREQUENCIES

NPO-10547	B68-10338	05	bodies spatially		
Miniature paint-spray gun for recessed areas			JPL-195	B66-10413	01
MSC-13060	B68-10387	05	Three-axis attitude and direction reference instrument has only one moving part		
Nozzles for size reclassification of microfog particles			M-FS-1819	B66-10644	01
LEWIS-10705	B69-10076	05	Improved head-controlled TV system produces high-quality remote image		
			ARG-128	B67-10317	01
ATOMS			ATTITUDE CONTROL		
An improved atomic hydrogen frequency and time standard			Knob linkage permits one-hand control of several operations		
GSFC-10706	B69-10341	02	MSC-30	B65-10022	05
ATTACHMENT			Plated nickel wire mesh makes superior catalyst bed		
Quick-attach clamp			MSC-216	B65-10321	03
XFR-05421	B68-10250	05	Visual attitude orientation and alignment system		
ATTENUATION			MSC-647		
Microwave technique measures plasma characteristics			Rectilinear display gives acceleration load factor and velocity information		
LANGLEY-134	B65-10122	02	MSC-1045	B67-10248	01
Remote rapidly varying pressures accurately measured			Precise gimtalling mechanism		
FRC-28	B65-10301	01	NPO-11057	B69-10270	01
Current pulse amplifier transmits detector signals with minimum distortion and attenuation			Two-step rocket engine bipropellant valve concept		
NUC-10055	B67-10347	01	MSC-10951	B69-10280	05
Shock and vibration response of multistage structure			ATTITUDE INDICATORS		
M-FS-14972	B68-10353	05	Hydraulic device provides accurate displacements to microinches		
Rotary antenna attenuator			MSC-112	B65-10230	05
NPO-10648	B69-10502	01	FM/CW system measures aircraft attitude		
ATTENUATION COEFFICIENTS			M-FS-276		
The response of monoenergetic gamma rays in finite media are investigated			Miniature servo accelerometer is force-balanced		
ARG-10295	B69-10080	02	JPL-155	B65-10340	01
ATTENUATORS			Developmental instrument supplies accurate attitude and attitude-rate data		
Variable light source with a million-to-one intensity ratio			HQ-57	B66-10607	01
JPL-W00-008	B63-10424	03	Visual attitude orientation and alignment system		
Small foamed polystyrene shield protects low-frequency microphones from wind noise			MSC-647		
M-FS-123	B63-10579	01	Instrumentation monitors transported material through variety of parameters		
Nonlinear feedback reduces analog-to-digital converter error			M-FS-12938		
ARC-46	B65-10277	01	Proposed technique for vertical alignment of a crane's cable		
Linear signal noise summer accurately determines and controls S/N ratio			M-FS-16496		
JPL-SC-152	B66-10433	01	A polar graphic method for determining the attitude of rocket vehicles		
Electrometer amplifier operates over dynamic range of five orders of magnitude			GSFC-10860		
ARC-75	B67-10199	01	AUDIO EQUIPMENT		
Dielectric prisms would improve performance of quasi-optical microwave components			High-gain amplifier has excellent stability and low power consumption		
ERC-10011	B67-10416	01	GSFC-272		
Combined actuator and latch for cartridge powered actuator			Solid-state laser transmitter is amplitude modulated		
MSC-11242	B67-10488	05	MSC-121		
Laser-Doppler gas-velocity instrument			Phonocardiograph microphone is rugged and moistureproof		
M-FS-20039	B68-10349	02	MSC-212		
Optimum FM pre-emphasis			Literal readout of identification signals in Morse code		
KSC-10151	B69-10359	01	LANGLEY-10222		
A compact rotary vane attenuator			B69-10479		
NFO-10562	B69-10427	01	AUDIO FREQUENCIES		
ATTITUDE (INCLINATION)			Circuit reduces distortion of FM modulator		
Lifting clamp positively grips structural shapes			GSFC-257		
M-FS-593	B66-10176	05	Pressure transducers dynamically tested with		
Analog solar system model relates celestial					

AUDITORY SIGNALS

SUBJECT INDEX

sinusoidal pressure generator LEWIS-268	B66-10031	01	JPL-397	B63-10250	01
Ultrasonic emission method enables testing of adhesive bonds M-FS-799	B66-10341	01	Instrument adjustment knob locks to prevent accidental maladjustment M-FS-190	B64-10249	05
AUDITORY SIGNALS			Knob linkage permits one-hand control of several operations MSC-30	B65-10022	05
Speed-sensing device aids crane operators WS-4	B64-10006	05	Fuel cell serves as oxygen level detector JPL-SC-072	B65-10066	01
Device detects unbonded areas in plastic laminates WOO-206	B65-10380	01	Variable load automatically tests dc power supplies GSFC-291	B65-10105	01
Microphone multiplex system provides multiple outlets from single source GSFC-426	B66-10308	01	Planetary camera control improves microfiche production HQ-1	B65-10313	01
Phonocardiograph microphone is rugged and moistureproof MSC-212	B66-10314	04	Centrifugal device separates liquid from gas MSC-282	B65-10394	05
Conceptual apparatus for detecting leaks of nonconductive liquids M-FS-14713	B68-10303	01	Binary counter accumulates time by complementary preset MSC-242	B65-10399	01
Automatic patient respiration failure detection system with wireless transmission ARC-10174	B68-10365	01	Automatic fluid separator supplies own driving power WOO-085	B66-10008	02
Gage provides audible signal to facilitate checkout of connector pins KSC-10335	B69-10173	01	Ring valve responds to differential pressure changes WOO-247	B66-10022	05
Tracer of electrical conduit or pipes MSC-15223	B69-10347	01	Control system maintains selected liquid level M-FS-470	B66-10039	01
Foot-operated cell-counter ARG-10315	B69-10351	01	Lamp automatically switches to new filament on burnout M-FS-498	B66-10046	01
AUSTENITIC STAINLESS STEELS			Auxiliary coil controls temperature of RF induction heater GSFC-428	B66-10067	01
Stainless-steel elbows formed by spin forging M-FS-122	B63-10590	05	Electropneumatic transducer automatically limits motor current LEWIS-253	B66-10160	01
AUTOCATALYSIS			Control system maintains compartment at constant temperature JPL-SC-145	B66-10188	05
Ignition of binary alloys of uranium ARG-10057	B68-10280	01	Soldering iron temperature is automatically reduced ARC-57	B66-10203	01
AUTOCLAVES			Automatic reel controls filler wire in welding machines MSC-416	B66-10236	05
Oxide film on metal substrate reduced to form metal-oxide-metal layer structure ARG-48	B67-10187	03	Modified McLeod gage records automatically LEWIS-290	B66-10290	02
Weld procedure produces quality welds for thick sections of Hastelloy-X NUC-10048	B67-10195	05	Automatic cryogenic liquid level controller is safe for use near combustible substances LEWIS-195	B66-10482	01
Adjustable thermal **tree** MSC-15556	B69-10484	01	Braking mechanism is self actuating and bidirectional M-FS-1299	B66-10484	05
A method for observing gas evolution during plastic laminate cure MSC-15592	B69-10530	03	Self-actuating grapple automatically engages and releases loads from overhead cranes ARG-81	B66-10522	05
AUTOCLAVING			Computer used to program numerically controlled milling machine M-FS-1608	B66-10541	01
Composite bulkhead fabrication development M-FS-1264	B66-10582	05	Hoist is automatically stopped at low deceleration rate M-FS-1639	B66-10545	05
AUTOCORRELATION			Emergency escape system uses self-braking mechanism on fixed cable		
Scanning photometer system automatically determines atmospheric layer height MSC-245	B66-10170	01			
PN acquisition demodulator achieves automatic synchronization of a telemetry channel JPL-612	B66-10271	01			
Accuracy of laser measurements improved by pulse autocorrelator electronic system MSC-10033	B67-10338	01			
AUTOMATIC CONTROL					
Elastic orifice automatically regulates gas bearings JPL-135	B63-10123	05			
Level of super-cold liquids automatically maintained by levelometer					

SUBJECT INDEX

AUTOMATIC FREQUENCY CONTROL

KSC-66-44	B66-10575	05	Telescope dome control system automatically tracks sun	MSC-10966	B68-10521	02
MOSFET analog memory circuit achieves long duration signal storage	M-FS-860	B66-10603	01	Welding skate with computerized controls	M-FS-20224	B68-10566 01
Rigid-body motion extracted from total motion of a flexible body	ARC-63	B67-10081	05	Self-starting circuit for switching regulators	LEWIS-10686	B69-10128 05
Electronic circuitry used to automate paper chromatography	JPL-840	B67-10201	01	Apparatus automatically measures soluble residue content of volatile solvents	SAN-10032	B69-10292 03
Automated microsyringe is highly accurate and reliable	NPO-10142	B67-10203	01	Four-bar linkage for thermal compensation in test mounts for structures	NPO-11059	B69-10298 05
Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry	NPO-10149	B67-10245	04	Automatic filter-blowback systems used with sintered-metal filters	ARG-10324	B69-10342 05
Tester automatically checks insulation of individual conductors in multiple-strand cables	NUC-10068	B67-10260	01	Pressure-control purge panel for automatic butt welding	M-FS-18465	B69-10403 05
Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi	NUC-10067	B67-10263	01	Automatic tuning of hydrogen masers	GSFC-10127	B69-10452 01
Tester automatically checks paper tape punch and reader after maintenance	ARC-66	B67-10267	01	Life detection	NPO-10510	B69-10475 04
Self-balancing line-reversal pyrometer automatically measures gas temperatures	LEWIS-348	B67-10268	01	Rate of heat extraction controller for environmental control	HQ-10318	B69-10516 01
Portable machine welding head automatically controls arc	M-FS-12763	B67-10272	05	Automatic sample rotator for metallographic polishing	NPO-11015	B69-10596 03
Vibrator elapsed time is automatically controlled	M-FS-2573	B67-10284	01	Live-timer method of automatic dead-time correction for precision counting	ARG-10478	B69-10612 01
Device enables calibration of microphones at high sound pressure levels	M-FS-11980	B67-10336	01	Highly stable high-rate discriminator for nuclear counting	ARG-10483	B69-10614 01
Battery charge regulator is coulometer controlled	GSFC-561	B67-10446	01	AUTOMATIC CONTROL VALVES		
General frequency response program calculates frequency response of system, open at any specified element	M-FS-12817	B67-10521	06	Cryogenic trap valve has no moving parts	M-FS-487	B66-10136 05
Automatic transducer switching provides accurate wide range measurement of pressure differential	NUC-10001	B67-10540	01	Pneumatic shutoff and time-delay valve operates at controlled rate	M-FS-602	B66-10189 05
Recharge unit provides for optimum recharging of battery cells	GSFC-10688	B68-10273	01	Shock-operated valve would automatically protect fluid systems	M-FS-801	B66-10335 03
Dual wire weld feed proportioner	M-FS-18037	B68-10332	05	Automatic protective vent has fail-safe feature	LANGLEY-218	B66-10369 05
Closed circuit TV system automatically guides welding arc	M-FS-20084	B68-10357	01	Pneumatic binary encoder replaces multiple solenoid system	M-FS-665	B66-10374 01
Automatic patient respiration failure detection system with wireless transmission	ARC-10174	B68-10365	01	Remotely operated high pressure valve protects test personnel	MSC-11010	B67-10291 05
Automatic system nondestructively monitors and records fatigue crack growth	LANGLEY-10091	B68-10379	01	Low friction servo valve	LEWIS-10574	B68-10440 05
Automatic calibration apparatus for telemetry systems	NPO-10560	B68-10514	01	Integral valve provides automatic relief and remote venting	M-FS-12134	B69-10545 05
				AUTOMATIC FREQUENCY CONTROL		
				Concept for automatic Doppler compensation in two-way communication systems	GSFC-10213	B67-10643 01
				Simple, accurate automatic frequency control circuit	KSC-10393	B69-10323 01

AUTOMATIC GAIN CONTROL

SUBJECT INDEX

An improved atomic hydrogen frequency and time standard GSFC-10706	B69-10341	02	GSFC-274	B65-10072	01
AUTOMATIC GAIN CONTROL			Variable voltage supply uses Zener diode as reference GSFC-262	B65-10097	01
Automatic gain control circuit handles wide input range MSC-166	B66-10089	01	Boron trifluoride nuclear detector preamplifier uses single-cable connection LEWIS-178	B65-10255	01
Linear signal noise summer accurately determines and controls S/N ratio JPL-SC-152	B66-10433	01	Zener diode controls switching of large direct currents MSC-188	B65-10350	01
Optical automatic gain channel M-FS-1550	B66-10596	02	Circuit exhibits power efficiency greater than 75 percent MSC-254	B66-10034	01
Ultraminiature television camera M-FS-11967	B67-10469	01	Complementary monostable circuits achieve low power drain and high reliability GSFC-433	B66-10179	01
New passive telemetry system HQ-10214	B69-10312	01	Circuit protects regulated power supply against overload current GSFC-453	B66-10292	01
Field Effect Transistor /FET/ circuit for variable gain amplifiers GSFC-10116	B69-10322	01	Electronic circuit provides accurate sensing and control of dc voltage NU-0089	B66-10591	01
AUTOMATIC TYPEWRITERS			Electrometer amplifier operates over dynamic range of five orders of magnitude ARC-75	B67-10199	01
Offset lenses add versatility to phototypesetting machine HQ-9	B66-10173	02	High power dc/dc and dc/ac electrical power conversion techniques developed M-FS-13227	B67-10390	01
Tape reading fixture M-FS-14146	B69-10008	05	Development of reliability prediction technique for semiconductor diodes GSFC-10231	B67-10651	06
AUTOMATION			Current-limiting voltage regulator MSC-11824	B68-10305	01
Automatic design of optical systems by digital computer NPO-10265	B67-10632	06	Solid state high-voltage pulser operates with low supply voltage M-FS-14034	B68-10308	01
Microprobe investigation of brittle segregates in aluminum MIG and TIG welds M-FS-14720	B68-10334	03	Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time ARG-10110	B68-10328	01
Microdetermination of urea in urine using p-dimethylaminobenzaldehyde /PDAB/ NPO-10715	B69-10317	04	Low-cost, fast-response drive circuit for electromagnetic torque motors LEWIS-10143	B68-10386	01
Determination of quadric equation coefficients describing three-dimensional surfaces, their constraint and skewed planes, and view point areas M-FS-15043	B69-10435	06	Method for measuring alternator voltage transients LEWIS-10373	B68-10513	01
AUTOMOBILES			Self-starting circuit for switching regulators LEWIS-10686	B69-10128	05
Design of a strain-gage probe ARG-10338	B69-10343	05	Low-cost voltage-level detector LEWIS-10885	B69-10217	01
AUTORADIOGRAPHY			Improved dc voltage regulator XKS-06467	B69-10369	01
Foot-operated cell-counter ARG-10315	B69-10351	01	Punch-magnet delay eliminated by modification of circuit ARG-10333	B69-10416	01
AUXILIARY POWER SOURCES			High voltage pulse generator MSC-12178	B69-10548	01
Thermionic diode switching has high temperature application NPO-10404	B67-10672	01	AVALANCHES		
Zinc-oxygen primary cell yields high energy density M-FS-14661	B68-10218	01	Improved frequency divider employs transistor avalanche effect NPO-10008	B67-10575	01
AVALANCHE DIODES			AVERAGE		
Temperature-sensitive network drives astable multivibrator GSFC-137	B63-10609	01	Computer program generates averaged value data tapes M-FS-12728	B67-10411	06
Blocking oscillator uses low triggering voltage MSC-58	B64-10017	01			
Zener diode function generator requires no external reference voltage JPL-0031	B65-10013	01			
Zener diode is starter for transistor regulated power supply NU-0015	B65-10052	01			
Synchronized pulse generator needs no external power					

SUBJECT INDEX

AXIAL STRESS

Digital filter suppresses effects of nonstatistical noise bursts on multichannel scalar digital averaging systems ARG-90143	B68-10193	06	Gas diffuser facilitates withdrawal of cryogenic liquids from tanks M-FS-915	B66-10342	05
AXES (REFERENCE LINES)			Segmented, arch-bound carbon seal is pressure loaded M-FS-12777		
Three-axis attitude and direction reference instrument has only one moving part M-FS-1819	B66-10644	01	Noise study of single stage compressor rotor-stator interaction LANGLEY-137	B67-10516	02
Coaxial cable stripping device facilitates RF cabling fabrication NFO-10315	B67-10419	05	Dynamics of moving bubbles in single and binary component systems M-FS-14845	B68-10339	02
Electron beam deflected to determine focal point location M-FS-14107	B67-10649	01	Computer programs for axial flow compressor design LEWIS-10765	B69-10174	06
Telescope mount with azimuth-only primary NFO-10468	B67-10671	02	AXIAL FLOW PUMPS		
Magnetic field mapper LEWIS-10782	B69-10476	01	Pressure probe compensates for dimensional tolerance variations LEWIS-302	B66-10599	01
An interferometer tracking radar system MSC-10956	B69-10523	01	Improved design of item in high speed rotating machinery M-FS-18441	B69-10373	05
A polar graphic method for determining the attitude of rocket vehicles GSFC-10860	B69-10591	02	AXIAL FLOW TURBINES		
AXES OF ROTATION			Geometry and design point performance of axial flow turbines LEWIS-10471	B69-10111	06
Optical gyro pickoff operates at cryogenic temperatures M-FS-407	B66-10128	01	AXIAL LOADS		
Concealed hinge permits flush mounting of doors and hatches MSC-623	B66-10336	03	V-slotted screw head and matching driving tool facilitate insertion and removal of screw fasteners FRC-16	B63-10023	05
Study of dynamic response of elastic space stations NFO-10124	B67-10169	06	Fluid pressure used to test turbopump bearings NU-0001	B65-10024	03
Scanning means for Cassegrainian antenna JPL-946	B67-10174	05	Fatigue tester achieves true axial motion through flex plates and bars NU-0021	B66-10164	01
System enables dimensional inspection of very large structures M-FS-2477	B67-10214	05	Flexible coiled spline securely joins mating cylinders WOO-270	B66-10172	05
Computer program simplifies design of rotating components of turbomachinery NUC-10046	B67-10235	06	Friction brake cushions acceleration and vibration loads MSC-715	B66-10608	05
Magnetron tuner has locking feature XNP-09771	B69-10119	05	Investigation of pressurized toroidal shells HQ-27	B67-10117	05
Improved combustion chamber optical probe MSC-10953	B69-10142	02	Journal gas bearing for curved surfaces M-FS-20423	B69-10182	05
Preferred-orientation analysis of polycrystalline materials NFO-10604	B69-10336	02	A biaxial weld strength prediction method M-FS-20019	B69-10471	05
A compact rotary vane attenuator NFO-10562	B69-10427	01	AXIAL STRAIN		
Hermetically sealed vibration damper MSC-10959	B69-10634	05	Computer program for determination of natural frequencies of closed spherical sandwich shells MSC-1246	B67-10279	06
AXIAL COMPRESSION LOADS			Test device prevents weld joint damage by eliminating axial pin forces on unpotted modules LEWIS-10201	B67-10359	01
Analysis of stability-critical orthotropic cylinders subjected to axial compression M-FS-12869	B67-10375	03	Transducer measures embedment stresses in electronic modules M-FS-13486	B67-10367	01
Buckling strength of filament-wound cylinders under axial compression is investigated HQ-10032	B67-10659	03	AXIAL STRESS		
Shell design computer program LEWIS-10734	B69-10175	06	Bearing transmits rotary and axial motion LANGLEY-27	B64-10130	05
AXIAL FLOW			Testing device subjects elastic materials to biaxial deformations JPL-616	B65-10189	03
Modified gas bearing is adjustable to optimum stiffness ratio M-FS-145	B64-10050	05	Simple key locks turbine rotor blades WOO-103	B66-10023	05

AXISYMMETRIC BODIES

SUBJECT INDEX

Thin plastic sheet eliminates need for expensive plating
M-FS-1896 B66-10681 03

Single-source mechanical loading system produces biaxial stresses in cylinders
M-FS-12530 B67-10380 05

Development of biaxial test fixture includes cryogenic application
M-FS-14185 B68-10070 01

Manual of typical low temperature mechanical properties of several materials
M-FS-18331 B69-10179 03

AXISYMMETRIC BODIES

Semiautomatic device tests components with biaxial leads
MSC-516 B66-10337 03

Computer program simplifies design of rotating components of turbomachinery
NUC-10046 B67-10235 06

Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles
LANGLEY-10093 B67-10531 06

Finite element analysis of compressible solids with nonlinear material properties
NUC-10342 B69-10238 06

AXISYMMETRIC FLOW

Axisymmetric two-phase perfect gas performance program
MSC-11774 B68-10374 06

AZIMUTH

Optical automatic gain channel
M-FS-1550 B66-10596 02

Three-axis attitude and direction reference instrument has only one moving part
M-FS-1819 B66-10644 01

Telescope mount with azimuth-only primary
NPO-10468 B67-10671 02

Improved electromechanical master-slave manipulator
ARG-10027 B68-10372 05

Improved combustion chamber optical probe
MSC-10953 B69-10142 02

Preferred-orientation analysis of polycrystalline materials
NPO-10604 B69-10336 02

LM lookangle program
MSC-13179 B69-10370 06

An interferometer tracking radar system
MSC-10956 B69-10523 01

Measurement technique for the determination of antenna directivity
M-FS-12799 B69-10677 01

B

BACKGROUND NOISE

Point-source light sensor circuit is insensitive to background light
JPL-778 B66-10502 01

New shield for gamma-ray spectrometry
ARG-10388 B69-10344 02

Monopole mass spectrometer with improved sensitivity and reduced background
HQ-10476 B69-10666 01

BACKGROUND RADIATION

Training course for radiation safety technicians
ARG-216 B67-10477 02

BACKSCATTERING

Alpha particle backscattering measurements used for chemical analysis of surfaces
ARG-116 B67-10186 03

BACKUPS

Method of welding joint in closed vessel improves quality of seam
JPL-170 B63-10139 05

New backup-bar groove configuration improves heliarc welding of 2014-T6 aluminum
MSC-806 B66-10443 05

Fuel cell life improved by metallic sinter activation after electrode assembly welding
MSC-10965 B67-10436 03

BACTERIA

Gelatin coated electrodes allow prolonged bioelectronic measurements
MSC-153 B66-10088 01

Microorganisms detected by enzyme-catalyzed reaction
JPL-782 B66-10117 04

Cytology is advanced by studying effects of deuterium environment
ARG-205 B67-10304 04

Bacteriostatic conformal coating for electronic components
GSFC-10007 B67-10599 03

Vacuum probe sampler removes micron-sized particles from surfaces
SAN-10003 B68-10231 04

Electrolytic silver ion cell sterilizes water supply
MSC-11827 B68-10555 01

Internal and ancestral controls of cell-generation times
ARG-10326 B69-10205 04

Sterilization training manual
M-FS-20437 B69-10277 04

Mass culture of photobacteria to obtain luciferase
GSFC-10563 B69-10294 04

BACTERIOLOGY

Radiation effects on bacterial cells
ARG-10064 B68-10169 04

Automated microorganism Sample Collection Module
HQ-10421 B69-10223 04

BAFFLES

Fine-particle filter prevents damage to vacuum pumps
LEWIS-106 B63-10489 05

Test device prevents molecular bounce-back
GSFC-82 B63-10546 03

Uniform reflective films deposited on large surfaces
GSFC-507 B66-10483 02

A method of determining combustion gas flow
M-FS-13757 B67-10455 03

Flexible ring baffles for damping liquid slosh
LANGLEY-90194 B68-10064 05

Antiglare improvement for optical imaging systems
NPO-10337 B68-10090 02

Calibrated water tank facilitates proof-loading of cranes and derricks

SUBJECT INDEX

BALLOON SOUNDING

M-FS-15059	B69-10109	05	M-FS-575	B66-10197	05
BAKING			Bearing puller facilitates removal and replacement of bearing assemblies		
Baking enables McLeod gauge to measure in ultrahigh vacuum range			M-FS-1538	B66-10418	05
GSFC-440	B65-10329	01	Spherical pipe joint delivers loads equally to mating flange		
Thermal and bias cycling stabilizes planar silicon devices			M-FS-807	B66-10665	05
ERC-48	B67-10176	01	Improved rolling element bearings provide low torque and small temperature rise in ultrahigh vacuum environment		
Liquid gallium rotary electric contract			LEWIS-359	B66-10678	05
LEWIS-10828	B69-10138	03	Swing-out rail system separates overhead crane rails		
Improved high-temperature silicide coatings			NU-0094	B66-10713	05
LEWIS-10817	B69-10266	03	Tester for study of rolling element bearings		
BALANCE			LEWIS-305	B67-10009	01
System measures unidirectional forces, excludes extraneous forces			Design concept to decrease relative speed of ball bearings		
LEWIS-170	B65-10154	05	M-FS-2003	B67-10212	05
Simple key locks turbine rotor blades			Line adapter provides quick disconnect under moderate side loading		
WOO-103	B66-10023	05	M-FS-2159	B67-10256	05
Proposed method of rotary dynamic balancing by laser			Concept for modifying drafting instruments to minimize smearing		
M-FS-12422	B67-10452	02	KSC-10056	B67-10283	05
Digital servo readout system increases recording accuracy of servo-balance scales			Vacuum-jacketed transfer line installation technique		
NUC-10125	B67-10496	01	M-FS-14496	B68-10125	05
Remote balance weighs accurately amid high radiation			High-temperature bearing lubricants		
ARG-10387	B69-10242	05	LEWIS-10408	B68-10249	05
A laboratory method for precisely determining the micro-volume-magnitudes of liquid efflux			Dynamic-reservoir lubricating device		
ARC-10052	B69-10295	05	M-FS-14652	B68-10261	05
Automatic leveling and equalizing hoist device			High-speed pulse camera		
M-FS-16549	B69-10514	05	MSC-11353	B68-10329	02
BALANCING			Evaluation of lubricants for ball bearings at high temperatures		
Tritiated alumina serves as reagent for self-labeling analysis			LEWIS-10578	B69-10025	03
ARG-209	B67-10315	03	Design and testing of liquid hydrogen-cooled, ultrahigh-speed ball bearings		
Laser system used for dynamic balancing of gyros			M-FS-18453	B69-10178	05
M-FS-12218	B68-10225	05	Study of high-speed angular-contact ball bearings under dynamic load		
BALL BEARINGS			M-FS-20562	B69-10367	05
Device transmits rotary motion through hermetically sealed wall			Flexible rivet-set		
JPL-303	B63-10198	05	M-FS-20317	B69-10459	05
Quick-acting clutch disengages idle drive motor			BALLAST (MASS)		
GSFC-143	B64-10028	05	Ballast barge concept for underwater structures		
Bearing transmits rotary and axial motion			KSC-10196	B68-10168	05
LANGLEY-27	B64-10130	05	BALLASTS (IMPEDANCES)		
Ball bearing used in design of rugged flowmeter			Increased junction lead inductance ballasts		
LEWIS-159	B64-10170	05	high-frequency transistors		
Miniature bearings lubricated by sonic dispersion method			GSFC-387	B65-10259	01
M-FS-202	B65-10106	03	BALLISTIC MISSILES		
Control of component differential hardness increases bearing life			Computer program for mass optional solutions of some endpoint trajectory problems		
LEWIS-190	B65-10251	05	M-FS-12976	B67-10310	06
Friction device damps linear motion of rotating shaft			BALLOON FLIGHT		
WOO-214	B66-10030	05	Balloon batteries, charged and heated by solar energy		
Polytetrafluoroethylene lubricates ball bearings in vacuum environment			GSFC-10769	B69-10585	01
M-FS-379	B66-10081	03	BALLOON SOUNDING		
Intermediate rotating ring improves reliability of dynamic shaft seal			Multichannel pulse height analyzer is inexpensive, features low power requirements		
			HQN-10020	B67-10258	01

BALLOONS

SUBJECT INDEX

BALLOONS

New anemometer has fast response, measures
dynamic pressure directly
LANGLEY-28 B63-10530 0J

Rough surface improves stability of air-
sounding balloons
M-FS-320 B65-10326 05

BALLS

Flexible fastener allows thermal expansion
LANGLEY-40 B64-10145 05

Ball and socket joints provide accurate
biaxial gimbal
JPL-658 B65-10205 05

Polytetrafluoroethylene lubricates ball
bearings in vacuum environment
M-FS-379 B66-10081 03

Segmented ball valve is easy to open and close
WOO-248 B66-10195 05

Torque wrench allows readings from
inaccessible locations
M-FS-598 B66-10204 05

Submicron metal powders produced by ball
milling with grinding aids
LEWIS-188 B66-10221 03

Braking mechanism is self actuating and
bidirectional
M-FS-1299 B66-10484 05

Solenoid valve design has one moving part
NPO-10039 B67-10219 05

Flare angles measured with ball gage
M-FS-14690 B68-10030 01

BALSA

Effects of sterilization on the
energy-dissipating properties of balsa
wood
NPO-11207 B69-10592 03

BAND STRUCTURE OF SOLIDS

Thermodynamic properties of solid
palladium-silver alloys and other alloys are
investigated by torsion-effusion technique
ARG-277 B67-10324 03

BANDPASS FILTERS

Frequency-shift-keyer circuit improves PCM
conversion for radio transmission
GSFC-80 B63-10511 01

Traveling-wave tube circuit simplifies
microwave relay
GSFC-299 B65-10127 01

Auxiliary circuit enables automatic monitoring
of EKG's
MSC-106 B65-10142 01

Device detects unbonded areas in plastic
laminates
WOO-206 B65-10380 01

Thin carbon film serves as UV bandpass filter
ERC-8 B66-10060 02

PM acquisition demodulator achieves automatic
synchronization of a telemetry channel
JPL-612 B66-10271 01

High-performance RC bandpass filter is
adapted to miniaturized construction
ARC-60 B66-10309 01

Infrared television used to detect hydrogen
fires
M-FS-654 B66-10363 01

Composite filter steepens rejection slopes in
microwave application
GSFC-480 B66-10393 01

Monitor assures availability and quality of
communication channels
KSC-66-38 B67-10028 01

Electronic filter discriminates between
true and false reflections
HQ-55 B67-10071 02

TV synchronization system features
stability and noise immunity
JPL-915 B67-10118 01

Infrared radiometer
M-FS-13373 B67-10422 01

Stable ac phase and amplitude comparator
M-FS-13086 B67-10459 01

Analog voicing detector responds to pitch
GSFC-10085 B67-10571 01

Unique frequency-shift-keyed demodulation
system
GSFC-217 B67-10668 01

Improved relay optical element for
spectroradiometer using cryogenically
cooled detector
MSC-11688 B68-10245 02

Thermal protective visor for entering
high temperature areas
MSC-10285 B68-10277 05

Deep space FM system, a concept
MSC-11825 B68-10289 01

Method of reducing time base error in
digital magnetic recorders
GSFC-10108 B68-10317 01

Design of dissipative linear phase filters
M-FS-14698 B68-10572 01

Simple demodulator for telemetry phase-
shift keyed subcarriers
NPO-11000 B69-10095 01

Active frequency control system for
argon FM laser
M-FS-14988 B69-10099 02

Tunable bandpass filter with variable
selectivity
ARC-10191 B69-10130 01

RF noise suppression using the
photodielectric effect in semiconductors
MSC-12259 B69-10225 01

Resonant microwave dichroic surface
GSFC-10658 B69-10274 01

An infrared television system for hydrogen
flame detection
KSC-10368 B69-10354 01

Proposed acousto-optic filter
HQ-10440 B69-10466 02

BANDWIDTH

Bandwidth switching is transient-free, avoids
loss of loop lock
WOO-054 B64-10349 01

Superconductor magnets used for stagger-tuning
traveling-wave maser
GSFC-292 B65-10165 01

Field effect transistor presents high input
impedance in ac amplifier
JPL-500 B65-10232 01

Solid-state laser transmitter is amplitude
modulated
MSC-121 B65-10238 01

Variable word length encoder reduces TV
bandwidth requirements

SUBJECT INDEX

BARS

LANGLEY-87	B65-10345	01	Data processing method for a weak, moving telemetry signal NPO-11003	B69-10639	01
Single-sideband modulator accurately reproduces phase information in 2-Mc signals M-FS-664	B66-10437	01	A sterilizable high-impact antenna NPO-10231	B69-10697	01
Optical automatic gain channel M-FS-1550	B66-10596	02	Pocket-sized tone-modulated FM transmitter NPO-11180	B69-10725	01
Parametric up-converter increases flexibility of maser KSC-67-98	B67-10104	01	BARIUM Method prevents secondary radiation in radiographic inspection M-FS-13383	B67-10391	02
Field effect transistors improve buffer amplifier M-FS-916	B67-10334	01	Analysis of cell performance and thermal regeneration of a lithium-tin cell having an immobilized fused-salt electrolyte ARG-10453	B69-10627	03
Current pulse amplifier transmits detector signals with minimum distortion and attenuation NUC-10055	B67-10347	01	BARIUM COMPOUNDS Crack detection method is safe in presence of liquid oxygen M-FS-236	B65-10107	03
Rugged switch responds to minute pressure differentials M-FS-12704	B67-10389	01	BARIUM FLUORIDES Fluoride coatings make effective lubricants in molten sodium environment LEWIS-229	B66-10005	03
Transient sensor development M-FS-13370	B67-10471	01	Evaluation of lubricants for ball bearings at high temperatures LEWIS-10578	B69-10025	03
Study made of thin-walled pipe response to turbulent fluids M-FS-1321	B67-10518	05	BARIUM OXIDES Solid-film lubricant is effective at high temperatures in vacuum LEWIS-228	B66-10087	03
Concept for automatic Doppler compensation in two-way communication systems GSFC-10213	B67-10643	01	Glass formulation has high coefficient of thermal expansion NU-0084	B66-10705	03
Astronaut space suit communication antenna MSC-12101	B68-10238	01	Purification train produces ultrapure hydrogen gas M-FS-1913	B67-10078	03
Improved traveling wave maser amplifier NPO-10548	B68-10244	01	High-temperature, gas-filled ceramic rectifiers, thyatrons, and voltage-reference tubes LEWIS-90271	B69-10376	01
Technique developed for measuring transmittance of optical birefringent networks M-FS-14267	B68-10260	02	BARIUM TITANATES High purity electroforming yields superior metal models ARC-6	B63-10007	05
Deep space FM system, a concept MSC-11825	B68-10289	01	High-voltage pulse generator developed for wide-gap spark chambers ARG-10136	B68-10283	01
One hundred MHz voltage-controlled oscillator NPO-11004	B69-10133	01	High dielectric thick films for screened circuit capacitors LANGLEY-10294	B68-10542	01
PCM bit detection with correction for intersymbol interference GSFC-10155	B69-10153	01	BARRIER LAYERS Low-cost seal compensates for surface irregularities NU-0016	B65-10160	05
Reducing quantizer deadband with a **range switching** digital filter M-FS-20419	B69-10259	01	BARS Vacuum-type backup bar speeds weld repairs M-FS-12	B63-10384	05
Resonant microwave dichroic surface GSFC-10658	B69-10274	01	Portable display paneling has wide use, easy take down and assembly ARC-17	B63-10435	05
Sweep frequency detector NPO-10669	B69-10289	01	Mounting for diodes provides efficient heat sink M-FS-197	B64-10283	01
High-power microwave power divider concept NPO-11031	B69-10290	01	Fatigue tester achieves true axial motion through flex plates and bars NU-0021	B66-10164	01
Survey of man-made electrical noise affecting radio broadcasting HQ-10290	B69-10308	01	System enables dimensional inspection of very large structures		
A method for reducing sampling jitter in digital control systems NPO-11088	B69-10338	01			
Prediction of thermal radiation from a rocket's exhaust plume M-FS-20414	B69-10371	02			
Phase multiplying electronic scanning array NPO-10302	B69-10381	01			
Proposed acousto-optic filter HQ-10440	B69-10466	02			

BASALT

SUBJECT INDEX

M-FS-2477	B67-10214	05	Tests show that aluminum welds are improved by bead removal		
A piezo-bar pressure probe LEWIS-393	B67-10259	01	M-FS-1817	B67-10023	05
Precision metal molding M-FS-13305	B67-10423	05	Effect of welding position on porosity formation in aluminum alloy welds		
Modified sine bar device measures small angles with high accuracy GSFC-438	B68-10322	02	M-FS-2318	B67-10177	05
Automatic leveling and equalizing hoist device M-FS-16549	B69-10514	05	Glass bead shot peening retards stress corrosion failure of titanium tanks	B67-10198	05
BASALT			BEAM CURRENTS		
Preparing rock powder specimens of controlled size distribution NPO-10007	B68-10297	05	Design concept for improved photo-scan tube	JPL-818	B67-10157 01
Thermal conductivity and dielectric constant of silicate materials M-FS-14856	B68-10351	03	Nonreciprocal gain control for ring laser	M-FS-14041	B67-10653 02
BASKETS			A magnifying scratch-gage force transducer	LANGLEY-10496	B69-10212 01
Space-saving hoist for tank manholes M-FS-16508	B69-10180	05	A positive taper traveling-wave tube	LANGLEY-10263	B69-10407 01
BATHING			BEAM SPLITTERS		
Ultrasonic cleaning restores depth-type filters M-FS-540	B66-10298	03	Interferometer combines laser light source and digital counting system	MSC-151	B65-10161 01
BATHS			Interferometer construction assures parallelism of critical components	JPL-704	B65-10292 02
Stringent cleaning technique assures reliable epoxy bond GSFC-161	B64-10142	03	Unique construction makes interferometer insensitive to mechanical stresses	JPL-725	B65-10295 02
Manganese-56 coincidence-counting facility precisely measures neutron-source strength ARG-90261	B69-10621	01	Beam splitter used in dual filming technique	M-FS-501	B66-10072 02
BATTERY CHARGERS			Sextant measures spacecraft altitude without gravitational reference	MSC-200	B66-10143 02
Circuit prevents overcharging of secondary cell batteries GSFC-454	B66-10492	01	Laser measuring system accurately locates point coordinates on photograph	ARG-74	B66-10560 02
Battery charge regulator is coulometer controlled GSFC-561	B67-10446	01	Laser Doppler flowmeter measures gas velocity	M-FS-1747	B66-10693 02
Converter provides constant electrical power at various output voltages GSFC-519	B67-10481	01	Electronic filter discriminates between true and false reflections	HQ-55	B67-10071 02
BAYES THEOREM			Visual attitude orientation and alignment system	MSC-647	B67-10120 02
Optimum structural design based on reliability and proof-load testing NPO-11228	B69-10723	31	Method of directing a laser beam with very high accuracy	NPO-11087	B69-10508 02
BEACONS			Laser interferometer micrometer system	M-FS-14747	B69-10633 02
High-intensity flashing beacon powered by mercury cells LANGLEY-80	B65-10361	01	Optical frequency waveguide and ion transmission system	HQ-10541	B69-10746 01
Occulting-filter method for obtaining flashing-light visibility data MSC-13097	B69-10107	02	BEAM SWITCHING		
Literal readout of identification signals in Morse code LANGLEY-10222	B69-10479	01	Brushless dc motor uses electron beam switching tube as commutator	GSFC-345	B65-10237 01
A sterilizable high-impact antenna NPO-10231	B69-10697	01	Scanning means for Cassegrainian antenna	JPL-946	B67-10174 05
BEADS			BEAMS		
Insulated weld tooling permits uniform, high quality weld MSC-42	B64-10058	05	Optical superheterodyne receiver uses laser for local oscillator	M-FS-1605	B66-10584 01
Reflective insulator layers separated by bonded silica beads MSC-215	B66-10070	03	BEAMS (RADIATION)		
Grit blasting nozzle fabricated from mild tool steel proves satisfactory M-FS-1420	B66-10597	05	Miniature piezoelectric triaxial accelerometer measures cranial accelerations	ARC-71	B66-10534 01

SUBJECT INDEX

BEARINGS

Twin helix system produces fast scan in infrared detector M-FS-1598	B66-10638	02	BEARING (DIRECTION) System locates randomly placed remote objects LANGLEY-209	B66-10315	01
Local measurements in turbulent flows through cross correlation of optical signals M-FS-1268	B67-10030	01	Improved head-controlled TV system produces high-quality remote image ARG-128	B67-10317	01
Beam profiles measured with thermoluminescent dosimeters ARG-10229	B69-10024	02	BEARING ALLOYS Gallium alloy films investigated for use as boundary lubricants LEWIS-245	B66-10165	03
Laser microprobe facility used in the elemental analysis of small feature of a sample ARG-10359	B69-10165	02	Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics LEWIS-320	B66-10373	03
Identification and evaluation of linear damping models in beam vibrations ARG-10275	B69-10196	03	BEARINGS Gallium useful bearing lubricant in high-vacuum environment LEWIS-12	B63-10337	03
Simplified system displays complex curves corresponding to input data HQ-10073	B69-10247	01	Molybdenum disulfide mixtures make effective high-vacuum lubricants M-FS-54	B63-10453	03
Multilayer infrared beamsplitter film system XGS-11036	B69-10260	02	Fluid pressure used to test turbopump bearings NU-0001	B65-10024	03
Energy-storage of a prescribed impedance NPO-10303	B69-10380	01	Nonresonant support facilitates vibration testing of structures M-FS-224	B65-10039	05
Crossed-beam technique for measuring horizontal winds M-FS-20160	B69-10447	02	Shock mount isolates pressure transducers from vibration JPL-631	B65-10113	05
Technique for pinpointing submicron particles in the electron microprobe HQ-10043	B69-10465	01	Apparatus permits flexure testing of specimens at cryogenic temperatures M-FS-257	B65-10129	02
Long range holographic contour mapping concept HQ-10350	B69-10700	02	Modified power tool rapidly drives series torque bolts MSC-221	B66-10054	05
BEAMS (SUPPORTS) Setting of angles on machine tools speeded by magnetic protractor ARC-5	B63-10006	01	Fatigue tester achieves true axial motion through flex plates and bars NU-0021	B66-10164	01
Self-balancing beam permits safe, easy load handling under overhang M-FS-84	B63-10571	05	Flexible coiled spline securely joins mating cylinders WOO-270	B66-10172	05
Universal bellows joint restraint permits angular and offset movement WOO-102	B65-10371	05	Composites of porous metal and solid lubricants increase bearing life LEWIS-307	B67-10007	03
Concealed hinge permits flush mounting of doors and hatches MSC-623	B66-10336	03	Resilient bearing supports are gas controlled LEWIS-10109	B67-10364	05
Cut-through tester accurately measures insulation failure rates M-FS-12506	B67-10354	03	Concept for cryogenic liquid reclamation system NPO-10322	B67-10420	02
Rugged switch responds to minute pressure differentials M-FS-12704	B67-10389	01	Cryogenic seal concept for static and dynamic conditions M-FS-12986	B67-10673	05
Fatigue of reinforced concrete beams under dynamic loading M-FS-14980	B68-10515	05	High-temperature bearing-cage materials LEWIS-10403	B68-10176	05
Compound taper milling machine MSC-15174	B69-10018	05	Between-bearing shaft seal, a concept M-FS-18179	B69-10286	05
Two-axis winch installer for heavy ducts in confined space M-FS-14254	B69-10062	05	Low cost techniques for fabricating lobed bearings LEWIS-10296	B68-10441	05
Calibrated water tank facilitates proof-loading of cranes and derricks M-FS-15059	B69-10109	05	Computer program analyzes whirl critical speeds and bearing loads for shafts coupled by nonlinear springs to machine housing NUC-10308	B69-10034	06
BEARING Device measures curved surface finish on gear teeth WOO-112	B65-10064	05	Shock-absorbent mountings for bearings NPO-10626	B69-10331	05
			One-handed hammer-spanner for chucks		

BEAT FREQUENCIES

SUBJECT INDEX

M-FS-18581 B69-10398 05
Automatic leveling and equalizing hoist device
M-FS-16549 B69-10514 05
BEAT FREQUENCIES
Synchronizing redundant power oscillators
XGS-09377 B69-10546 01
Deposition monitor and control
NPO-10706 B69-10722 01
BEDS (PROCESS ENGINEERING)
Characteristics of fluidized-packed beds
ARG-10049 B68-10278 03
BEHAVIOR
Experiments to investigate particulate materials in reduced gravity fields
M-FS-13308 B67-10394 02
BELLOWS
Device transmits rotary motion through hermetically sealed wall
JPL-303 B63-10198 05
Composite, vacuum-jacketed tubing replaces bellows in cryogenic systems
LEWIS-67 B63-10368 05
Low-cost tape system measures velocity of acceleration
GSFC-85 B63-10512 01
Filler device for handling hot corrosive materials
MSC-85 B64-10166 03
Fastener provides cooling and compensates for thermal expansion
NU-0003 B65-10038 05
Mouthpiece adapter for pipettes protects mouth from harmful liquids
LANGLEY-47 B65-10043 03
Metal bellows custom-fabricated from tubing
LEWIS-192 B65-10150 05
Hydraulic device provides accurate displacements to microinches
MSC-112 B65-10230 05
One-shot valve may be remotely actuated
WOO-195 B65-10266 05
Lightweight hinged bellows restraint has high load capacity
WOO-151 B65-10341 03
Universal bellows joint restraint permits angular and offset movement
WOO-102 B65-10371 05
Transmission system isolates pressure transducer from severe environment
WOO-239 B66-10064 01
Mount makes liquid nitrogen-cooled gamma ray detector portable
LEWIS-259 B66-10103 01
Extendable mast used in one shot soil penetrometer
JPL-685 B66-10146 05
Dual regulator controls two gases from a single reference
MSC-227 B66-10167 05
Rubber-coated bellows improves vibration damping in vacuum lines
LEWIS-273 B66-10187 02
Bellows design features low spring rate and long life
MSC-521 B66-10190 05

Segmented ball valve is easy to open and close
WOO-248 B66-10195 05
Device without electrical connections in tank measures liquid level
WOO-235 B66-10198 01
Portable sandblaster cleans small areas
MSC-523 B66-10242 05
Fluid damping reduces bellows seal fatigue failures
M-FS-565 B66-10249 05
External linkage tie permits reduction in ducting system flange thickness
M-FS-823 B66-10326 05
Bellows joint absorbs torsional deflections in duct system
M-FS-882 B66-10332 04
Fluid logic control circuit operates nutator actuator motor
LEWIS-294 B66-10593 05
Method for predicting frictional loss in metal bellows and flexible hose
M-FS-883 B66-10662 05
Simple pump maintains liquid helium level in cryostat
M-FS-1763 B67-10039 05
Vacuum chamber is remotely sealed by eutectic metal
NU-0091 B67-10059 05
Fixture tests bellows reliability through repetitive pressure/temperature cycling
MSC-1176 B67-10111 01
Method for X-ray study under extreme temperature and pressure conditions
MSC-11232 B67-10474 02
Flow liner extends operating life of high-angulation bellows
M-FS-12023 B67-10512 05
Feed-thru conduit minimizes heat pickup
JPL-847 B67-10619 05
Predicting fatigue life of metal bellows
M-FS-14096 B68-10026 05
Viscous damper
MSC-12072 B68-10110 05
Effect of surface irregularities on bellows fatigue life
M-FS-14480 B68-10229 05
Conceptual hermetically sealed elbow actuator
M-FS-14710 B68-10300 05
Multiple-orifice throttle valve
XNP-09698 B69-10030 05
Two-axis winch installer for heavy ducts in confined space
M-FS-14254 B69-10062 05
Fatigue failure in metal bellows due to flow-induced vibrations
M-FS-18383 B69-10071 05
Magnetron tuner has locking feature
XNP-09771 B69-10119 05
TFE-fluorocarbon liners for flexible hoses
M-FS-16480 B69-10288 05
Integral valve provides automatic relief and remote venting
M-FS-12134 B69-10545 05
A simple electrometer for measuring small

SUBJECT INDEX

BERYLLIUM

photoelectric currents GSFC-10603	B69-10734	01		
BENDING			BENDING MOMENTS	
Metal-bending brake facilitates lightweight, close-tolerance fabrication ARC-29	B64-10069	05	Two-step rocket engine bipropellant valve concept MSC-10951	B69-10280 05
Hand tool bends component leads accurately M-FS-308	B65-10181	05	BENTONITE	
Plastic tubing protects flexible copper hose M-FS-772	B66-10588	05	Rugged pressed disk electrode has low contact potential MSC-158	B65-10320 01
Pressure probe compensates for dimensional tolerance variations LEWIS-302	B66-10599	01	BENZENE	
Hydraulically controlled flexible arm can bend in any direction KSC-66-20	B66-10626	05	Silazane polymers show promise for high- temperature application M-FS-466	B66-10194 03
Method for predicting frictional loss in metal bellows and flexible hose M-FS-883	B66-10662	05	Silazane elastomer remains resilient at 400 deg C M-FS-1144	B66-10667 05
Technique cuts time and cost of bending jacketed piping WSO-333	B67-10018	05	Static electricity of polymers reduced by treatment with iodine NPO-10062	B67-10132 03
Jacketed cryogenic piping is stress relieved M-FS-985	B67-10308	05	Tritiated alumina serves as reagent for self-labeling analysis ARG-209	B67-10315 03
Application of distorted models in developing scaled structural models M-FS-2540	B67-10321	05	Separation of traces of metal ions from sodium matrices ARG-10341	B69-10168 03
High-strength tungsten alloy with improved ductility LEWIS-10257	B67-10340	03	Microdetermination of urea in urine using p-dimethylaminobenzaldehyde /PDAB/ NPO-10715	B69-10317 04
Transducer measures embedment stresses in electronic modules M-FS-13486	B67-10367	01	Synthesis of polyethers of hexafluorobenzene and hexafluoropentanediol M-FS-14962	B69-10636 03
Astronaut space suit communication antenna MSC-12101	B68-10238	01	BERNOULLI THEOREM	
Conceptual hermetically sealed elbow actuator M-FS-14710	B68-10300	05	Computer program provides steady state analysis for liquid propellant propulsion systems MSC-10064	B67-10414 06
Design of fluid-duct bends with low pressure loss M-FS-20176	B68-10395	05	BERYLLIUM	
Improved technique for digital simulation of bending and slosh phenomena M-FS-14788	B68-10570	02	Multiple test chamber exposes materials to various environments MSC-179	B65-10268 01
General series solution technique for bending of irregular laterally loaded flat plates NUC-10170	B69-10035	06	Specimen holder design improves accuracy of X-ray powder analysis JPL-SC-165	B66-10075 02
Improved method of dicing integrated circuit wafers into chips ERC-10138	B69-10441	01	Compound improves thermal interface between thermocouple and sensed surface NU-0028	B66-10121 02
Boron fiber-reinforced aluminum alloy tubing /experimental/ MSC-15633	B69-10509	05	Friction loading device enables accurate testing of brittle materials NU-0051	B66-10345 05
Two-functional seal for hose connection M-FS-14062	B69-10588	05	Silver-base ternary alloy proves superior for slip ring lead wires M-FS-1540	B66-10540 03
An electrical connector pin protector MSC-15660	B69-10742	01	Accurate depth control provided for thermocouple junction locations LANGLEY-289	B66-10632 01
BENDING FATIGUE			Miniature capacitor functions as pressure sensor JPL-903	B67-10020 01
Machine tests crease durability of sheet materials JPL-604	B64-10178	05	An improved soft X-ray photoionization detector GSFC-540	B67-10072 02
Effect of surface irregularities on bellows fatigue life M-FS-14480	B68-10229	05	Detection of entrapped moisture in honeycomb sandwich structures MSC-1103	B67-10116 01
			Apparatus for fabrication of americium- beryllium neutron sources prevents capsule contamination ARG-184	B67-10202 05
			Porous mandrels provide uniform deformation in hydrostatic powder	

BERYLLIUM ALLOYS

SUBJECT INDEX

metallurgy M-FS-1972	B67-10209	03	M-FS-659	B66-10360	05
Electron beam parallel X-ray generator MSC-11022	B67-10372	02	Fused diode provides visual indication of fuse condition KSC-67-16	B67-10230	01
Method for X-ray study under extreme temperature and pressure conditions MSC-11232	B67-10474	02	Beryllium fastener technology M-FS-20306	B69-10019	05
Test system accurately determines tensile properties of irradiated metals at cryogenic temperatures NUC-10521	B67-10617	02	Helical recorder GSFC-10614	B69-10340	01
Environmental control system for cryogenic testing of tensile specimens NUC-10523	B67-10618	02	Modular packaging technique for combining integrated circuits and discrete components GSFC-10369	B69-10453	01
Tensile testing grips are easily assembled under liquid nitrogen NUC-10524	B67-10628	05	BERYLLIUM COMPOUNDS Metal strip forms 21 foot boom, rolls up for compact storage GSFC-151	B64-10011	05
Multilayer plated wire shows promise as memory device MSC-11587	B68-10205	01	BERYLLIUM FLUORIDES Beryllium fluoride film protects beryllium against corrosion LEWIS-363	B67-10026	03
Portable, high intensity isotopic neutron source provides increased experimental accuracy ARG-90250	B68-10243	02	BERYLLIUM OXIDES Indium foil with beryllia washer improves transistor heat dissipation GSFC-42	B63-10033	01
Detection sensitivities in 3-8 MeV neutron activation ARG-10210	B68-10298	02	Carbon-arc rod holder has long life, reduces arc splatter MSC-144	B65-10095	03
High-speed pulse camera MSC-11353	B68-10329	02	Ceramic materials purified by experimental method LEWIS-225	B65-10270	03
One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06	High temperature thermocouple operates in reduction atmosphere NU-0046	B66-10134	01
High-emittance coatings on metal substrates LEWIS-10325	B68-10381	03	Mounting improves heat-sink contact with beryllia washer MSC-194	B66-10144	01
Temperature controlled strain gaged extensometer LEWIS-10353	B68-10543	01	Crucible cast from beryllium oxide and refractory cement is impervious to flux and molten metal ARG-22	B66-10527	03
Contact-spring forming machine for flat conductor cable receptacles M-FS-20126	B68-10550	05	Study made of anodized aluminum circuit boards M-FS-1358C	B67-10425	01
Beryllium fastener technology M-FS-20306	B69-10019	05	Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01
Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04	BETA PARTICLES Self-supported aluminum thin films produced by vacuum deposition process ARC-58	B66-10387	03
Development of structural test articles from magnesium-lithium and beryllium M-FS-14959	B69-10417	03	Ion exchange determines iodine-131 concentration in aqueous samples ARG-208	B67-10129	04
New type pressure transducer for severe thermal environments M-FS-20208	B69-10652	01	Computer program FPIP-REV calculates fission product inventory for U-235 fission NUC-10089	B67-10450	06
Electron interaction in matter M-FS-14886	B69-10674	02	Training course for radiation safety technicians ARG-216	B67-10477	02
BERYLLIUM ALLOYS Titanium treatment improves brazed joints MSC-127	B65-10153	05	Compilation of detection sensitivities in thermal-neutron activation ARG-10068	B67-10641	03
Compact retractor protects cabling loops M-FS-561	B66-10018	05	Combustion method for assay of biological materials labeled with carbon-14 or tritium, or double-labeled ARG-10331	B69-10208	04
Sheet metal strip unrolls to form circular boom GSFC-423	B66-10032	05	Conceptual techniques for reducing parasitic current gain of lateral pnp		
High-pressure, low temperature electrical connector makes no-leak seal MSC-276	B66-10079	02			
Aluminum core structures brazed without use of flux					

SUBJECT INDEX

BINARY DATA

transistors MSC-13199	B69-10244	01	Bimetal sensor averages temperature of nonuniform profile LEWIS-10362	B68-10007	01
Direct determination of lead-210 by liquid-scintillation counting ARG-10462	B69-10611	03	Tensile testing grips ensure uniform loading of bimetal tubing specimens LEWIS-10267	B68-10248	05
Manganese-56 coincidence-counting facility precisely measures neutron-source strength ARG-90261	B69-10621	01	Lithium-tellurium bimetallic cell has increased voltage ARG-10141	B68-10400	01
BIAS			New bimetallic EMF cell shows promise in direct energy conversion ARG-10183	B68-10415	01
Constant-current regulator improves tunnel diode threshold-detector performance GSFC-239	B65-10282	01	Technical report on galvanic cells with fused-salt electrolytes ARG-10297	B69-10155	01
Thermal and bias cycling stabilizes planar silicon devices ERC-48	B67-10176	01	Remote control thermal actuator LEWIS-10873	B69-10307	01
Low speed, long term tracking electric drive system has zero backlash NPO-10173	B67-10220	01	Temperature-controlled resistor NPO-10713	B69-10440	01
Glow discharge density sensor probe life is extended M-PS-1707	B67-10229	01	Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01
Adaptive control circuit prevents amplifier saturation ERC-10026	B67-10648	02	BINARY ALLOYS		
Magnetic field mapper LEWIS-10782	B69-10476	01	Solubility data are compiled for metals in liquid zinc ARG-149	B67-10191	03
BIBLIOGRAPHIES			Ignition of binary alloys of uranium ARG-10057	B68-10280	01
Properties of optics at high temperature and their measurement, a study M-PS-14696	B68-10240	02	Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01
Chemistry laboratory safety manual available SAN-10030	B68-10419	03	BINARY CODES		
Investigation of spacecraft coatings M-PS-20458	B69-10181	06	Frequency divider is free of spurious outputs GSFC-308	B65-10334	05
BILLETS			Binary sequence detector uses minimum number of decision elements JPL-673	B66-10264	01
Rapid billet loader aids extrusion of refractory metals LEWIS-50	B63-10354	05	Pneumatic binary encoder replaces multiple solenoid system M-PS-665	B66-10374	01
Isostatic compression process converts polyaromatics into structural material JPL-892	B67-10168	03	Shaft encoder presents digital output JPL-SC-191	B66-10436	01
Extrusion of small-diameter, thin-wall tungsten tubing LEWIS-90335	B67-10355	05	Digital system detects binary code patterns containing errors GSFC-541	B66-10516	01
Fabrication techniques developed for small- diameter, thin-wall tungsten and tungsten alloy tubing ARG-10100	B68-10284	05	Run numbering system for use with data recorders M-PS-2557	B67-10215	01
Training manuals for nondestructive testing using magnetic particles M-PS-20187	B68-10391	03	Digital servo readout system increases recording accuracy of servo-balance scales NUC-10125	B67-10496	01
BIMETALS			Unique frequency-shift-keyed demodulation system GSFC-217	B67-10668	01
Simple device produces accelerometer calibration pulse M-PS-363	B65-10269	01	BINARY DATA		
Thermal motor positions magnetometer sensors ARC-51	B66-10078	05	Logic redundancy improves digital system reliability JPL-SC-069	B65-10025	01
Bimetallic devices help maintain constant sealing forces down to cryogenic temperatures M-PS-800	B66-10325	02	Analog-to-digital converter has increased reliability and reduced power consumption GSFC-246	B65-10194	01
Tube-to-header joint for bimetallic construction LEWIS-10282	B67-10464	05	Electronic ohmmeter provides direct digital output GSFC-363	B65-10274	01
Aluminum and stainless steel tubes joined by simple ring and welding process M-PS-13120	B67-10472	05	Delayed ripple counter simplifies square-root computation GSFC-398	B65-10343	01

BINARY DIGITS

SUBJECT INDEX

Frequency discriminator with binary output eliminates tuned circuits M-FS-376	B65-10349	01	NPO-10112	B69-10503	01
Binary counter accumulates time by complementary preset MSC-242	B65-10399	01	BINARY FLUIDS Fluidic-thermochromic display device ERC-10031	B68-10350	01
FORTTRAN program flow chart is automatically produced M-FS-369	B66-10062	01	BINARY INTEGRATION Circuit counts pulses and indicates time of occurrence of slow pulses XNP-06234	B69-10313	01
Low-power ring counter drives high-level loads GSFC-431	B66-10106	01	Pulse-code-modulation baseline correction for low signal-to-noise ratios MSC-13268	B69-10750	01
Simplified circuit corrects faults in parallel binary information channels JPL-SC-090	B66-10261	01	BINARY MIXTURES Rapid helium-air analyzer can measure other binary gas mixtures LANGLEY-16	B63-10557	03
Binary sequence detector uses minimum number of decision elements JPL-673	B66-10264	01	Dynamics of moving bubbles in single and binary component systems M-FS-14845	B68-10339	02
Subroutine allows easy computation in extended precision arithmetic M-FS-1136	B66-10504	01	One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06
Computer routine adds plotting capabilities to existing programs GSFC-490	B66-10511	01	One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06
Numerical data frame readout system used in testing telemetry systems GSFC-551	B67-10175	01	BINARY SYSTEMS (MATERIALS) Two techniques enable sampling of filtered and unfiltered molten metals ARG-150	B67-10034	03
Digital-to-analog converter operates from low level inputs JPL-907	B67-10357	01	Axisymmetric reacting gas nonequilibrium performance program MSC-11781	B68-10377	06
Pocket-size manual tape reader device aids computer tape checking KSC-10058	B67-10361	01	Studies of cycles for liquid-metal magnetohydrodynamic generation of power ARG-10250	B69-10194	02
Oscillator circuit operates as digitally controlled frequency synthesizer GSFC-570	B67-10447	01	BINARY TO DECIMAL CONVERTERS Simple BCD circuit accurately counts to 24 GSFC-317	B65-10225	01
Simplified, high-speed binary data decoder NPO-10118	B68-10058	01	BINDERS (MATERIALS) Solid-film lubricant is effective at high temperatures in vacuum LEWIS-228	B66-10087	03
Digital filter suppresses effects of nonstatistical noise bursts on multichannel scaler digital averaging systems ARG-90143	B68-10193	06	Dry film lubricant is effective at extreme loads M-FS-628	B66-10256	03
High-speed pulse camera MSC-11353	B68-10329	02	Application of the solid lubricant molybdenum disulfide by sputtering LEWIS-10544	B68-10340	03
Simultaneous message framing and error detection MSC-12001	B68-10330	01	Improved high-temperature silicide coatings LEWIS-10817	B69-10266	03
LM lookangle program MSC-13179	B69-10370	06	Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06
Pulse-code-modulation baseline correction for low signal-to-noise ratios MSC-13268	B69-10750	01	BINDING Buckle joins web straps quickly, adjusts easily LANGLEY-21	B64-10119	05
BINARY DIGITS Queuing register uses fluid logic elements M-FS-317	B66-10100	05	Journal gas bearing for curved surfaces M-FS-20423	B69-10182	05
A conceptual, parallel operating data compression processor NPO-10068	B67-10204	01	Breakaway electrical connector NPO-11140	B69-10474	01
Multichannel pulse height analyzer is inexpensive, features low power requirements HQN-10020	B67-10258	01	BINOCULAR VISION Multipurpose binocular scanning apparatus NPO-11002	B69-10311	02
Simple quasi-exponential slope generator NPO-11130	B69-10439	01	BINOCULARS A method for observing gas evolution during plastic laminate cure MSC-15592	B69-10530	03
Simplified, reliable circuit sorts binary numbers in order of magnitude					

SUBJECT INDEX

BIOLOGY

BIOASSAY

Combustion method for assay of biological materials labeled with carbon-14 or tritium, or double-labeled
ARG-10331 B69-10208 04

Direct in-vial collection for liquid-scintillation assay of carbon-14 and tritium
ARG-10424 B69-10412 03

BIOCHEMISTRY

Reusable chelating resins concentrate metal ions from highly dilute solutions
JPL-758 B66-10451 03

Self-sealing closure enables access to several fluid containers
NPO-10123 B67-10207 04

Ultraviolet microscopy aids in cytological and biomedical research
ARG-178 B67-10590 04

Study of radiation effects on mammalian cells in vitro
ARG-10191 B68-10294 02

Microscopes and computers combined for analysis of chromosomes
ARG-10256 B69-10088 04

Qualitative and quantitative analysis of mixtures of compounds containing both hydrogen and deuterium
ARG-10312 B69-10177 04

Neutron therapy of cancer
ARG-10310 B69-10203 04

BIODYNAMICS

Integrated mobility measurement and notation system
MSC-726 B67-10114 04

Review of biological mechanisms for application to instrument design
HQ-33 B67-10663 04

BIOELECTRIC POTENTIAL

Gelatin coated electrodes allow prolonged bioelectronic measurements
MSC-153 B66-10088 01

Miniature electrometer preamplifier effectively compensates for input capacitance
ARC-69 B66-10549 01

BIOELECTRICITY

Subminiature biotelemetry unit permits remote physiological investigations
ARC-39 B64-10171 01

BIOINSTRUMENTATION

New low-level a-c amplifier provides adjustable noise cancellation and automatic temperature compensation
ARC-2 B63-10003 04

Improved electrode gives high-quality biological recordings
MSC-17 B64-10025 04

Subminiature biotelemetry unit permits remote physiological investigations
ARC-39 B64-10171 01

Inexpensive, stable circuit measures heart rate
MSC-95 B65-10010 01

Improved conductive paste secures biomedical electrodes
MSC-107 B65-10015 03

Photoelectric sensor output controlled by eyeball movements
M-FS-274 B65-10079 01

Simulator produces physiological waveforms
MSC-94 B65-10091 01

Tiny biomedical amplifier combines high performance, low power drain
ARC-41 B65-10203 01

Rugged pressed disk electrode has low contact potential
MSC-158 B65-10320 01

Direct force-measuring transducer used in blood pressure research
ARC-53 B65-10325 01

Improved electrode paste provides reliable measurement of galvanic skin response
MSC-146 B66-10049 04

Miniature bioelectric device accurately measures and telemeters temperature
ARC-52 B66-10057 01

Gelatin coated electrodes allow prolonged bioelectronic measurements
MSC-153 B66-10088 01

Phonocardiograph system monitors heart sounds
MSC-185 B66-10154 04

Semiconductor forms biomedical radiation probe
MSC-320 B66-10252 04

Plant respirometer enables high resolution of oxygen consumption rates
HQ-47 B66-10406 04

Multidimensional Reaction Kinetic Ablation Program /FEKAP/
MSC-143 B66-10495 05

Spray-on electrodes enable EKG monitoring of physically active subjects
FRC-36 B66-10649 04

Logarithmic current simulator generates electrical currents accurately between 10 to the minus 11 ampere to 10 to the minus 3 ampere
NU-0087 B66-10706 01

Review of biological mechanisms for application to instrument design
HQ-33 B67-10663 04

Ultraminiature manometer-tipped cardiac catheter
ARC-10054 B67-10669 01

Nosepiece respiration monitor
ERC-10136 B68-10438 01

Pressure-sensitive bonded junction transducers
ERC-10087 B68-10563 01

Remotely-actuated biomedical switch
ARC-10105 B69-10117 01

Foot-operated cell-counter
ARG-10315 B69-10351 01

BIOLOGICAL EFFECTS

Cytology is advanced by studying effects of deuterium environment
ARG-205 B67-10304 04

Training course for radiation safety technicians
ARG-216 B67-10477 02

New passive telemetry system
HQ-10214 B69-10312 01

BIOLOGY

Purification and characterization of two fully deuterated enzymes
ARG-10314 B69-10207 04

BIOLUMINESCENCE

SUBJECT INDEX

BIOLUMINESCENCE

Quantitative determination of flavin nucleotide
using the bacterial bioluminescent reaction
GSFC-10565 B69-10715 04

BIONICS

Review of research and development in fluid
logic elements
M-PS-420 B67-10438 01

BIOPHYSICS

Neutron therapy of cancer
ARG-10310 B69-10203 04

Direct determination of lead-210 by
liquid-scintillation counting
ARG-10462 B69-10611 03

BIOSYNTHESIS

Qualitative and quantitative analysis of
mixtures of compounds containing both
hydrogen and deuterium
ARG-10312 B69-10177 04

BIOTELEMETRY

Analog device simulates physiological
waveforms
MSC-51 B64-10109 01

Subminiature biotelemetry unit permits remote
physiological investigations
ARC-39 B64-10171 01

Miniature telemetry system accurately
measures pressure
ARC-74 B66-10624 01

A phonocardiogram simulator
KSC-67-94 B67-10239 01

Automated urinalysis technique determines
concentration of creatine and creatinine by
colorimetry
NFO-10149 B67-10245 04

Multichannel implantable telemetry system
ARC-10083 B68-10065 01

Automated patient monitoring system
M-PS-14552 B68-10131 01

New passive telemetry system
HQ-10214 B69-10312 01

BIRDS

Compound equation developed for postnatal
growth of birds and mammals
ARG-10192 B68-10427 04

BIREFRINGENCE

Servo system facilitates photoelastic strain
measurements on resins
JPL-504 B64-10280 01

Technique developed for measuring
transmittance of optical birefringent
networks
M-PS-14267 B68-10260 02

Synthesis of electro-optic modulators for
amplitude modulation of light
M-PS-14268 B68-10275 02

Correction for losses in optical
birefringent networks, a concept
M-PS-20088 B68-10571 02

BIREFRINGENT COATINGS

Sprayable birefringent coating enables
strain measurements on large surfaces
M-PS-1484 B66-10578 03

BISMUTH

Dry film lubricant is effective at extreme
loads
M-PS-628 B66-10256 03

Development of Curie point switching for
thin film, random access, memory device

NPO-10402 B67-10633 02

Analyses of silicon dioxide, magnesium
oxide, lead fluoride, bismuth as low-pass
velocity filters for neutrons
ARG-10220 B69-10211 02

Induction probe determines levels of
liquid metals
ARG-10348 B69-10256 03

Analysis of secondary cells with
lithium anodes and immobilized
fused-salt electrolytes
ARG-10452 B69-10613 01

BISMUTH ALLOYS

Bismuth alloy potting seals aluminum connector
in cryogenic application
WOO-260 B66-10138 03

Vacuum chamber is remotely sealed by
eutectic metal
NU-0091 B67-10059 05

New bimetallic EMF cell shows promise in
direct energy conversion
ARG-10183 B68-10415 01

Spectrographic analysis of bismuth-tin
eutectic alloys by spark-ignited
low-voltage ac-arc excitation
ARG-10288 B69-10081 03

BISMUTH OXIDES

IR-transmission glasses formed from oxides of
bismuth and tellurium
M-PS-279 B65-10190 03

BISMUTH TELLURIDES

Modular thermoelectric cell is easily packaged
in various arrays
GSFC-339 B65-10199 01

BISTABLE CIRCUITS

Automatic system determines moments of
inertia of asymmetrical objects
M-PS-1769 B66-10636 01

Solid-state time-to-pulse-height converter
developed
ARG-170 B67-10053 01

Random access-random release relay
switching matrix
M-PS-12590 B68-10301 01

BISTATIC REFLECTIVITY

Combination ranging system and mapping
radar
NPO-11001 B69-10325 01

BIT SYNCHRONIZATION

PN acquisition demodulator achieves automatic
synchronization of a telemetry channel
JPL-612 B66-10271 01

Simultaneous message framing and error
detection
MSC-12001 B68-10330 01

BITS

Improved circuit minimizes generation time of
pseudonoise check bits
JPL-698 B65-10275 01

Queuing register uses fluid logic elements
M-PS-317 B66-10100 05

Multisurface fixture permits easy grinding
of tool bit angles
M-PS-586 B66-10171 05

Tool separates sleeve-type unions without heat
MSC-497 B66-10253 05

Binary sequence detector uses minimum number
of decision elements
JPL-673 B66-10264 01

SUBJECT INDEX

BLOOD CIRCULATION

System monitors discrete computer inputs M-FS-1021	B66-10389	01	damage to substrate MSC-381	B66-10152	05
Numerical data frame readout system used in testing telemetry systems GSFC-551	B67-10175	01	Adjustable knife cuts honeycomb material to specified depth MSC-475	B66-10237	05
Simultaneous message framing and error detection MSC-12001	B68-10330	01	Modified soldering iron speeds cutting of synthetic materials M-FS-725	B66-10246	05
Circuitry selectively limits data storage in general purpose computer GSFC-10605	B69-10121	01	Tool separates sleeve-type unions without heat MSC-497	B66-10253	05
PCM bit detection with correction for intersymbol interference GSFC-10155	B69-10153	01	Precision trimmer aids in preparing biomedical specimen blocks for ultrathin sectioning ARG-242	B67-10541	05
Pulse-code-modulation baseline correction for low signal-to-noise ratios MSC-13268	B69-10750	01	Acoustic wave analysis M-FS-18076	B68-10265	02
BIVARIATE ANALYSIS Study of random process theory aids digital data processing M-FS-1475	B67-10309	06	Battery case shear GSFC-10783	B69-10127	05
BLACK BODY RADIATION Reference black body is compact, convenient to use ABC-3	B63-10004	03	A rotating, noncapillary heat pipe LEWIS-10298	B69-10684	05
A radiometer-pyrometer LEWIS-284	B66-10606	01	BLANKETS Spray-on technique simplifies fabrication of complex thermal insulation blanket M-FS-497	B66-10053	03
Blackbody cavity radiometer has rapid response JPL-521	B66-10679	01	BLAST DEFLECTORS Blast deflector traps smoke and debris from explosive trains MSC-11241	B68-10105	03
Portable spectrometer monitors inert gas shield in welding process M-FS-12144	B67-10326	02	BLASTS In-tank shutoff valve is provided with maximum blast protection M-FS-1529	B66-10514	05
Modified blackbody device emits high-density radiation M-FS-12744	B67-10388	02	Grit blasting nozzle fabricated from mild tool steel proves satisfactory M-FS-1420	B66-10597	05
Improved cavity-type absolute total-radiation radiometer JPL-807	B67-10557	01	BLINDNESS Translator program converts computer printout into braille language M-FS-2061	B67-10087	01
Surface temperature mapping with infrared photographic pyrometry LEWIS-10763	B69-10113	01	BLOCKING Machining heavy plastic sections M-FS-1272C	B67-10381	03
Thermal calibration target IGS-11144	B69-10419	01	BLOCKS Setting of angles on machine tools speeded by magnetic protractor ARC-5	B63-10006	01
Coordination chemistry in fused-salt solutions ARG-10469	B69-10423	03	Device serves as hinge and electrical connector for circuit boards M-FS-743	B66-10359	01
BLADDER Inflatable bladder provides accurate calibration of pressure switch M-FS-367	B65-10279	01	BLOOD Computer circuit calculates cardiac output MSC-274	B66-10006	01
Welds chilled by liquid coolant manifold M-FS-679	B66-10354	05	Blood oxygen saturation determined by transmission spectrophotometry of hemolyzed blood samples MSC-11018	B67-10252	04
BLADES Blade valve isolates compartment in pipe, opens to allow free flow JPL-585	B64-10188	05	Improved sample capsule for determination of oxygen in hemolyzed blood MSC-11017	B67-10408	04
Adjustable knife cuts honeycomb material to specified depth MSC-475	B66-10237	05	Rapid and precise analysis for calcium in blood serum ARG-10246	B69-10160	04
Work platform is supported by self-locking blades M-FS-2297	B67-10180	05	Foot-operated cell-counter ARG-10315	B69-10351	01
Astronaut space suit communication antenna MSC-12101	B68-10238	01	BLOOD CIRCULATION New electrical plethysmograph monitors cardiac output MSC-11447	B68-10220	01
BLADES (CUTTERS) Nylon bit removes cork insulation without					

BLOOD PLASMA

SUBJECT INDEX

BLOOD PLASMA

Large volume continuous counterflow
dialyzer has high efficiency
HQ-10055 B67-10395 04

BLOOD PRESSURE

Simulator produces physiological waveforms
MSC-94 B65-10091 01

Direct force-measuring transducer used in
blood pressure research
ARC-53 B65-10325 01

Blood pressure reprogramming adapter
assists signal recording
MSC-265 B67-10475 01

BLOOD VESSELS

Multidimensional Reaction Kinetic Ablation
Program /REKAP/
MSC-143 B66-10495 05

Hand-held instrument should relieve
hematoma pressure
MSC-599 B67-10332 04

BLOWERS

Portable detector set discloses helium
leak rates
M-FS-1733 B67-10065 01

BOATS

Discrimination of fish oil and mineral
oil slicks on sea water
HQ-10412 B69-10673 01

BODIES OF REVOLUTION

Ellipsoidal optical reflectors reproduced by
electroforming
GSFC-92 B63-10547 05

Averaging probe reduces static-pressure
sensing errors
LANGLEY-36 B65-10114 05

Program computes zero lift wave drag of
entire aircraft
LANGLEY-10079 B67-10530 06

Finite element analysis of compressible
solids with nonlinear material properties
NUC-10342 B69-10238 06

BODY FLUIDS

Apparatus enables automatic microanalysis of
body fluids
JPL-962 B66-10515 04

BODY MEASUREMENT (BIOLOGY)

Inexpensive, stable circuit measures heart
rate
MSC-95 B65-10010 01

BODY TEMPERATURE

Simulator produces physiological waveforms
MSC-94 B65-10091 01

Miniature bioelectric device accurately
measures and telemeters temperature
ARC-52 B66-10057 01

BOILERS

Oxygen-hydrogen torch is a small-scale
steam generator
NU-0042 B66-10120 03

Pump simulator provides variable
pressure-flow characteristics
LEWIS-10122 B67-10453 05

Channel-wall limitations in the
magnetohydrodynamic induction generator
ARG-10128 B69-10255 02

BOILING

Control system maintains selected liquid level
M-FS-470 B66-10039 01

Cryogenic liquid transfer system reduces

residual boiloff
LEWIS-274 B66-10157 02

Silazane elastomer remains resilient at
400 deg C
M-FS-1144 B66-10667 05

Cryogenic liquid level measuring probe
ARG-10138 B68-10291 01

Dynamics of moving bubbles in single and
binary component systems
M-FS-14845 B68-10339 02

Heat transfer coefficients for liquid
hydrogen turbopumps
M-FS-18345 B68-10517 02

Electrochemical study of aluminum
corrosion in boiling high purity water
ARG-10306 B69-10033 03

BOILING WATER REACTORS

Self-sustained hydrodynamic oscillations in
a natural-circulation two-phase-flow
boiling loop
ARG-10461 B69-10620 02

BOLOMETERS

Improved insertion-loss tester
JPL-358 B64-10080 01

Wedge immersed thermistor bolometer measures
infrared radiation
GSFC-443 B65-10330 02

Ferroelectric bolometer measures RF absolute
power at submillimeter wavelengths
GSFC-422 B66-10051 01

Linear signal noise summer accurately
determines and controls S/N ratio
JPL-SC-152 B66-10433 01

Detector measures power in 50 to 30,000
GHz radiation band
ERC-26 B66-10581 01

Infrared radiometer
M-FS-13373 B67-10422 01

Precision bolometer bridge
MSC-11473 B68-10156 01

BOLTS

Simple mechanism combines positive locking and
quick-release features
WOO-4 B63-10420 05

Fastener provides cooling and compensates for
thermal expansion
NU-0003 B65-10038 05

Screw locking cups quickly and neatly crimped
NU-0009 B65-10049 05

Lightweight door seals cryogenic container
against diaphragm type loading
M-FS-476 B65-10402 05

O-ring tube fittings form leakproof seal in
hydraulic systems
M-FS-481 B66-10020 05

Modified power tool rapidly drives series
torque bolts
MSC-221 B66-10054 05

Calibrated clamp facilitates pressure
application
MSC-298 B66-10059 05

Mechanism isolates load weighing cell during
lifting of load
MSC-297 B66-10071 05

Hand drill adapter limits holes to desired
depth
MSC-346 B66-10123 05

SUBJECT INDEX

BONDING

Expandable insert serves as screw anchor MSC-301	B66-10132	05	Screening technique makes reliable bond at room temperature M-FS-227	B65-10004	03
Pressure-welded flange assembly provides leaktight seal at reduced bolt loads M-FS-640	B66-10247	05	Thermocompression bonding produces efficient surface-barrier diode JPL-SC-066	B65-10007	05
Diffusion bonding makes strong seal at flanged connector M-FS-637	B66-10250	05	Improved conductive paste secures biomedical electrodes MSC-107	B65-10015	03
Fastener provides for bolt misalignment and quick release of flange NU-0074	B66-10275	05	Adhesive for vacuum environments resists shock and vibration MSC-56	B65-10016	03
Bi-metallic devices help maintain constant sealing forces down to cryogenic temperatures M-FS-800	B66-10325	02	Thermistor connector assembly increases accuracy of measurements LANGLEY-62	B65-10045	01
Nondestructive test method accurately sorts mixed bolts M-FS-1426	B66-10574	01	Thoriated nickel bonded by solid-state diffusion method LANGLEY-116	B65-10220	03
Multilayer refractory nozzles produced by plasma-spray process WOO-318	B66-10611	05	Selenium bond decreases ON resistance of light-activated switch JPL-SC-101	B65-10324	01
Pneumatic wrench retains or discharges nuts or bolts as desired NU-0085	B66-10707	05	Calibrated clamp facilitates pressure application MSC-298	B66-10059	05
Single wrench separates nuts from free-floating bolts NUC-10013	B67-10158	05	Reflective insulator layers separated by bonded silica beads MSC-215	B66-10070	03
Cable clamp bolt fixture facilitates assembly in close quarters KSC-67-80	B67-10244	05	Storage-stable foamable polyurethane is activated by heat LANGLEY-187	B66-10111	03
Spherical joint connects axially misaligned flanges M-FS-2238	B67-10273	05	Split glass tube assures quality in electron beam brazing M-FS-564	B66-10151	05
Study made of transfer of heat energy through metal joints in vacuum environment M-FS-12534	B67-10465	02	Brazing process using Al-Si filler alloy reliably bonds aluminum parts MSC-448	B66-10241	05
Tensile testing grips ensure uniform loading of bimetal tubing specimens LEWIS-10267	B68-10248	05	Electrolytic etching process provides effective bonding surface on stainless steel GSFC-484	B66-10299	03
Machining technique prevents undercutting in tensile specimens LANGLEY-10281	B68-10352	05	Ultrasonic emission method enables testing of adhesive bonds M-FS-799	B66-10341	01
Boyd-bolt, a positive-latch, simple-release fastener MSC-13061	B68-10512	05	Dot patterns provide reproducible flaw areas for study of adhesive bonds M-FS-862	B66-10367	05
Pressure transducer NPO-10853	B69-10364	01	Composite gaskets are compatible with liquid oxygen, resist compression set M-FS-455	B66-10395	03
BOLTZMANN TRANSPORT EQUATION			Adhesive for polyester films cures at room temperature, has high initial tack M-FS-938	B66-10487	03
Structure of the isotropic transport operators in three independent space variables ARG-10448	B69-10432	06	Braze alloy holds bonding strength over wide temperature range LEWIS-337	B66-10519	03
GAMBIT program NUC-10243	B69-10433	06	Composite bulkhead fabrication development M-FS-1264	B66-10582	05
BOMBARDMENT			Composite weld rod corrects individual filler weaknesses M-FS-1923	B67-10107	05
Multiple element soft X-ray source produces wide range of radiation GSFC-286	B65-10082	02	Nonwoven glass fiber mat reinforces polyurethane adhesive M-FS-2309	B67-10113	03
Electron beam parallel X-ray generator MSC-11022	B67-10372	02	Porous mandrels provide uniform deformation in hydrostatic powder metallurgy M-FS-1972	B67-10209	03
BONDING			Liquid crystals detect voids in fiber glass		
New method forms bond line free of voids LANGLEY-20	B63-10558	05			
Metals plated on fluorocarbon polymers JPL-544	B63-10612	03			
Elastomers bonded to metal surfaces seal electrochemical cells GSFC-168	B64-10113	03			

BONES

SUBJECT INDEX

laminates LEWIS-10104	B67-10286	03	M-FS-12646	B69-10564	03
Improved ultrasonic TV images achieved by use of Lamb-wave orientation technique ARG-203	B67-10295	02	BONES		
Method of improving contact bonds in silicon integrated circuits M-FS-1753	B67-10335	01	Instrumentation for bone density measurement MSC-11388	B68-10140	01
Metal flame spray coating protects electrical cables in extreme environment NUC-10077	B67-10351	03	Carbon offers advantages as implant material in human body M-FS-18207	B69-10087	04
Flowmeter determines mix ratio for viscous adhesives M-FS-2308	B67-10378	01	Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna ARG-10345	B69-10258	02
Heavy-gage bonded honeycomb sandwich as primary load-bearing structure M-FS-12060	B67-10427	05	BOOLEAN ALGEBRA		
Test and inspection for process control of monolithic circuits M-FS-13084	B67-10507	01	Logic realization of simple majority voting connectives JPL-727	B67-10511	06
Radiant heat source, vacuum bag, provide portable bonding oven MSC-11342	B67-10570	03	Pneumatic analog-to-pulse frequency converter LEWIS-10345	B69-10276	02
Nondestructive testing techniques used in analysis of honeycomb structure bond strength M-FS-1214	B67-10574	01	BOOLEAN FUNCTIONS		
Method of disjoining adhesively bonded electronic ccrdwood modules MSC-12060	B68-10086	01	Veitch diagram plotter simplifies Boolean functions JPL-385	B63-10241	05
Glass coated single grid for charged particle acceleration LEWIS-10106	B68-10215	03	Binary sequence detector uses minimum number of decision elements JPL-673	B66-10264	01
Miniature pressure transducer for stressed member application MSC-11869	B68-10246	01	Exclusive-or logic circuit has useful properties LANGLEY-214	B66-10272	01
Application of the solid lubricant molybdenum disulfide by sputtering LEWIS-10544	B68-10340	03	Scanning means for Cassegrainian antenna JPL-946	B67-10174	05
Gage measures total radiation, including vacuum UV, from ionized high-temperature gases KNP-09802	B69-10028	02	BOOM		
Frangible electrochemical cell and sealing technique XGS-10010	B69-10056	01	Apparatus of small size can be extended into long, rigid boom JPL-305	B63-10200	05
Adhesive for cryogenic temperature applications LEWIS-10264	B69-10074	03	BOOMS (EQUIPMENT)		
Miniaturization of magnetic logic circuitry LANGLEY-10037	B69-10148	06	Metal strip forms 21 foot boom, rolls up for compact storage GSFC-151	B64-10011	05
Diffusion bond method of joining steel and a TFE-bronze composite M-FS-20482	B69-10237	03	Scoop attachment makes helicopter recoveries easier and safer MSC-130	B65-10229	05
Precision mounting for instrument optical elements provided by polyimide bonding M-FS-20293	B69-10310	05	Sheet metal strip unrolls to form circular boom GSFC-423	B66-10032	05
Quick-set temporary bonding clamps NPO-10695	B69-10406	03	Fixture aids soldering of electronic components on circuit board ARC-56	B66-10162	01
Nondestructive determination of cohesive strength of adhesive-bonded composites M-FS-20397	B69-10464	03	Diaphragm spring gives clutch over-center toggle effect GSFC-499	B66-10297	05
Improved primer for bonding polyurethane adhesives to metals M-FS-90591	B69-10540	03	Hoisting frame facilitates handling of large objects M-FS-16166	B68-10575	05
A new method for fabrication of flexible vacuum purge jackets			Proposed technique for vertical alignment of a crane's cable M-FS-16496	B69-10202	05
			A mechanically extendible boom NPO-11118	B69-10328	05
			BOOSTER ROCKET ENGINES		
			Damping technique gives accelerometer flat frequency response M-FS-471	B66-10293	01
			Study made of large amplitude fuel sloshing M-FS-12381	B67-10439	03
			Fortran 4 program for two-impulse rendezvous analysis M-FS-13971	B67-10479	06
			Shell design computer program		

SUBJECT INDEX

BORON OXIDES

LEWIS-10734	B69-10175	06	Grain growth inhibitor for porous tungsten materials	B68-10527	03
BOOSTERS			LEWIS-10535		
Heavy-gage bonded honeycomb sandwich as primary load-bearing structure	B67-10427	05	High strength, superplastic superalloy	B69-10293	03
M-FS-12060			LEWIS-10805		
BOOTS (FOOTWEAR)			Boron fiber-reinforced aluminum alloy tubing /experimental/	B69-10509	05
Self-contained clothing system provides protection against hazardous environments	B66-10201	05	MSC-15633		
M-FS-536			BORON CARBIDES		
BORATES			Metal sheath improves thermocouple using graphite in one leg	B65-10051	01
Synthesis of perbromates	B69-10647	03	NU-0011		
ARG-10459			Boron carbide whiskers produced by vapor deposition	B65-10261	03
BOREL SETS			HQ-24		
Structure of the isotropic transport operators in three independent space variables	B69-10432	06	Radial furnace shows promise for growing straight boron carbide whiskers	B67-10070	03
ARG-10448			HQ-50		
BORESIGHTS			Aluminum-titanium hydride-boron carbide composite provides lightweight neutron shield material	B67-10265	03
Mirror device aligns machine surface perpendicular to sight lines	B63-10421	02	NUC-10069		
WOO-5			Low-energy gamma ray inspection of brazed aluminum joints	B67-10337	02
Simple optical system used to align spectrograph	B65-10071	02	MSC-1189		
LANGLEY-92			BORON COMPOUNDS		
Multi-feed cone for Cassegrainian antenna	B69-10269	01	Impurity diffusion process for silicon semiconductors is fast and precise	B65-10300	01
NPO-10539			GSFC-397		
BORIC ACIDS			Dispersion of borax in plastic is excellent fire-retardant heat insulator	B67-10016	03
Inorganic paint is durable, fireproof, easy to apply	B65-10156	03	ARG-5		
GSFC-366			Uranyl phthalocyanines show promise in the treatment of brain tumors	B67-10188	04
Improved nickel plating of Inconel X-750	B69-10463	05	ARG-100		
M-FS-18604			BORON FLUORIDES		
BORIDES			Boron trifluoride nuclear detector preamplifier uses single-cable connection	B65-10255	01
Protective coating withstands high temperature in oxidizing atmosphere	B66-10044	03	LEWIS-178		
M-FS-529			Detection of entrapped moisture in honeycomb sandwich structures	B67-10116	01
BORING MACHINES			MSC-1103		
Hand drill adapter limits holes to desired depth	B66-10123	05	Current pulse amplifier transmits detector signals with minimum distortion and attenuation	B67-10347	01
MSC-346			NUC-10055		
Depth indicator and stop aid machining to precise tolerances	B66-10149	05	BORON ISOTOPES		
M-FS-553			An improved nuclear magnetic resonance spectrometer	B67-10234	01
Vertical boring mill capacity is increased	B68-10530	05	JPL-762		
M-FS-16196			BORON NITRIDES		
Vibration dampener for Niles vertical boring mill ram	B69-10348	05	Boron nitride housing cools transistors	B65-10289	01
MSC-15529			WOO-079		
BORON			X-ray source uses interchangeable target anodes to vary X-ray wavelength	B67-10218	02
Boron-deoxidized copper withstands brazing temperatures	B66-10273	03	NPO-10036		
M-FS-762			Development of technology for hot-drape forming of large torus sections	B67-10341	05
Improved thermal insulation materials made of foamed refractory oxides	B66-10288	03	M-FS-12141		
M-FS-735			High-temperature /1100 degrees F/ capacitors operate without supplement cooling	B67-10550	01
Analytical techniques for determining boron in graphite	B68-10102	03	LEWIS-10324		
ARG-10087			Grain growth inhibitor for porous tungsten materials	B68-10527	03
Fiber glass reinforced structural materials for aerospace application	B68-10360	03	LEWIS-10535		
M-FS-14806			BORON OXIDES		
One-dimensional two-phase reacting gas nonequilibrium performance program	B68-10376	06	Solid-film lubricant is effective at high temperatures in vacuum	B66-10087	03
MSC-11780			LEWIS-228		
Nickel-base superalloy*s excellent properties promote its service to 2200 degrees F	B68-10380	03			
LEWIS-10355					

BORON 10

SUBJECT INDEX

Thin-film ferrites vapor deposited by one-step process in vacuum MSC-259	B66-10398	03	SAN-10003	B68-10231	04
BORON 10			Acoustic wave analysis M-FS-18076	B68-10265	02
Neutron therapy of cancer ARG-10310	B69-10203	04	Instabilities encountered during heat transfer to a supercritical fluid ARG-10266	B69-10042	02
BOROSILICATE GLASS			Experimental design for research on shock-turbulence interaction M-FS-20031	B69-10604	02
Electrodeless discharge lamp is easily started, has high stability WOO-030	B66-10015	01	BOUNDARY LUBRICATION		
Substituting gold for silver improves electrical connections M-FS-2390	B67-10228	03	Study of high temperature bearing materials LEWIS-10829	B69-10252	03
Indium adhesion provides quantitative measure of surface cleanliness SAN-10024	B68-10342	01	BOUNDARY VALUE PROBLEMS		
Restricted-flow junction between liquids NPO-10682	B69-10332	02	Controllability of distributed-parameter systems M-FS-14929	B68-10346	02
Ionene membrane battery separator NPO-11091	B69-10501	03	Buckling Of Shells Of Revolution /BOSOR/ with various wall constructions LANGLEY-10441	B69-10300	06
BOTANY			BOX BEAMS		
Study made of relationship between growth and metabolism ARG-10046	B67-10604	04	Development of structural test articles from magnesium-lithium and beryllium M-FS-14959	B69-10417	03
BOTTLES			BOXES		
Economical and maintenance-free gas system operates railroad switches NU-0045	B66-10124	05	Double gloves reduce contamination of dry box atmosphere LEWIS-211	B65-10117	03
Self-sealing closure enables access to several fluid containers NPO-10123	B67-10207	04	BOXES (CONTAINERS)		
Compact monitoring and control console for pressurized gas bottles M-FS-14874	B68-10401	05	Argon purge gas cooled by chill box M-FS-560	B66-10153	02
BOUGUER LAW			Epoxy-coated containers easily opened by wire band M-FS-592	B66-10174	05
Blood oxygen saturation determined by transmission spectrophotometry of hemolyzed blood samples MSC-11018	B67-10252	04	Special tool kit aids heavily garmented workers MSC-163	B66-10403	05
BOUNDARIES			Inflatable bladder to facilitate handling of heavy objects - A concept M-FS-14272	B69-10069	05
Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates ARG-151	B66-10601	05	BRACKETS		
General series solution technique for bending of irregular laterally loaded flat plates NUC-10170	B69-10035	06	Compact retractor protects cabling loops M-FS-561	B66-10018	05
Trajectory optimization using regularized variables MSC-13370	B69-10810	02	Camera lens adapter magnifies image M-FS-11955	B67-10431	02
BOUNDARY LAYER CONTROL			Tape reading fixture M-FS-14146	B69-10008	05
Experimental scaling study of fluid amplifier elements M-FS-1882	B67-10088	02	BRAIN		
Dynamics of moving bubbles in single and binary component systems M-FS-14845	B68-10339	02	Uranyl phthalocyanines show promise in the treatment of brain tumors ARG-100	B67-10188	04
BOUNDARY LAYER SEPARATION			BRAKES (FOR ARRESTING MOTION)		
FORTAN 4 program calculates velocities and streamlines in a tandem blade turbomachine LEWIS-10743	B69-10219	06	Frictional wedge shock mount is inexpensive, has good damping characteristics JPL-IT-1001	B63-10289	05
BOUNDARY LAYER TRANSITION			Compressed gas system operates semitrailer brakes during winching operation JPL-0036	B64-10306	05
Thin-film gage measures low heat-transfer rates LANGLEY 205	B66-10180	01	Air brake-dynamometer accurately measures torque LEWIS-163	B65-10312	05
BOUNDARY LAYERS			Calculations enable optimum design of magnetic brake LEWIS-251	B66-10073	05
Vacuum probe sampler removes micron-sized particles from surfaces			Modified hydraulic braking system limits angular deceleration to safe values GSFC-476	B66-10310	05
			Braking mechanism is self actuating and		

SUBJECT INDEX

BRAZING

bidirectional M-FS-1299	B66-10484	05	M-FS-564	B66-10151	05
Emergency escape system uses self-braking mechanism on fixed cable KSC-66-44	B66-10575	05	Brazing process using Al-Si filler alloy reliably bonds aluminum parts MSC-448	B66-10241	05
Friction brake cushions acceleration and vibration loads MSC-715	B66-10608	05	High-speed furnace uses infrared radiation for controlled brazing NU-0047	B66-10268	02
BRAKES (FORMING OR BENDING)			Boron-deoxidized copper withstands brazing temperatures M-FS-762	B66-10273	03
Metal-bending brake facilitates lightweight, close-tolerance fabrication ARC-29	B64-10069	05	Braze alloys used as temperature indicators NU-0063	B66-10274	01
BRACING			Vacuum test fixture improves leakage rate measurements MSC-271	B66-10286	01
Compressed gas system operates semitrailer brakes during winching operation JPL-0036	B64-10306	05	Union would facilitate joining of tubing, minimize braze contamination MSC-777	B66-10311	05
Hydraulic drive system prevents backlash JPL-371	B65-10351	05	Brazing process provides high-strength bond between aluminum and stainless steel M-FS-803	B66-10352	05
Solid state circuit controls direction, speed, and braking of dc motor JPL-757	B66-10486	01	Aluminum core structures brazed without use of flux M-FS-659	B66-10360	05
BRASSES			Brazing retort manifold design concept may minimize air contamination and enhance uniform gas flow M-FS-707	B66-10371	05
Miniature stress transducer has directional capability JPL-591	B65-10023	01	Microminiature thermocouple monitors own installation M-FS-1111	B66-10463	05
Improved sample capsule for determination of oxygen in hemolyzed blood MSC-11017	B67-10408	04	Braze alloy holds bonding strength over wide temperature range LEWIS-337	B66-10519	03
BRAZING			Silver-palladium braze alloy recovered from masking materials M-FS-1845	B66-10631	03
New method used to fabricate light-weight heat exchanger for rocket motor LEWIS-43	B63-10346	02	Preformed stiffeners used to fabricate structural components for pressurized tanks M-FS-1796	B66-10688	05
Flexible honeycomb structure can bend to fit compound curves M-FS-13	B63-10385	05	Silver plating technique seals leaks in thin wall tubing joints NU-0090	B66-10703	05
Connector for thermocouple leads saves costly wire, makes reliable connectors LANGLEY-26	B63-10529	01	Metal boot permits fabrication of hermetically sealed splices in metal sheathed instrumentation cables NU-0083	B66-10704	05
Mounting for diodes provides efficient heat sink M-FS-197	B64-10283	01	Ultrasonics permits brazing complex stainless steel assembly without flux NU-0115	B67-10094	05
New alloy brazes titanium to stainless steel MSC-102	B65-10060	05	High-strength braze joints between copper and steel M-FS-2519	B67-10211	05
Probe tests microweld strength WOO-118	B65-10111	05	Aluminum and stainless steel tubes joined by simple ring and welding process M-FS-13120	B67-10472	05
Titanium treatment improves brazed joints MSC-127	B65-10153	05	Tube dimpling tool assures accurate dip-brazed joints MSC-533	B68-10036	05
Refractory metals welded or brazed with tungsten inert gas equipment LEWIS-219	B65-10319	05	Evaluation of methods for nondestructive testing of brazed joints ARG-90175	B68-10191	03
Inert-gas welding and brazing enclosure fabricated from sheet plastic LEWIS-220	B65-10338	05	Two-fluid, impinging-sheet injector NPO-10547	B68-10338	05
Brazing method produces solid-solution bond between refractory metals LEWIS-212	B65-10370	05	X-ray film holder permits single continuous picture of tubing joint		
Tungsten wire and tubing joined by nickel brazing M-FS-394	B65-10391	05			
New brazing alloy eliminates metal-stress cracking WOO-249	B65-10397	03			
Improved tool easily removes brazed tube connectors MSC-263	B66-10003	05			
Split glass tube assures quality in electron beam brazing					

BREADBOARD MODELS

SUBJECT INDEX

LEWIS-10382	B68-10343	05	M-FS-14041	B67-10653	02
Nondestructive testing of brazed rocket engine components			BRIDGES		
M-FS-18191	B68-10394	03	Temperature or pressure controller		
Tube welding and brazing			LEWIS-10297	B68-10337	01
M-FS-20348	B69-10085	05	BRIDGES (STRUCTURES)		
Repair of honeycomb panels with welded breakaway studs			Safety switch permits emergency bridge crane shutdown		
MSC-15046	B69-10261	05	M-FS-549	B66-10168	05
Welding, brazing, and soldering handbook			Square tubing reduces cost of telescoping bridge crane hoist		
M-FS-20504	B69-10264	05	ARG-13	B67-10293	05
Shock-absorbent mountings for bearings			BRIDGMAN METHOD		
NFO-10626	B69-10331	05	Electro-optic modulator for infrared laser using gallium arsenide crystal		
Nondestructive testing of welds on thin-walled tubing			GSFC-10686	B68-10255	02
M-FS-18144	B69-10402	01	BRIGHTNESS		
Generation of sonic power during welding			Exposure Value /EV/ system expanded to include filter factors and transmittance		
M-FS-20339	B69-10404	05	LANGLEY-190	B66-10602	02
Improved nickel plating of Inconel X-750			Rapid-response, light-exposure control system		
M-FS-18604	B69-10463	05	NFO-10238	B68-10502	01
BREADBOARD MODELS			BRITTLENESS		
Analog buffer isolates high impedance source from low impedance load			Captive nut fastener securely joins brittle materials		
M-FS-13481	B67-10544	01	NU-0008	B65-10245	05
Development of Electronic Data Processing /EDP/ augmented management system			Compound improves thermal interface between thermocouple and sensed surface		
M-FS-14715	B68-10287	06	NU-0028	B66-10121	02
BREAKING			Friction loading device enables accurate testing of brittle materials		
Heated die facilitates tungsten forming			NU-0051	B66-10345	05
LEWIS-25A	B66-10047	05	Brazing process provides high-strength bond between aluminum and stainless steel		
Experimental prediction of performance by superconducting cables			M-FS-803	B66-10352	05
ARG-10215	B69-10161	01	Gage of 6.5 per cent Si-Fe sheet is chemically reduced		
Improved method of dicing integrated circuit wafers into chips			MSC-537	B66-10454	03
ERC-10138	B69-10441	01	High-strength tungsten alloy with improved ductility		
Breakaway electrical connector			LEWIS-10257	B67-10340	03
NFO-11140	B69-10474	01	Excellent spring properties developed in two nickel alloys for use at cryogenic temperatures		
BREATHING APPARATUS			NUC-10084	B67-10349	03
Device induces lungs to maintain known constant pressure			Steel test panel helps control additives in pyrophosphate copper plating		
MSC-50	B64-10108	04	LEWIS-10101	B67-10358	05
Respiratory transfer valve has fail-safe feature			Study made of anodized aluminum circuit boards		
ARC-1	B65-10369	01	M-FS-13580	B67-10425	01
Self-contained clothing system provides protection against hazardous environments			Fabrication techniques developed for small-diameter, thin-wall tungsten and tungsten alloy tubing		
M-FS-536	B66-10201	05	ARG-10100	B68-10284	05
Automatic patient respiration failure detection system with wireless transmission			Preparing rock powder specimens of controlled size distribution		
ARC-10174	B68-10365	01	NFO-10007	B68-10297	05
BREEDER REACTORS			Manual of typical low temperature mechanical properties of several materials		
Remote balance weighs accurately amid high radiation			M-FS-18331	B69-10179	03
ARG-10387	B69-10242	05	BROADBAND		
BREMSSTRAHLUNG			An investigation of phase-lock loop swept-frequency synchronization		
The response of monoenergetic gamma rays in finite media are investigated			M-FS-656	B66-10423	01
ARG-10295	B69-10080	02	Detector measures power in 50 to 30,000 GHz radiation band		
Electron interaction in matter			ERC-26	B66-10581	01
M-FS-14886	B69-10674	02			
BREWSTER ANGLE					
Dielectric prisms would improve performance of quasi-optical microwave components					
ERC-10011	B67-10416	01			
Nonreciprocal gain control for ring laser					

SUBJECT INDEX

BUFFERS

Optical superheterodyne receiver uses laser for local oscillator M-FS-1605	B66-10584	01	Dynamics of moving bubbles in single and binary component systems M-FS-14845	B68-10339	02
High frequency wide-band transformer uses coax to achieve high turn ratio and flat response ARG-107	B66-10600	01	Determining gas leakage from bubble formations M-FS-14841	B68-10393	05
Shortened horn-reflector antenna GSFC-502	B67-10017	01	Cryogenic fluid flow instabilities in heat exchangers M-FS-20438	B69-10541	02
Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01	A method for using surface tension to determine the size of holes in hardware MSC-15194	B69-10595	03
Broadband choke suppresses spurious currents in antenna structure MSC-10013	B67-10675	01	BUCKLING		
Solid state high-voltage pulser operates with low supply voltage M-FS-14034	B68-10308	01	Analysis of stability-critical orthotropic cylinders subjected to axial compression M-FS-12869	B67-10375	03
Multilayer infrared beamsplitter film system IGS-11036	B69-10260	02	Heavy-gage bonded honeycomb sandwich as primary load-bearing structure M-FS-12060	B67-10427	05
BROADCASTING			Buckling strength of filament-wound cylinders under axial compression is investigated HQ-10032	B67-10659	03
Survey of man-made electrical noise affecting radio broadcasting HQ-10290	B69-10308	01	Study made of mechanics of deformation and fracture of fibrous composites HQ-10035	B67-10660	03
System converts slow-scan to standard fast-scan TV signals MSC-90534	B69-10748	01	Static structural analysis of shell-type structures MSC-11555	B68-10066	03
BROMINE			Computer program analyzes Buckling Of Shells Of Revolution with various wall construction, BOSOR LANGLEY-10290	B68-10226	06
Zone purification of potassium chloride ARG-10377	B69-10241	03	Buckling Of Shells Of Revolution /BOSOR/ with various wall constructions LANGLEY-10441	B69-10300	06
Synthesis of perbromates ARG-10459	B69-10647	03	BUDGETING		
BRONZES			Probabilistic approach to long range planning of manpower MSC-11524	B67-10510	06
Thermally conductive metal wool-silicone rubber material can be used as shock and vibration damper JPL-321	B63-10207	03	LABCON - Laboratory Job Control program M-FS-18141	B69-10106	06
Reparable, high-density microelectronic module provides effective heat sink M-FS-13075	B67-10356	01	BUFFER STORAGE		
Diffusion bond method of joining steel and a TFE-bronze composite M-FS-20482	B69-10237	03	Digital-to-analog converter operates from low level inputs JPL-907	B67-10357	01
Self-lubricating gear M-FS-14971	B69-10408	05	Simultaneous message framing and error detection MSC-12001	B68-10330	01
Precisely repeatable rotary mechanism NPO-10679	B69-10696	05	Encode/Decode facility for FORTRAN 4 ARG-10335	B69-10169	06
BRUSHES			PCM synchronization by word stuffing NPO-10688	B69-10695	01
Improved molybdenum disulfide-silver motor brushes have extended life M-FS-64	B63-10479	03	BUFFERS		
Contact stresses calculated for miniature slip rings M-FS-280	B65-10098	05	Increased performance reliability obtained with dual /redundant/ oscillator system GSFC-36	B63-10027	01
BUBBLE CHAMBERS			Intermediate rotating ring improves reliability of dynamic shaft seal M-FS-575	B66-10197	05
Cryogenic seal remains leaktight during thermal displacement ARG-96	B67-10134	02	Field effect transistors improve buffer amplifier M-FS-916	B67-10334	01
Cryogenic liquid level measuring probe ARG-10138	B68-10291	01	Analog buffer isolates high impedance source from low impedance load M-FS-13481	B67-10544	01
BUBBLES					
Instrument calibrates low gas-rate flowmeters MSC-134	B65-10137	01			
Reducing bubbles in glass coatings improves electrical breakdown strength LEWIS-10278	B68-10214	03			

BUFFERS (CHEMISTRY)

SUBJECT INDEX

BUFFERS (CHEMISTRY)

Improved pH buffering agent for sodium hypochlorite
MSC-15443 B69-10084 03

BUILDINGS

Computer program conducts facilities utilization and occupancy survey
NPO-10438 B68-10137 06

BULBS

An improved atomic hydrogen frequency and time standard
GSFC-10706 B69-10341 02

BULKHEADS

Composite bulkhead fabrication development
M-FS-1264 B66-10582 05

Portable fixture facilitates pressure testing of instrumentation fittings
M-FS-2032 B67-10121 03

Computer program performs rectangular fitting stress analysis
M-FS-13010 B67-10520 06

Explosive-train initiated through solid bulkhead by pressure cartridge
MSC-11395 B67-10589 03

BUNDLES

Compact retractor protects cabling loops
M-FS-561 B66-10018 05

BUOYANCY

Compact assembly generates plastic foam, inflates flotation bag
LANGLEY-96 B65-10090 05

Organic reactants rapidly produce plastic foam
LANGLEY-37 B65-10288 03

Device without electrical connections in tank measures liquid level
WOO-235 B66-10198 01

Hydrostatic force used to handle outsized, heavy objects
HQ-90 B67-10167 05

Pneumatic raft automatically reforms after rupture of buoyant member
MSC-11562 B68-10011 05

BUOYS

Oceanborne transponder platform has good stability
M-FS-171 B65-10035 05

BURETTES

Instrument calibrates low gas-rate flowmeters
MSC-134 B65-10137 01

BURNERS

Heated die facilitates tungsten forming
LEWIS-25A B66-10047 05

BURNING RATE

Burn-rate testing apparatus
MSC-10947 B69-10740 03

BURNING TIME

Fortran 4 program for two-impulse rendezvous analysis
M-FS-13971 B67-10479 06

Control jet placement on spacecraft
MSC-13365 B69-10671 01

BURNOUT

Lamp automatically switches to new filament on burnout
M-FS-498 B66-10046 01

BUS CONDUCTORS

Solar cell submodule design facilitates assembly of lightweight arrays
JPL-728 B66-10231 02

Clamp provides efficient connection for high-density currents
M-FS-2417 B67-10140 01

BUSHINGS

Expandable insert serves as screw anchor
MSC-301 B66-10132 05

Mounting facilitates removal and installation of flame-detector rods
M-FS-555 B66-10150 05

Technique for anchoring fasteners to honeycomb panels
LEWIS-10888 B69-10265 03

An improved method for electrical cable terminations
NPO-10694 B69-10327 01

BUTADIENE

Surfactant for dye-penetrant inspection is insensitive to liquid oxygen
M-FS-475 B66-10131 03

Dispensing graduate for butadiene
NPO-10070 B68-10524 03

BUTT JOINTS

Welds chilled by liquid coolant manifold
M-FS-679 B66-10354 05

Quick-acting backup tool for welding ducts
M-FS-18404 B69-10396 05

Pressure-control purge panel for automatic butt welding
M-FS-18465 B69-10403 05

BUTTERFLY VALVES

Electropneumatic transducer automatically limits motor current
LEWIS-253 B66-10160 01

Soft metal plating enables hard metal seal to operate successfully in low temperature, high pressure environment
NUC-10083 B67-10350 03

BUTTONS

Pocket-sized tone-modulated FM transmitter
NPO-11180 B69-10725 01

BY-PRODUCTS

Neutron irradiation of Am-241 effectively produces curium
ARG-10030 B67-10501 03

BYPASSES

Mounting method improves electrical and vibrational characteristics of screen electrodes
M-FS-20165 B69-10097 01

C

C BAND

Low-loss C-band parasitic probe
KSC-09348 B69-10251 01

CABLES

Shrinkable sleeve eliminates shielding gap in RF cable
WOO-207 B65-10387 01

Electrical cabling withstands severe environmental conditions
M-FS-1585 B66-10427 01

Adhesive for polyester films cures at room temperature, has high initial tack
M-FS-938 B66-10487 03

Logic circuitry used to automatically test shielded cables
HQ-60 B66-10659 01

Multipurpose instrumentation cable provides

SUBJECT INDEX

CALCIUM

integral thermocouple circuit
NU-0108 B67-10046 01

Protected, high-temperature connecting cable
LEWIS-10149 B67-10461 01

Experimental prediction of performance
by superconducting cables
ARG-10215 B69-10161 01

Tools for applying lead tape to flat
conductor cabling for chemical stripping
M-FS-20429 B69-10190 05

Simple test indicates degree of cure of
polyimide coatings
MSC-15487 B69-10330 03

Improved ferrous shielding for flat cables
M-FS-14524 B69-10401 01

Generation of sonic power during welding
M-FS-20339 B69-10404 05

Checking flat conductor cable spacing by
means of a moire pattern
M-FS-20426 B69-10456 05

CABLES (ROPES)

Technique simulates effect of reduced gravity
LANGLEY-44 B64-10146 04

Machine tests crease durability of sheet
materials
JPL-604 B64-10178 05

Threading hook facilitates safe recovery of
heavy loads
MSC-46 B64-10185 05

Spring loaded beaded cable makes efficient
wire puller
WOO-108 B65-10031 05

Extendible column can be stowed on drum
JPL-686 B65-10191 05

Mechanism continuously measures static and
dynamic cable loads
MSC-217 B66-10107 05

Tool enables proper mating of accelerometer
and cable connector
M-FS-611 B66-10208 05

Emergency escape system uses self-braking
mechanism on fixed cable
KSC-66-44 B66-10575 05

Carriage system remotely moves drawer over
extended distance
NU-0092 B66-10711 05

Post-stressed concrete foundation may
reduce machinery vibration
ARG-130 B67-10237 05

Improved control system power unit for
large parachutes
MSC-12052 B67-10677 05

Quick-attach clamp
XFR-05421 B68-10250 05

Pyrotechnic-actuated cable release
XNP-10849 B68-10535 05

Proposed technique for vertical alignment
of a crane's cable
M-FS-16496 B69-10202 05

An improved method for electrical
cable terminations
NPO-10694 B69-10327 01

Automatic leveling and equalizing hoist
device
M-FS-16549 B69-10514 05

CADMIUM

Lightweight aluminum casting alloy is useful
at cryogenic temperatures
M-FS-267 B65-10092 03

Weldable aluminum alloy has improved
mechanical properties
M-FS-295 B66-10445 03

Use of steel and tantalum apparatus for
molten Cd-Mg-Zn alloys
ARG-199 B66-10594 03

Abraded cadmium-plated cable connectors
repaired by conversion coating
M-FS-1424 B67-10014 03

Frangible electrochemical cell and sealing
technique
XGS-10010 B69-10056 01

Reduction by monovalent zinc, cadmium, and
nickel cations
ARG-10328 B69-10170 03

Electrochemical sintering process for
producing electrodes from cadmium felt and
a nickel or silver grid
GSFC-10764 B69-10227 05

Induction probe determines levels of
liquid metals
ARG-10348 B69-10256 03

Literature review on pickling inhibitors and
cadmium electroplating processes
M-FS-14421 B69-10606 03

CADMIUM SELENIDES

Photoelectric sensor output controlled by
eyeball movements
M-FS-274 B65-10079 01

Thin-film semiconductor rectifier has improved
properties
MSC-207 B66-10012 01

Improved radiographic image amplifier panel
M-FS-14522 B68-10363 02

CADMIUM SULFIDES

Photocell shadowing technique improves light
source detector
JPL-809 B66-10564 01

Improved radiographic image amplifier panel
M-FS-14522 B68-10363 02

Electron beam recrystallization of amorphous
semiconductor materials
LEWIS-10443 B68-10556 02

Magnetic field mapper
LEWIS-10782 B69-10476 01

CALCITE

Electro-optic modulator for infrared laser
using gallium arsenide crystal
GSFC-10686 B68-10255 02

Technique developed for measuring
transmittance of optical birefringent
networks
M-FS-14267 B68-10260 02

CALCIUM

Oxide film on metal substrate reduced to
form metal-oxide-metal layer structure
ARG-48 B67-10187 03

High-emittance coatings on metal substrates
LEWIS-10325 B68-10381 03

Preparation of thorium magnesium-zinc
reduction
ARG-10245 B69-10079 03

Rapid and precise analysis for calcium in
blood serum

CALCIUM COMPOUNDS

SUBJECT INDEX

ARG-10246	B69-10160	04	Device induces lungs to maintain known constant pressure MSC-50	B64-10108	04
Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06	Attachment converts microscope to point source autocollimator JPL-499	B64-10124	05
CALCIUM COMPOUNDS					
Refractory thermal insulation for smooth metal surfaces M-FS-160	B64-10099	03	Ball bearing used in design of rugged flowmeter LEWIS-159	B64-10170	05
Hydrated multivalent cations are new class of molten salt mixtures ARG-211	B67-10033	03	Raster linearity of video cameras calibrated with precision tester GSFC-200	B64-10209	01
CALCIUM FLUORIDES					
Fluoride coatings make effective lubricants in molten sodium environment LEWIS-229	B66-10005	03	Micromachining produces optical apertures to micron dimensions GSFC-206	B64-10211	05
Solid-film lubricant is effective at high temperatures in vacuum LEWIS-228	B66-10087	03	Explosives actuate nonmagnetic indexing device GSFC-237	B65-10017	05
Evaluation of lubricants for ball bearings at high temperatures LEWIS-10578	B69-10025	03	Seismic transducer measures small horizontal displacements M-FS-81	B65-10029	05
CALCIUM OXIDES					
Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide ARG-10154	B68-10293	02	Gage measures electrical connector pin retention force JPL-SC-071	B65-10034	03
CALCULATORS					
Instrument calculates moments of inertia of complex plane figures MSC-628	B66-10306	01	Metal diaphragm used to calibrate miniature transducers M-FS-207	B65-10059	01
Stress calculator speedily converts strain data M-FS-2021	B67-10182	03	Fuel cell serves as oxygen level detector JPL-SC-072	B65-10066	01
Fast method for obtaining scale dimensions on tape-controlled milling machine MSC-11609	B68-10047	05	Instrument calibrates low gas-rate flowmeters MSC-134	B65-10137	01
A method for predicting interfacial freezing of a liquid flowing over a cold surface LEWIS-10813	B69-10321	02	Simple device produces accelerometer calibration pulse M-FS-363	B65-10269	01
CALCULUS OF VARIATIONS					
Computer program for mass optional solutions of some endpoint trajectory problems M-FS-12976	B67-10310	06	Inflatable bladder provides accurate calibration of pressure switch M-FS-367	B65-10279	01
HICOV - Newton-Raphson calculus of variation with automatic transversalities M-FS-14468	B68-10232	06	Volumetric system calibrates meters for large flow rates WOO-130	B65-10323	05
CALENDARS					
KOPE /Kalendar Oriented Program Efforts/ provides data for management decisions M-FS-12331	B67-10478	06	Baking enables McLeod gauge to measure in ultrahigh vacuum range GSFC-440	B65-10329	01
CALIBRATING					
Improved variable-reluctance transducer measures transient pressures LANGLEY-10	B63-10321	01	Noncontacting vibration transducer has constant sensitivity LANGLEY-99	B65-10392	01
Optics used to measure torque at high rotational speeds LEWIS-13	B63-10338	01	PTFE-aluminum films serve as neutral density filters LANGLEY-189	B66-10017	02
Variable light source with a million-to-one intensity ratio JPL-WOO-008	B63-10424	03	Pressure transducers dynamically tested with sinusoidal pressure generator LEWIS-268	B66-10031	01
Fluid-pressure meter can be calibrated without removal from flow line M-FS-98	B63-10502	05	Flowmeter measures low gas-flow rates M-FS-215	B66-10036	01
Device calibrates vibration transducer at amplitudes up to 20 g M-FS-86	B63-10572	01	Calibrated clamp facilitates pressure application MSC-298	B66-10059	05
Ultra-sensitive transducer advances micro-measurement range ARC-26	B64-10004	01	Transmission system isolates pressure transducer from severe environment WOO-239	B66-10064	01
			Hot-wire detector for chemically active materials used in gas chromatography MSC-269	B66-10139	03
			Adjustable knife cuts honeycomb material to specified depth MSC-475	B66-10237	05
			Freon provides heat transfer for solid CO2		

SUBJECT INDEX

CALIBRATING CONT

calibration standard M-FS-644	B66-10257	02	A calibration means for spectrum analyzers MSC-10987	B67-10254	01
Extensometer automatically measures elongation in elastomers M-FS-517	B66-10284	05	Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi NUC-10067	B67-10263	01
Simple scale interpolator facilitates reading of graphs LEWIS-92	B66-10302	05	Electronic test instrument generates extremely small current signals ARG-276	B67-10318	01
Flexible arms provide constant force for pressure switch calibration HQ-38	B66-10317	05	Device enables calibration of microphones at high sound pressure levels M-FS-11980	B67-10336	01
Solvent residue content measured by light scattering technique M-FS-850	B66-10320	01	Digital-to-analog converter operates from low level inputs JPL-907	B67-10357	01
Dust particle injector for hypervelocity accelerators provides high charge-to-mass ratio GSFC-509	B66-10347	01	Movable RF probe eliminates need for calibration in plasma accelerators LEWIS-10127	B67-10362	01
Plant respirometer enables high resolution of oxygen consumption rates HQ-47	B66-10406	04	Electron beam parallel X-ray generator MSC-11022	B67-10372	02
Rectilinear accelerometer possesses self- calibration feature M-FS-1480	B66-10452	01	Circuit automatically calibrates flowmeter against liquid-level gage reference M-FS-2194	B67-10376	01
High voltage potential divider calibrated by simple device ARG-83	B66-10497	01	Flowmeter determines mix ratio for viscous adhesives M-FS-2308	B67-10378	01
Pyrometry handbook describes practical aspects of surface temperature measurements of opaque materials LEWIS-349	B66-10520	01	Modified blackbody device emits high-density radiation M-FS-12744	B67-10388	02
Design concept for pressure switch calibrator HQ-36	B66-10598	01	Multiplexer uses insulated gate-field effect transistors M-FS-13096	B67-10396	01
Volume-ratio calibration system for vacuum gages LEWIS-303	B66-10640	01	Automatic telemetry checkout system M-FS-12580	B67-10402	01
Three-axis attitude and direction reference instrument has only one moving part M-FS-1819	B66-10644	01	Infrared radiometer M-FS-13373	B67-10422	01
Blackbody cavity radiometer has rapid response JPL-521	B66-10679	01	Ultrasonics used to measure residual stress M-FS-12449	B67-10428	02
Study of hot wire techniques in low density flows with high turbulence levels M-FS-1269	B66-10687	01	Automatic testing device facilitates noise checks and electronic calibrations LEWIS-10173	B67-10467	01
Method accurately measures mean particle diameters of monodisperse polystyrene latexes ARG-207	B67-10054	02	Transient sensor development M-FS-13370	B67-10471	01
System enables more complete calibrations of dynamic-pressure transducers M-FS-2063	B67-10099	01	Computer program reduces and provides profile plot of surface plate calibration data M-FS-13866	B67-10492	06
Calibrating ultrasonic test equipment for checking thin metal strip stock NUC-10009	B67-10127	01	Performance of turbine-type flowmeters in liquid hydrogen LEWIS-10137	B67-10506	01
A theoretical model for determining turbine flowmeter sensitivity M-FS-1172	B67-10179	01	Precision trimmer aids in preparing biomedical specimen blocks for ultrathin sectioning ARG-242	B67-10541	05
Technique for strip chart recorder time notation GSFC-473	B67-10196	01	Calibration technique for electromagnetic flowmeters LEWIS-10328	B67-10554	01
A phonocardiogram simulator KSC-67-94	B67-10239	01	Reflectometer for receiver input system NPO-10843	B67-10657	01
Analytical technique characterizes all trace contaminants in water MSC-11032	B67-10243	03	High-pressure gas facilitates calibration of turbine flowmeters for liquid hydrogen LEWIS-10402	B68-10145	01
			Absolute low-pressure calibration system M-FS-13085	B68-10160	02
			Liquid crystal calibrator M-FS-14151	B68-10221	03

CALIFORNIUM

SUBJECT INDEX

Harmonic distortion analyzer speeds setup of magnetic tape recorders GSFC-10198	B68-10254	01	Adjustable thermal **tree** MSC-15556	B69-10484	01
Conceptual dead weight device to provide pressure calibration M-FS-14672	B68-10264	01	Radiometric temperature reference MSC-13276	B69-10507	01
Computer graphics data conditioning M-FS-14695	B68-10296	06	Manganese-56 coincidence-counting facility precisely measures neutron-source strength ARG-90261	B69-10621	01
Modified sine bar device measures small angles with high accuracy GSFC-438	B68-10322	02	Design of printed circuit coils HQ-10431	B69-10665	01
Experiments with ceramic coatings M-FS-18150	B68-10355	03	Natural gas flow through critical nozzles LEWIS-11031	B69-10712	02
Detection of effect of deposits on optical windows of pyrometer measurements LEWIS-10366	B68-10367	01	Vacuum gage calibration system for 10 to the minus 8th power to 10 torr LEWIS-11032	B69-10713	01
System measures response time of photomultiplier tubes LEWIS-10437	B68-10382	01	A simple electrometer for measuring small photoelectric currents GSFC-10603	B69-10734	01
Automatic calibration system for pressure transducers M-FS-20127	B68-10412	01	Dynamic calibration of turbine flowmeters LEWIS-11014	B69-10764	01
Automatic calibration apparatus for telemetry systems NPO-10560	B68-10514	01	CALIFORNIUM		
Dispensing graduate for butadiene NPO-10070	B68-10524	03	Transplutonium elements processed from rock debris of underground detonations ARG-10222	B69-10054	03
Calibrated water tank facilitates proof-loading of cranes and derricks M-FS-15059	B69-10109	05	CALORIMETERS		
Surface temperature mapping with infrared photographic pyrometry LEWIS-10763	B69-10113	01	Probe measures characteristics of hot gas stream M-FS-240	B65-10133	02
Mossbauer vibration calibration systems evaluated M-FS-20014	B69-10125	01	Servo calorimeter measures material heating rate NU-0024	B65-10247	01
Calibration of a resistance thermometer down to 0.04 degrees K ARG-10318	B69-10149	01	Ferroelectric bolometer measures RF absolute power at submillimeter wavelengths GSFC-422	B66-10051	01
Direct reading of electrocardiograms and respiration rates KSC-10233	B69-10188	04	Calorimeter accurately measures thermal radiation energy LANGLEY-173	B66-10058	02
Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456	B69-10192	03	Accurate depth control provided for thermocouple junction locations LANGLEY-289	B66-10632	01
Remote control thermal actuator LEWIS-10873	B69-10307	01	Instrument accurately measures small temperature changes on test surface LANGLEY-174	B66-10637	01
The effect of mismatched components on microwave noise-temperature calibrations NPO-11163	B69-10333	01	Sensing disks for slug-type calorimeters have higher temperature stability M-FS-1867	B67-10161	01
Thermal calibration target XGS-11144	B69-10419	01	Fast-acting calorimeter measures heat output of plasma gun accelerator LEWIS-388	B67-10192	01
A compact rotary vane attenuator NPO-10562	B69-10427	01	Movable RF probe eliminates need for calibration in plasma accelerators LEWIS-10127	B67-10362	01
Calibratable solid-state pressure switch M-FS-20474	B69-10437	05	Calibration technique for electromagnetic flowmeters LEWIS-10328	B67-10554	01
The Quantasyn, an improved quantum detector ERC-10148	B69-10443	01	Study of thermal effects on nickel-cadmium batteries GSFC-10003	B67-10614	01
Calibration standard for dynamic evaluation of a profile-plotter M-FS-16476	B69-10458	05	Improved calorimeter provides accurate thermal measurements of space batteries GSFC-10003A	B67-10615	01
Nondestructive determination of cohesive strength of adhesive-bonded composites M-FS-20397	B69-10464	03	Twin solution calorimeter determines heats of formation of alloys at high temperatures ARG-10114	B68-10083	01
			Electronic calorimetric computer LEWIS-90254	B68-10138	01

SUBJECT INDEX

CAMS

Steady-state differential calorimeter measures gamma heating in reactor ARG-10120	B68-10182	01	Beam splitter used in dual filming technique M-FS-501	B66-10072	02
Isothermal drop calorimeter provides measurements for alpha active, pyrophoric materials ARG-10186	B69-10002	02	Gas pressure feeds film into camera at high speed ARG-97	B66-10474	02
Automated measurement of thermal conductivity M-FS-20454	B69-10283	03	Photographic method measures particle size and velocity in fluid stream M-FS-1536	B66-10668	01
Automatic calorimetry system monitors RF power NPO-11033	B69-10384	01	Improved head-controlled TV system produces high-quality remote image ARG-128	B67-10317	01
CAMBERED WINGS Modified Multhopp mean camber computer program LANGLEY-10376	B68-10446	06	Aerial-image enables diagrams and animation to be inserted in motion pictures ARG-165	B67-10398	02
CAMERA SHUTTERS Electromechanically operated camera shutter provides uniform exposure JPL-357	B63-10227	01	Camera lens adapter magnifies image M-FS-11955	B67-10431	02
Camera shutter is actuated by electric signal ARC-20	B63-10560	05	Method for X-ray study under extreme temperature and pressure conditions MSC-11232	B67-10474	02
Simple optical system used to align spectrograph LANGLEY-92	B65-10071	02	Rocket engine nozzle photographic system NPO-10174	B68-10113	02
Electronic shutter gates image orthicon on and off HQ-96	B67-10270	01	Method of making conical fiber optical components XNP-09745	B69-10020	02
Fluorescent particles enable visualization of gas flow M-FS-14583	B68-10259	02	Electronic visualization of gas bearing behavior LEWIS-10711	B69-10073	01
High-speed pulse camera MSC-11353	B68-10329	02	Surface temperature mapping with infrared photographic pyrometry LEWIS-10763	B69-10113	01
A prototype high power portable lamp M-FS-20229	B69-10189	02	Camera mount for close-up stereo photographs LANGLEY-10442	B69-10226	02
CAMERA TUBES Electromechanically operated camera shutter provides uniform exposure JPL-357	B63-10227	01	An infrared television system for hydrogen flame detection RSC-10368	B69-10354	01
Raster linearity of video cameras calibrated with precision tester GSFC-200	B64-10209	01	Improved camera for better X-ray powder photographs HQ-10424	B69-10537	01
Temperature-compensation circuit stabilizes performance of vidicons JPL-486	B64-10226	01	Electrooptical scanning of film NPO-11106	B69-10568	01
Design concept for improved photo-scan tube JPL-818	B67-10157	01	Long range holographic contour mapping concept HQ-10350	B69-10700	02
New camera tube improves ultrasonic inspection system ARG-90237	B68-10088	01	CAMS Coincident switch closing reduces error in motor-driven timer JPL-182	B63-10143	05
Technique increases storage capacity in camera tube target MSC-11599	B68-10213	01	Camera shutter is actuated by electric signal ARC-20	B63-10560	05
Mounting method improves electrical and vibrational characteristics of screen electrodes M-FS-20169	B69-10097	01	Speed-sensing device aids crane operators WS-4	B64-10006	05
CAMERAS System selects framing rate for spectrograph camera LANGLEY-55	B65-10086	01	Metal-bending brake facilitates lightweight, close-tolerance fabrication ARC-29	B64-10069	05
Planetary camera control improves microfiche production HQ-1	B65-10313	01	Cam-operated limit switch features safe fuse replacement MSC-218	B65-10322	01
Modified procedure speeds camera copy layout for offset printing GSFC-424	B65-10373	02	Respiratory transfer value has fail-safe feature ARC-1	B65-10369	01
			Braking mechanism is self actuating and bidirectional M-FS-1299	B66-10484	05
			Computer used to program numerically controlled milling machine		

CANCER

SUBJECT INDEX

M-FS-1608	B66-10541	01	High-performance RC bandpass filter is adapted to miniaturized construction	B66-10309	01
Astronaut's tool for withdrawing/replacing computer cards			ARC-60		
M-FS-20453	B69-10183	05	New computer program solves wide variety of heat flow problems	M-FS-421	B66-10404 01
CANCER					
Compound equation developed for postnatal growth of birds and mammals	B68-10427	04	Solid-state switch increases switching speed	WOO-298	B66-10430 01
ARG-10192					
Neutron therapy of cancer	B69-10203	04	Miniature capacitive accelerometer is especially applicable to telemetry	ARC-72	B66-10491 01
ARG-10310					
CANONICAL FORMS					
Design techniques - Stochastic controllers	B68-10234	02	Miniature electrometer preamplifier effectively compensates for input capacitance	ARC-69	B66-10549 01
MSC-11554					
CANTILEVER BEAMS					
Scoop attachment makes helicopter recoveries easier and safer	B65-10229	05	Electronic test instrument generates extremely small current signals	ARG-276	B67-10318 01
MSC-130					
Method permits mechanical and electrical checkout of piezoelectric transducers while installed in a system	B66-10533	01	Thin film thermal detector	JPL-943	B67-10505 01
ARC-73					
Identification and evaluation of linear damping models in beam vibrations	B69-10196	03	Improved circuit for measuring capacitive and inductive reactances	M-FS-13083	B67-10513 01
ARG-10275					
CANTILEVER MEMBERS					
Heat exchanger tubes supported in high vibration environment	B66-10567	05	Ultraminiature manometer-tipped cardiac catheter	ARC-10054	B67-10669 01
M-FS-1401					
Swing-out rail system separates overhead crane rails	B66-10713	05	Capacitance-coupled wiper increases potentiometer life	ARC-10060	B68-10175 01
NU-0094					
Conceptual dead weight device to provide pressure calibration	B68-10264	01	High-voltage pulse generator developed for wide-gap spark chambers	ARG-10136	B68-10283 01
M-FS-14672					
CAPACITANCE					
Welded pressure transducer made as small as 1/8th-inch in diameter	B63-10429	03	Device for diode tuning in a stripline varactor harmonic multiplier	M-FS-20153	B69-10013 01
ARC-11					
Economical fabrication process produces high quality junction transistors	B64-10330	01	Electronic visualization of gas bearing behavior	LEWIS-10711	B69-10073 01
JPL-SC-065					
Circuit improvement produces monostable multivibrator with load-carrying capability	B65-10011	01	Concept for a multifunctional oscilloscope probe	M-FS-16390	B69-10129 01
GSFC-34A					
FM oscillator uses tetrode transistor	B65-10055	01	Remote control thermal actuator	LEWIS-10873	B69-10307 01
JPL-82					
Vibrating-membrane electrometer has high conversion gain	B65-10056	01	Engineering thermal analyzer /BETA 2/	M-FS-15055	B69-10760 06
ARC-38					
Thin-film resistors used in functional electronic blocks	B65-10305	01	CAPACITANCE SWITCHES		
GSFC-380			Bandwidth switching is transient-free, avoids loss of loop lock	WOO-054	B64-10349 01
Capacitive system detects and locates fluid leaks	B66-10099	01	CAPACITORS		
M-FS-478			Improved sensor counts micrometeoroid penetrations	LEWIS-76	B63-10443 01
Low-power ring counter drives high-level loads	B66-10106	01	Circuit switches latching relay in response to signals of different polarity	WOO-055	B63-10508 01
GSFC-431					
Variable-capacitance tachometer eliminates troublesome magnetic fields	B66-10126	01	Hot-air soldering technique prevents overheating of electrical components	GSFC-91	B63-10536 01
GSFC-435					
Transducer measures force in vacuum environment	B66-10161	01	Unmanned seismometer levels self, corrects drift errors	GSFC-100	B63-10551 01
LEWIS-218					
Large capacitor performs as a distributed parameter pulse line	B66-10291	01	Transistorized trigger circuit is frequency-controllable	GSFC-111	B63-10553 01
LEWIS-176					
			High efficient square-wave oscillator operator at high power levels		

SUBJECT INDEX

CAPACITORS

GSFC-112	B63-10554	01	LEWIS-178	B65-10255	01
Tiny sensor-transmitter can withstand extreme acceleration, gives digital output			Electrostatically driven dynamic capacitor employs capacitive feedback		
ARC-22	B63-10561	01	JPL-771	B65-10293	01
Circuit controls transients in SCR inverters			Coaxial capacitor used to determine fluid density		
GSFC-120	B63-10600	01	LEWIS-232	B65-10296	02
Monostable circuit with tunnel diode has fast recovery			Electronic ampere-hour integrator is accurate to one percent		
GSFC-132	B63-10603	01	GSFC-203	B65-10308	01
Low-power transistorized circuit provides staircase waveform			Electromagnetic hammer removes weld distortions from aluminum tanks		
GSFC-48	B64-10007	01	M-FS-287	B65-10342	05
Efficient circuit triggers high-current, high-voltage pulses			Compact SCR trigger circuit for ignitron switch operates efficiently		
MSC-14	B64-10024	01	M-FS-371	B65-10347	01
Digital logic elements provide additional functions from analog input			Zener diode controls switching of large direct currents		
MSC-64	B64-10064	01	MSC-188	B65-10350	01
Ring counter may be advanced or retarded by command signal			High-intensity flashing beacon powered by mercury cells		
GSFC-101	B64-10144	01	LANGLEY-80	B65-10361	01
High-pass RF coaxial filter rejects dc and low frequency signals			Three-dimensional wire-mesh capacitor system measures fluid density		
GSFC-73	B64-10173	01	WOO-194	B65-10379	01
Circuit converts AM signals to FM for magnetic recording			Variable-capacitance tachometer eliminates troublesome magnetic fields		
GSFC-227	B65-10001	01	GSFC-435	B66-10126	01
Helical coaxial-resonator makes excellent RF filter			Mounting improves heat-sink contact with beryllia washer		
GSFC-243	B65-10012	01	MSC-194	B66-10144	01
Carbon arc ignition improved by simple auxiliary circuit			Large capacitor performs as a distributed parameter pulse line		
MSC-103	B65-10018	01	LEWIS-176	B66-10291	01
Thermistor connector assembly increases accuracy of measurements			Tool forms right angles in component leads		
LANGLEY-62	B65-10045	01	M-FS-722	B66-10346	05
Microparticle impact sensor measures energy directly			Basic suppression techniques are evaluated		
GSFC-252	B65-10048	01	M-FS-867	B66-10449	01
Feedback oscillator functions as low-level pulse stretcher			Pulse generator using transistors and silicon controlled rectifiers produces high current pulses with fast rise and fall times		
GSFC-261	B65-10069	01	MSC-405	B66-10456	01
Synchronized pulse generator needs no external power			Simple, one transistor circuit boosts pulse amplitude		
GSFC-274	B65-10072	01	GSFC-501	B66-10480	01
Simple circuit functions as frequency discriminator for PFM signals			Solid state circuit controls direction, speed, and braking of dc motor		
GSFC-267	B65-10102	01	JPL-757	B66-10486	01
Improved magnetometer uses toroidal gating coil			Electronic circuit delivers pulse of high interval stability		
GSFC-249	B65-10103	01	MSC-673	B66-10501	01
Digital-output cardiometer measures rapid changes in heartbeat rate			Pulse stretcher has improved dynamic range and linearity		
MSC-133	B65-10143	01	ARG-82	B66-10509	01
Circuit reduces distortion of FM modulator			Nonelectrolytic tantalum capacitors developed		
GSFC-257	B65-10152	01	M-FS-1546	B66-10552	01
Voltage variable oscillator has high phase stability			MOSFET analog memory circuit achieves long duration signal storage		
LANGLEY-123	B65-10204	01	M-FS-860	B66-10603	01
Voltage controlled oscillator is easily aligned, has low phase noise			Compact microwave mixer has high conversion efficiency		
JPL-510	B65-10223	01	GSFC-197	B66-10625	01
Electrometer has automatic zero bias control			Power arc welder touch-started with consumable electrode		
GSFC-350	B65-10242	01	M-FS-1485	B66-10641	05
Boron trifluoride nuclear detector preamplifier uses single-cable connection			Thermocouples easily installed in hard-to-		

CAPILLARY TUBES

SUBJECT INDEX

get-to places M-PS-1946	B66-10653	01	circuit capacitors LANGLEY-10294	B68-10542	01
Miniature capacitor functions as pressure sensor JPL-903	B67-10020	01	Microelectronic oscillator, 2 GSFC-10387	B69-10063	01
Solid-state time-to-pulse-height converter, developed ARG-170	B67-10053	01	Microelectronic oscillator GSFC-10375	B69-10064	01
Integrator can easily be set and reset with an electronic switch ARC-10002	B67-10135	01	Schmitt trigger multivibrator MSC-10955	B69-10143	01
Precision capacitor has improved temperature and operational stability ARG-189	B67-10313	01	Proposed technique for vertical alignment of a crane's cable M-PS-16496	B69-10202	05
Study made of dielectric properties of promising materials for cryogenic capacitors M-PS-13620	B67-10366	03	Quality-weld parameters for microwelding techniques and equipment M-PS-20484	B69-10303	05
Signal generator converts direct current to multiphase supplies MSC-11043	B67-10368	01	Self-shielding printed circuit boards for high frequency amplifiers and transmitters HQ-10433	B69-10314	01
Multiple meter monitoring circuits served by single alarm MSC-10984	B67-10369	01	Foot-operated cell-counter ARG-10315	B69-10351	01
Blood pressure reprogramming adapter assists signal recording MSC-265	B67-10475	01	Dielectric materials for use in thin-film capacitors M-PS-20471	B69-10387	02
Long time constant timer requires no recovery time GSFC-10091	B67-10487	01	Magnetic forming of resistive materials M-PS-20417	B69-10397	03
Thin film thermal detector JPL-943	B67-10505	01	Phase-locked-loop phase modulator with high modulation index, low distortion MSC-12247	B69-10487	01
High-temperature /1100 degrees F/ capacitors operate without supplement cooling LEWIS-10324	B67-10550	01	Constant-frequency, variable-duty-cycle multivibrator XGS-10033	B69-10512	01
Cardiotachometer with linear beat-to-beat frequency response ARC-10033	B67-10598	01	High voltage pulse generator MSC-12178	B69-10548	01
Multipulse current source offers low power losses and high reliability LANGLEY-68	B67-10603	01	Automatic frequency control of voltage-controlled oscillators NPO-11064	B69-10569	01
Ferromagnetic core valve gives rapid action on minimum energy LEWIS-10135	B67-10623	05	Lateral PNP bipolar transistor with aiding field diffusions MSC-13072	B69-10741	01
Temperature-stabilized, triggerable microelectronic astable multivibrator starts reliably MSC-1173	B67-10624	01	CAPILLARY TUBES		
Eddy current disk valve LEWIS-10123	B67-10638	05	Tensile-strength apparatus applies high strain-rate loading with minimum shock JPL-28	B66-10063	05
Gyrator-type circuits replace ungrounded inductors XAC-10608	B68-10084	01	Inspection of fine wires simplified by capillary tube wire holder MSC-358	B66-10329	01
Improved process for making thin-film sodium niobate capacitors MSC-11231	B68-10163	01	Electrochemical milling removes burrs and solder from tubing ends M-PS-714	B66-10358	03
Miniature pressure transducer for stressed member application MSC-11869	B68-10246	01	Automatic cryogenic liquid level controller is safe for use near combustible substances LEWIS-195	B66-10482	01
Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time ARG-10110	B68-10328	01	Continuous microbial cultures maintained by electronically-controlled device ARG-177	B67-10556	04
Automatic patient respiration failure detection system with wireless transmission ARC-10174	B68-10365	01	CAPS (EXPLOSIVES)		
High dielectric thick films for screened			Connector shorting cap provides pin alignment, inspection, and stray voltage protection M-PS-13111	B67-10635	01
			CARBAZOLES		
			Static electricity of polymers reduced by treatment with iodine NPO-10062	B67-10132	03
			CARBIDES		
			High temperature alloy LEWIS-10377	B68-10253	03

SUBJECT INDEX

CARBON DIOXIDE

Nickel-base superalloy*s excellent properties promote its service to 2200 degrees F LEWIS-10355	B68-10380	03	Axisymmetric reacting gas nonequilibrium performance program MSC-11781	B68-10377	06
Cold machining of high density tungsten and other materials ARG-10289	B69-10110	05	Nickel-base superalloy*s excellent properties promote its service to 2200 degrees F LEWIS-10355	B68-10380	03
Study of high temperature bearing materials LEWIS-10829	B69-10252	03	A new solid lubricant LEWIS-10812	B69-10250	03
Improved retort for cleaning metal powders with hydrogen LEWIS-10718	B69-10468	03	High strength, superplastic superalloy LEWIS-10805	B69-10293	03
Strain-age cracking in Rene 41 alloy M-FS-18650	B69-10605	03	Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03
CARBONHYDRATES			Temperature-controlled resistor NPO-10713	B69-10440	01
Inhibition of browning in foodstuffs HQ-10177	B69-10493	04	Basal-plane metallography of deformed pyrolytic carbon NPO-11196	B69-10488	03
CARBON			Strain-age cracking in Rene 41 alloy M-FS-18650	B69-10605	03
Nickel solution prepared for precision electroforming WOO-070	B65-10303	03	CARBON ARCS		
Improved carbon electrode reduces arc sputtering MSC-219	B66-10026	01	Carbon arc ignition improved by simple auxiliary circuit MSC-103	B65-10018	01
Thin carbon film serves as UV bandpass filter ERC-8	B66-10060	02	Carbon-arc rod holder has long life, reduces arc splatter MSC-144	B65-10095	03
Refractory coating protects intricate graphite elements from high-temperature hydrogen NU-0027	B66-10084	01	Magnetic field controls carbon arc tail flame MSC-139	B65-10108	01
Ultraviolet photographic pyrometer used in rocket exhaust analysis M-FS-499	B66-10095	02	Light-intensity modulator withstands high heat fluxes MSC-246	B66-10532	02
Nickel-base superalloys developed for high-temperature applications LEWIS-226	B66-10222	03	Segmented, arch-bound carbon seal is pressure loaded M-FS-12777	B67-10325	05
Chromium oxide coatings improve thermal emissivity of alumina WOO-263	B66-10227	03	CARBON COMPOUNDS		
Standards for electron probe microanalysis of silicates prepared by convenient method GSFC-469	B66-10234	03	Substitution of stable isotopes in Chlorella ARG-10258	B69-10197	04
New tungsten alloy has high strength at elevated temperatures LEWIS-336	B66-10551	03	CARBON DIOXIDE		
Primary cell uses neither liquid nor fused electrolytes NPO-10001	B67-10275	01	A technique for making animal restraints ARC-25	B63-10564	05
High-strength tungsten alloy with improved ductility LEWIS-10257	B67-10340	03	New inflatable liferaft is nontippable MSC-4A	B64-10001	05
Steel test panel helps control additives in pyrophosphate copper plating LEWIS-10101	B67-10358	05	Purity diffusion process for silicon semiconductors is fast and precise GSFC-397	B65-10300	01
Wear studies made of slip rings and gas bearing components M-FS-12882	B67-10403	05	Buoyant stokes litter assembly used for sea rescue operations MSC-131	B66-10019	05
Development of low temperature battery LEWIS-10326	B67-10546	01	Self-inflating lifevest stores in small package MSC-5A	B66-10184	04
Fiber glass reinforced structural materials for aerospace application M-FS-14806	B68-10360	03	Freon provides heat transfer for solid CO2 calibration standard M-FS-644	B66-10257	02
One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06	Flexible fastener effects airtight material closure JPL-684	B66-10304	05
One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06	Development of dual solid cryogens for high reliability refrigeration system GSFC-10188	B67-10644	02
			Plume radiation program M-FS-13202	B68-10447	06
			Repetitively pulsed, wavelength-selective		

CARBON DIOXIDE CONCENTRATION

SUBJECT INDEX

carbon dioxide laser ERC-10178	B68-10564	02	CARDIAC VENTRICLES Auxiliary circuit enables automatic monitoring of EKG*S MSC-106	B65-10142	01
Techniques for controlling warpage and residual stresses in welded structures M-FS-20307	B69-10086	05	CARDIOGRAPHY Digital cardiometer computes and displays heartbeat rate MSC-93	B64-10258	01
Direct measurement of carbon-14 in carbon dioxide by liquid scintillation counting ARG-10237	B69-10092	03	Digital-output cardiometer measures rapid changes in heartbeat rate MSC-133	B65-10143	01
Prediction of friction coefficients for gases LEWIS-10774	B69-10112	02	Ultraminiature manometer-tipped cardiac catheter ARC-10054	B67-10669	01
CARBON DIOXIDE CONCENTRATION Removable well in reaction flask facilitates carbon dioxide collection ARC-47	B65-10316	03	CARDIOLOGY Computer circuit calculates cardiac output MSC-274	B66-10006	01
Test strips detect different CO2 concentrations in closed compartments MSC-210	B65-10390	03	CARDIOTACHOMETERS Auxiliary circuit enables automatic monitoring of EKG*S MSC-106	B65-10142	01
CARBON DIOXIDE LASERS Design concepts using ring lasers for frequency stabilization M-FS-2448	B67-10143	01	Digital-output cardiometer measures rapid changes in heartbeat rate MSC-133	B65-10143	01
Absolute frequency stabilization of laser oscillator against laser amplifier M-FS-2559	B67-10255	01	Cardiometer with linear beat-to-beat frequency response ARC-10033	B67-10598	01
CARBON DIOXIDE REMOVAL Gas diffusion cell removes carbon dioxide from occupied airtight enclosures MSC-118	B64-10319	03	CARDIOVASCULAR SYSTEM Device induces lungs to maintain known constant pressure MSC-50	B64-10108	04
CARBON STEELS Aluminum/steel wire composite plates exhibit high tensile strength M-FS-401	B66-10262	05	Ultraminiature manometer-tipped cardiac catheter ARC-10054	B67-10669	01
CARBON TETRACHLORIDE Corrosion of aluminum alloys by chlorinated hydrocarbon/methanol mixtures MSC-11365	B67-10442	03	CARDS Simple scale interpolator facilitates reading of graphs LEWIS-92	B66-10302	05
CARBON 13 An improved nuclear magnetic resonance spectrometer JPL-762	B67-10234	01	Data retrieval system provides unlimited hardware design information MSC-1144	B67-10170	01
CARBON 14 Direct measurement of carbon-14 in carbon dioxide by liquid scintillation counting ARG-10237	B69-10092	03	Improved system for documenting measurement data M-FS-18269	B69-10513	01
Combustion method for assay of biological materials labeled with carbon-14 or tritium, or double-labeled ARG-10331	B69-10208	04	CARNOT CYCLE Technical report on galvanic cells with fused-salt electrolytes ARG-10297	B69-10155	01
Direct in-vial collection for liquid-scintillation assay of carbon-14 and tritium ARG-10424	B69-10412	03	CARRIAGES Carriage system remotely moves drawer over extended distance NU-0092	B66-10711	05
CARBONATES Modified developer increases line resolution in photosensitive resist GSFC-386	B65-10278	01	Test device prevents weld joint damage by eliminating axial pin forces on unpotted modules LEWIS-10201	B67-10359	01
Trace levels of metallic corrosion in water determined by emission spectrography MSC-1193	B66-10701	03	Proposed method of rotary dynamic balancing by laser M-FS-12422	B67-10452	02
Carbon offers advantages as implant material in human body M-FS-18207	B69-10087	04	Swing arm carrier protects flexible lines during test item rotation MSC-11464	B68-10037	05
Primary radical yields in pulse irradiated alkaline aqueous solution ARG-10322	B69-10167	02	Two devices for analysis of nystagmus HQ-10273	B69-10224	01
CARBURIZING Sensing disks for slug-type calorimeters have higher temperature stability M-FS-1867	B67-10161	01	CARRIER FREQUENCIES Double emitter suppressed carrier modulator uses commercially available components M-FS-2494	B67-10101	01
			FM carrier deviation measured by		

CASTING

I-77

CASTINGS

SUBJECT INDEX

Molded elastomer provides compact ferrite-core holder, simplifies assembly JPL-584	B64-10084	05	MSC-12230	B69-10749	03
Plastic films for reflective surfaces reproduced from masters GSFC-188	B64-10151	03	CATALYSTS		
Pressure molding of powdered materials improved by rubber mold insert WOO-100	B64-10270	03	Molded elastomer provides compact ferrite-core holder, simplifies assembly JPL-584	B64-10084	05
Lightweight aluminum casting alloy is useful at cryogenic temperatures M-FS-267	B65-10092	03	Compact assembly generates plastic foam, inflates flotation bag LANGLEY-96	B65-10090	05
Epoxy-resin patterns speed shell-molding of aluminum parts M-FS-303	B65-10177	05	Organic reactants rapidly produce plastic foam LANGLEY-37	B65-10288	03
Epoxy blanket protects milled part during explosive forming M-FS-307	B66-10029	03	Plated nickel wire mesh makes superior catalyst bed MSC-216	B65-10321	03
Plug replaces weld filler as seal in complex casting NU-0049	B66-10489	05	Wire bundle formed into grids with minute interstices WOO-089	B65-10372	03
Laboratory arc furnace features interchangeable hearths ARG-125	B67-10052	05	Process reduces pore diameters to produce superior filters WOO-093	B66-10037	03
Multi-feed cone for Cassegrainian antenna ARG-10025	B67-10484	03	Vapor diffusion electrode improves fuel cell operation LEWIS-187	B66-10281	03
Levitation-melting technique for metals and alloys ARG-10240	B69-10006	03	Study made of Raney nickel technology M-FS-2054	B67-10208	03
Shaker slip-plate adapter M-FS-14063	B69-10785	05	Improved fuel-cell-type hydrogen sensor M-FS-14656	B68-10263	01
CASTINGS			Ambient temperature catalyst for hydrogen ignition LEWIS-10551	B68-10520	03
Inspection of fine wires simplified by capillary tube wire holder MSC-358	B66-10329	01	Two systems developed for purifying inert atmospheres ARG-10234	B69-10026	03
Heat treatment study of aluminum casting alloy M45 M-FS-2397	B67-10159	03	Refractory-metal compound impregnation of polytetrafluoroethylene LEWIS-10733	B69-10072	03
Study made of ductility limitations of aluminum-silicon alloys M-FS-12524	B67-10392	03	Improved inorganic ion exchange membranes LEWIS-10737	B69-10451	03
Compressible sleeve provides automatic centering for grinding or turning of cylinders SAN-10021	B68-10318	05	Improved primer for bonding polyurethane adhesives to metals M-FS-90591	B69-10540	03
Modular packaging technique for combining integrated circuits and discrete components GSFC-10369	B69-10453	01	Synthesis of polyethers of hexafluorobenzene and hexafluoropentanediol M-FS-14962	B69-10636	03
CASTS			CATALYTIC ACTIVITY		
Adjustable hinge permits movement of knee in plaster cast M-FS-1756	B67-10056	04	Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen LEWIS-15	B63-10340	05
CATABOLISM			Boron carbide whiskers produced by vapor deposition HQ-24	B65-10261	03
Study of behavior of sterols at interfaces ARG-10085	B68-10281	03	Method of maintaining activity of hydrogen-sensing platinum electrode M-FS-1422	B68-10049	03
CATALASE			Combustion method for assay of biological materials labeled with carbon-14 or tritium, or double-labeled ARG-10331	B69-10208	04
Microorganisms detected by enzyme-catalyzed reaction JPL-782	B66-10117	04	CATHETERMETERS		
CATALYSIS			Testing device subjects elastic materials to biaxial deformations JPL-616	B65-10189	03
Cold solid propellant motor has stop-restart capability JPL-836	B66-10673	03	Multiple test chamber exposes materials to various environments MSC-179	B65-10268	01
Production of crystalline polymers via liquid crystal monomers HQ-10235	B69-10744	03	CATHODE RAY TUBES		
Improved cure method for single component silicone rubber			Apparatus presents visual display of semiconductor surface characteristics		

SUBJECT INDEX

CAVITIES

JPL-665	B66-10200	01	Electrochemical milling removes burrs and solder from tubing ends	M-FS-714	B66-10358	03	
Infrared television used to detect hydrogen fires	M-FS-654	B66-10363	01	Nixie tube display unit employs time-shared logic	ARG-117	B66-10512	01
An improved method for testing performance of vidicons during vibration	JPL-SC-113	B66-10442	01	Control apparatus for spectral energy source	LEWIS-391	B67-10404	01
Digital computer processing of X-ray photos	JPL-792	B67-10005	04	Development of low temperature battery	LEWIS-10326	B67-10546	01
Electronic filter discriminates between true and false reflections	HQ-55	B67-10071	02	Improved fuel-cell-type hydrogen sensor	M-FS-14656	B68-10263	01
System automatically supplies precise analytical samples of high-pressure gases	M-FS-1814	B67-10090	01	Solid state high-voltage pulser operates with low supply voltage	M-FS-14034	B68-10308	01
Oscilloscope used as X-Y plotter or two-dimensional analyzer	LEWIS-311	B67-10269	01	Inverted grounding technique for electron beam heating	LEWIS-10543	B68-10411	01
Phase plane displays detect incipient failure in servo system testing	HQ-10018	B67-10662	01	Electrochemical study of aluminum corrosion in boiling high purity water	ARG-10306	B69-10033	03
Luminescent screen composition for cathode ray tubes	ERC-19	B68-10056	01	Preparation of high purity copper fluoride by fluorinating copper hydroxyfluoride	LEWIS-10794	B69-10136	03
System measures arc energy dissipated in relay contact cycling	M-FS-14541	B68-10312	01	Improved anode design for metal-oxygen cells	LEWIS-10871	B69-10318	01
System for measuring spatial distribution of ejected droplets, a concept	NFO-10185	B68-10402	01	High-temperature, gas-filled ceramic rectifiers, thyristors, and voltage-reference tubes	LEWIS-90271	B69-10376	01
Time-shared Cathode Ray Tube	MSC-12238	B69-10243	06	Nondestructive determination of cohesive strength of adhesive-bonded composites	M-FS-20397	B69-10464	03
Simplified system displays complex curves corresponding to input data	HQ-10073	B69-10247	01	Analysis of secondary cells with lithium anodes and immobilized fused-salt electrolytes	ARG-10452	B69-10613	01
CATHODES			CATIONS				
High purity electroforming yields superior metal models	ARC-6	B63-10007	05	Hydrated multivalent cations are new class of molten salt mixtures	ARG-211	B67-10033	03
Meter accurately measures flow of low-conductivity fluids	JPL-0021	B63-10280	01	Separation of traces of metal ions from sodium matrices	ARG-10341	B69-10168	03
Wire winding increases lifetime of oxide coated cathodes	LEWIS-154	B65-10032	03	Reduction by monovalent zinc, cadmium, and nickel cations	ARG-10328	B69-10170	03
Tantalum cathode improves electron-beam evaporation of tantalum	JPL-W00-021	B65-10175	03	CAVITATION CORROSION			
Ceramic materials purified by experimental method	LEWIS-225	B65-10270	03	Studies reveal effects of pipe bends on fluid flow cavitation	M-FS-516	B66-10228	05
Titanium diaphragm makes excellent amplitron cathode support	GSFC-394	B65-10298	01	CAVITATION FLOW			
Rod and dish cathode improves penning-type vacuum gage	GSFC-447	B66-10082	01	Studies reveal effects of pipe bends on fluid flow cavitation	M-FS-516	B66-10228	05
New energy storage concept uses tapes	LEWIS-239	B66-10098	02	Accumulator isolator prevents malfunctioning of faulty hydraulic system	M-FS-1415	B67-10528	05
Chromium oxide coatings improve thermal emissivity of alumina	W00-263	B66-10227	03	Semitoroidal-diaphragm cavitating valve designed for bipropellant flow control	XNP-09704	B69-10016	05
Dust particle injector for hypervelocity accelerators provides high charge-to-mass ratio	GSFC-509	B66-10347	01	Method for predicting pump cavitation performance	LEWIS-10916	B69-10446	02
			CAVITIES				
			Sensitive low-pressure relief valve has				

CAVITY RESONATORS

SUBJECT INDEX

positive seating against leakage WOO-041	B64-10278	05	CDC 160-A COMPUTER Computer grading of examinations ARG-10269	B69-10159	06
Device enables calibration of microphones at high sound pressure levels M-FS-11980	B67-10336	01	CDC 3600 COMPUTER Daughter growth in freshly separated Ra-226, Ac-227 and U-232 ARG-10226	B69-10003	02
Precision metal molding M-FS-13305	B67-10423	05	The response of monoenergetic gamma rays in finite media are investigated ARG-10295	B69-10080	02
Improved cavity-type absolute total-radiation radiometer JPL-807	B67-10557	01	Microscopes and computers combined for analysis of chromosomes ARG-10256	B69-10088	04
Shock-absorbing caster wheel is simple and compact SAN-10019	B68-10266	05	CDC 6000 SERIES COMPUTERS Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds LANGLEY-10191	B67-10666	06
Design and testing of liquid hydrogen-cooled, ultrahigh-speed ball bearings M-FS-18453	B69-10178	05	CDC 6600 COMPUTER Computer program ETC improves computation of elastic transfer matrices of Legendre polynomials P/0/ and P/1/ NUC-10070	B67-10566	06
Liquid laser cavities GSFC-10592	B69-10234	02	Computer program TRACK performs transient and/or steady state thermal analysis with coupled fluid flow and heat conduction NUC-10189	B68-10450	06
An improved atomic hydrogen frequency and time standard GSFC-10706	B69-10341	02	General series solution technique for bending of irregular laterally loaded flat plates NUC-10170	B69-10035	06
CAVITY RESONATORS			Computer program calculates the effective temperature for a crystalline solid /DETS/ NUC-10161	B69-10036	06
Composite filter steepens rejection slopes in microwave application GSFC-480	B66-10393	01	Sonic boom propagation in stratified atmosphere LANGLEY-10480	B69-10391	06
Dielectrometer design permits measurement in vacuum under irradiation M-FS-359	B66-10401	01	CEILING (METEOROLOGY) Scanning photometer system automatically determines atmospheric layer height MSC-245	B66-10170	01
Liquid hydrogen densitometer utilizes open-ended microwave cavity LEWIS-390	B67-10115	01	CELESTIAL BODIES Glancing incidence telescope for far ultraviolet and soft X-rays GSFC-10052	B67-10508	02
Hydrogen maser as a highly stable frequency reference M-FS-2437	B67-10146	01	CELESTIAL MECHANICS Analog solar system model relates celestial bodies spatially JPL-195	B66-10413	01
Study of yttrium iron garnet rods reveals new magnetostatic echo mode ERC-37	B67-10153	01	ABTRAJ on-site tracking prediction program NPO-10836	B69-10103	06
Improved atomic resonance gas cell for use in frequency standards MSC-11666	B68-10230	01	CELESTIAL NAVIGATION Star/horizon simulator used to test space guidance system MSC-407	B67-10110	02
RF noise suppression using the photodielectric effect in semiconductors MSC-12259	B69-10225	01	CELL ANODES High-energy, high-power, long-life battery LEWIS-10724	B69-10131	01
Liquid laser cavities GSFC-10592	B69-10234	02	Mass transport mechanism in porous fuel cell electrodes HQ-10343	B69-10135	01
Automatic tuning of hydrogen masers GSFC-10127	B69-10452	01	Technical report on galvanic cells with fused-salt electrolytes ARG-10297	B69-10155	01
CDC COMPUTERS			Improved anode design for metal-oxygen cells LEWIS-10871	B69-10318	01
Computer program FPIP-REV calculates fission product inventory for U-235 fission NUC-10089	B67-10450	06	Analysis of cell performance and thermal regeneration of a lithium-tin cell having		
Assembly processor program converts symbolic programming language to machine language M-FS-13262	B67-10493	06			
Fully automatic telemetry data processor GSFC-10576	B68-10336	01			
Modified Multhopp mean camber computer program LANGLEY-10376	B68-10446	06			
Some numerical methods for integrating systems of first-order ordinary differential equations ARG-10308	B69-10204	02			
GAMBIT program NUC-10243	B69-10433	06			

SUBJECT INDEX

CENTRIFUGAL FORCE

an immobilized fused-salt electrolyte ARG-10453	B69-10627	03	ARG-10258	B69-10197	04
Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01	Internal and ancestral controls of cell-generation times ARG-10326	B69-10205	04
CELL CATHODES			Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04
High-energy, high-power, long-life battery LEWIS-10724	B69-10131	01	Mass culture of photobacteria to obtain luciferase GSFC-10563	B69-10294	04
Mass transport mechanism in porous fuel cell electrodes HQ-10343	B69-10135	01	Foot-operated cell-counter ARG-10315	B69-10351	01
Technical report on galvanic cells with fused-salt electrolytes ARG-10297	B69-10155	01	CELLULOSE		
Analysis of cell performance and thermal regeneration of a lithium-tin cell having an immobilized fused-salt electrolyte ARG-10453	B69-10627	03	Nickel solution prepared for precision electroforming WOO-070	B65-10303	03
Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01	Separator for alkaline batteries GSFC-10173	B68-10557	03
CELL DIVISION			Surface-renewal models for heat-transfer between walls and fluidized beds ARG-10372	B69-10772	02
Internal and ancestral controls of cell-generation times ARG-10326	B69-10205	04	CELLULOSE NITRATE		
CELLOPHANE			Air-cured ceramic coating insulates against high heat fluxes M-PS-150	B65-10357	03
Separator for alkaline batteries GSFC-10173	B68-10557	03	CEMENTATION		
CELLS			Integral coolant channels supply made by melt-out method M-PS-91	B63-10497	05
Apparatus measures concentration of suspended droplets in gas streams LANGLEY-31	B64-10237	01	Alignment tool facilitates pin placement on irregular horizontal surfaces LANGLEY-219	B66-10410	05
Gas diffusion cell removes carbon dioxide from occupied airtight enclosures MSC-118	B64-10319	03	CEMENTS		
Circuit prevents overcharging of secondary cell batteries GSFC-454	B66-10492	01	Liquid trap seals thermocouple leads M-PS-688	B66-10212	05
Low energy ohmmeter can be used to test sensitive circuits, other meters SAN-10013	B68-10269	01	Spray-on electrodes enable EKG monitoring of physically active subjects PRC-36	B66-10649	04
Optimetric system facilitates colorimetric and fluorometric measurements NPO-10233	B68-10316	01	CENTER OF GRAVITY		
CELLS (BIOLOGY)			Device measures reaction engine thrust vector deviations JPL-SC-163	B66-10642	05
Cytology is advanced by studying effects of deuterium environment ARG-205	B67-10304	04	Telescope mount with azimuth-only primary NPO-10468	B67-10671	02
Study made of ductility limitations of aluminum-silicon alloys M-PS-12524	B67-10392	03	CENTRAL NERVOUS SYSTEM		
Effect of preparation procedures on intensity of radioautographic labeling is studied ARG-10032	B67-10500	04	Modified algometer provides accurate depth measurements MSC-616	B66-10647	04
Radiation effects on bacterial cells ARG-10064	B68-10169	04	CENTRIFUGAL COMPRESSORS		
Study of radiation effects on mammalian cells in vitro ARG-10191	B68-10294	02	Electropneumatic transducer automatically limits motor current LEWIS-253	B66-10160	01
Stratification of centrifuged amoeba nuclei investigated by electron microscopy ARG-10161	B68-10366	04	CENTRIFUGAL FORCE		
A microlagoon technique for the culture of mammalian cells LANGLEY-10407	B68-10554	04	Helium tube separates nitrogen gas from liquid nitrogen JPL-398	B63-10251	05
Substitution of stable isotopes in Chlorella			Centrifugal device separates liquid from gas MSC-282	B65-10394	05
			Flexible arms provide constant force for pressure switch calibration HQ-38	B66-10317	05
			Resilient bearing supports are gas controlled LEWIS-10109	B67-10364	05
			Dynamic-reservoir lubricating device M-PS-14652	B68-10261	05
			Design of fluid-duct bends with low		

CENTRIFUGAL PUMPS

SUBJECT INDEX

pressure loss M-FS-20176	B68-10395	05	Refractory ceramic has wide usage, low fabrication cost M-FS-67	B63-10481	03
Automated microorganism Sample Collection Module HQ-10421	B69-10223	04	Hot-air soldering technique prevents overheating of electrical components GSFC-91	B63-10536	01
Improved design of item in high speed rotating machinery M-FS-18441	B69-10373	05	Ultra-sensitive transducer advances micro-measurement range ARC-26	B64-10004	01
A rotating, noncapillary heat pipe LEWIS-10298	B69-10684	05	Modified RF coaxial connector ends vacuum chamber wiring problem GSFC-150	B64-10010	01
CENTRIFUGAL PUMPS			Mounting for diodes provides efficient heat sink M-FS-197	B64-10283	01
Ultrasonic cleaning restores depth-type filters M-FS-540	B66-10298	03	Nitrogen dioxide produced by self-sustained pyrolysis of nitrous oxide LANGLEY-32	B65-10074	05
Acoustic wave analysis M-FS-18076	B68-10265	02	Fabrication method produces high-grade alumina crucibles M-FS-216	B65-10078	05
Prediction of performance of centrifugal pumps during starts under pressure LEWIS-10900	B69-10263	05	Refractory oxides evaluated for high-temperature use LANGLEY-121	B65-10167	03
Method for predicting pump cavitation performance LEWIS-10916	B69-10446	02	Ceramic materials purified by experimental method LEWIS-225	B65-10270	03
CENTRIFUGING			Fibers of newly developed refractory ceramics produced by improved process WOO-169	B66-10196	03
Automatic fluid separator supplies own driving power WOO-085	B66-10008	02	Liquid trap seals thermocouple leads M-FS-688	B66-10212	05
Combustion chamber inlet manifold separates vapor from liquid M-FS-531	B66-10052	05	Magnetically operated limit switch has improved reliability, minimizes arcing MSC-422	B66-10270	01
Stratification of centrifuged amoeba nuclei investigated by electron microscopy ARG-10161	B68-10366	04	Improved thermal insulation materials made of foamed refractory oxides M-FS-735	B66-10288	03
CERAMIC BONDING			Bypass rod transfers heat developed in thermionic diode JPL-SC-136	B66-10303	05
A ceramic composite thermal insulation M-FS-13991	B67-10608	03	Friction loading device enables accurate testing of brittle materials NU-0051	B66-10345	05
CERAMIC COATINGS			Radioactive method enables determination of surface areas rapidly and accurately NU-0088	B66-10710	03
Gate valve with ceramic-coated base operates at high temperatures ARC-23	B63-10562	03	Xenon fluoride solutions effective as fluorinating agents ARG-217	B67-10133	03
Insulated weld tooling permits uniform, high quality weld MSC-42	B64-10058	05	Improved compression molding process LANGLEY-10027	B67-10302	03
Lead oxide ceramic makes excellent high-temperature lubricant LEWIS-144	B64-10116	03	Development of technology for hot-drape forming of large torus sections M-FS-12141	B67-10341	05
Ceramic-coated boat is chemically inert, provides good heat transfer LANGLEY-90	B65-10063	05	Rugged switch responds to minute pressure differentials M-FS-12704	B67-10389	01
Air-cured ceramic coating insulates against high heat fluxes M-FS-150	B65-10357	03	Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01
Modified thermocouple is effective from minus 250 deg to 5000 deg F MSC-420	B66-10461	01	Study made of anodized aluminum circuit boards M-FS-13580	B67-10425	01
Newly developed foam ceramic body shows promise as thermal insulation material at 3000 deg F M-FS-11968	B67-10441	03	Protected, high-temperature connecting cable LEWIS-10149	B67-10461	01
Experiments with ceramic coatings M-FS-18150	B68-10355	03			
CERAMICS					
Vacuum forming of thermoplastic sheet results in low-cost investment casting patterns ARC-7	B63-10008	05			
Radiant heater for vacuum furnaces offers high structural rigidity, low heat loss LEWIS-39	B63-10342	01			

SUBJECT INDEX

CHANNELS (DATA TRANSMISSION)

Reinforced thermal-shock resistant ceramics LEWIS-10376	B68-10085	03	reversible drive ARC-8	B63-10009	05
Manganese-alumina-ceramic glass eliminates rigid controls necessary in bonding metals to ceramics SAN-10012	B68-10204	03	Remotely controlled system couples and decouples large diameter pipes NU-0062	B66-10276	05
Indium adhesion provides quantitative measure of surface cleanliness SAN-10024	B68-10342	01	Simple motor drive system operates heavy hinged door NU-0093	B66-10712	05
Grain-boundary migration in KCl bicrystals ARG-10181	B68-10455	03	Swing-out rail system separates overhead crane rails NU-0094	B66-10713	05
Induction probe determines levels of liquid metals ARG-10348	B69-10256	03	Suspended chains damp wind-induced oscillations of tail flexible structures LANGLEY-10193	B68-10042	05
Surface profilometer for examining grain-boundary grooves ARG-10290	B69-10345	05	CHAMBERS Variable light source with a million-to-one intensity ratio JPL-W00-008	B63-10424	03
High-temperature, gas-filled ceramic rectifiers, thyratrons, and voltage-reference tubes LEWIS-90271	B69-10376	01	Control system maintains compartment at constant temperature JPL-SC-145	B66-10188	05
CERIUM Refractory oxides evaluated for high-temperature use LANGLEY-121	B65-10167	03	Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations ARG-251	B67-10305	04
CERIUM COMPOUNDS Ceric and ferrous dosimeters show precision for 50-5000 rad range ARG-10173	B68-10426	02	CHANNEL CAPACITY Monitoring system determines amplitude and time of vibration channel peaks JPL-879	B66-10699	01
CESIUM Bypass rod transfers heat developed in thermionic diode JPL-SC-136	B66-10303	05	Highly stable high-rate discriminator for nuclear counting ARG-10483	B69-10614	01
Special treatment reduces helium permeation of glass in vacuum systems HQ-25	B66-10372	02	CHANNEL FLOW Spiraled channels improve heat transfer between fluids JPL-694	B65-10291	02
Improved atomic resonance gas cell for use in frequency standards MSC-11666	B68-10230	01	Radial coolant channels fabricated by simplified method NU-0070	B66-10267	05
Performance of low-pressure thermionic converters is evaluated ARG-10276	B69-10090	01	Computer program MCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid NUC-10042	B67-10456	06
CESIUM DIODES Thermionic diode switching has high temperature application NPO-10404	B67-10672	01	Channel-wall limitations in the magnetohydrodynamic induction generator ARG-10128	B69-10255	02
CESIUM IODIDES Cesium iodide crystals fused to vacuum tube faceplates GSFC-67	B63-10476	03	CHANNELS New method used to fabricate light-weight heat exchanger for rocket motor LEWIS-43	B63-10346	02
New electron microscope employs new video display technique ARG-158	B67-10312	03	Integral coolant channels supply made by melt-out method M-FS-91	B63-10497	05
CESIUM VAPOR New apparatus increases ion beam power density LEWIS-73	B63-10440	01	Valve designed with elastic seat JPL-442	B65-10040	05
Photoelectric scanner makes detailed work function maps of metal surface JPL-SC-176	B66-10440	01	Use of color-coded sleeve shutters accelerates oscillograph channel selection KSC-10092	B67-10382	01
Distillation device supplies cesium vapor at constant pressure KNP-08124	B68-10020	03	Multiplexer uses insulated gate-field effect transistors M-FS-13096	B67-10396	01
CESIUM 137 Separation technique provides rapid quantitative determination of cesium-137 in irradiated nuclear fuel NUC-10047	B67-10194	03	CHANNELS (DATA TRANSMISSION) Simplified circuit corrects faults in parallel binary information channels JPL-SC-090	B66-10261	01
CHAINS Chain friction system gives positive,			PN acquisition demodulator achieves automatic synchronization of a telemetry channel		

CHARACTER RECOGNITION

SUBJECT INDEX

JPL-612	B66-10271	01	Precision capacitor has improved temperature and operational stability	ARG-189	B67-10313	01
Microphone multiplex system provides multiple outlets from single source	GSFC-426	B66-10308	01	Electrochemical cell has internal resistive heater element	GSFC-10358	B68-10325 01
Single channel pulse-height analyzer operates in subnanosecond range	LEWIS-267	B66-10377	01	CHARPY IMPACT TEST		
Automatic channel switching device	MSC-832	B67-10086	01	Study made of pneumatic high pressure piping materials /10,000 psi/	KSC-10133	B67-10437 03
Computer program samples digital data for CRT display	MSC-999	B67-10249	01	Manual of typical low temperature mechanical properties of several materials	M-FS-18331	B69-10179 03
Multichannel pulse height analyzer is inexpensive, features low power requirements	HQN-10020	B67-10258	01	Improved high-temperature-strength nickel-base superalloy	LEWIS-10874	B69-10352 03
Unique frequency-shift-keyed demodulation system	GSFC-217	B67-10668	01	CHARRING		
Multichannel analyzers at high rates of input	ARG-10355	B69-10214	02	Argon purge gas cooled by chill box	M-FS-560	B66-10153 02
CHARACTER RECOGNITION				Fire retardant foams developed to suppress fuel fires	ARC-10098	B68-10358 03
Literal readout of identification signals in Morse code	LANGLEY-10222	B69-10479	01	CHARTS		
CHARGE CARRIERS				Chart case opens to form briefing easel	MSC-349	B66-10135 05
Optically driven switch turn-off time reduced by opaque coatings	JPL-SC-107	B66-10141	01	Automated drafting system uses computer techniques	M-FS-788	B66-10362 01
Optically induced free carrier light modulator	GSFC-10216	B69-10114	01	Chart system simplifies identification of complex design assemblies	MSC-752	B66-10460 05
CHARGE DISTRIBUTION				Slide rule-type color chart predicts reproduced photo tones	MSC-1227	B66-10680 01
Computer programs calculate potential and charge distributions in a plasma	M-FS-871	B66-10553	01	Movable RF probe eliminates need for calibration in plasma accelerators	LEWIS-10127	B67-10362 01
Pulse-height analyzer with digital readout	ARG-10503	B69-10640	01	Test and inspection for process control of monolithic circuits	M-FS-13084	B67-10507 01
CHARGE TRANSFER				GMT/local-time conversion chart	GSFC-10521	B67-10548 01
Primary cells utilize halogen-organic charge transfer complex	JPL-926	B66-10682	02	Graphic visualization of program performance aids management review	NUC-10011	B67-10568 06
Primary cell uses neither liquid nor fused electrolytes	NPO-10001	B67-10275	01	Charts designate probable future oceanographic research fields	M-FS-20202	B68-10397 01
Photovoltaic effect in organic polymer-iodine complex	NPO-10373	B67-10634	03	Thermal expansion properties of aerospace materials	M-FS-18335	B69-10055 03
Fundamental electrode kinetics	ARG-10067	B68-10196	03	Design of a strain-gage probe	ARG-10338	B69-10343 05
Synchronous charge-constrained electroquasistatic generator	HQ-10231	B69-10461	01	Tool for reading psychrometric charts	KSC-10358	B69-10527 05
CHARGED PARTICLES				CHASSIS		
Electron multiplier has improved performance and stability	GSFC-546	B67-10060	01	Modular chassis simplifies packaging and interconnecting of circuit boards	JPL-236A	B63-10174 01
Numerical least-square method for resolving complex pulse height spectra	GSFC-10142	B67-10480	06	Hot-air soldering technique prevents overheating of electrical components	GSFC-91	B63-10536 01
The response of monoenergetic gamma rays in finite media are investigated	ARG-10295	B69-10080	02	Compressed gas system operates semitrailer brakes during winching operation	JPL-0036	B64-10306 05
CHARGING				Rack mount device quickly inserts or extracts chassis units		
Circuit prevents overcharging of secondary cell batteries	GSFC-454	B66-10492	01			

SUBJECT INDEX

CHEMICAL COMPOSITION

MSC-244 B65-10385 05
Insulator-holder protects transistors in dense electronic assemblies
MSC-214 B65-10389 01
Floating device aligns blind connections
MSC-256 B66-10007 05
Aluminum heat sink enables power transistors to be mounted integrally with printed circuit board
M-FS-13663 B67-10426 01

CHECKOUT
FORTRAN program flow chart is automatically produced
M-FS-369 B66-10062 01
Method permits mechanical and electrical checkout of piezoelectric transducers while installed in a system
ARC-73 B66-10533 01
Gage provides audible signal to facilitate checkout of connector pins
KSC-10335 B69-10173 01

CHELATES
Reusable chelating resins concentrate metal ions from highly dilute solutions
JPL-758 B66-10451 03
Separation of traces of metal ions from sodium matrices
ARG-10341 B69-10168 03
Liquid laser cavities
GSFC-10592 B69-10234 02
Laser action from a terbium beta-ketoenolate at room temperature
GSFC-10593 B69-10324 02

CHEMICAL ANALYSIS
Removable well in reaction flask facilitates carbon dioxide collection
ARC-47 B65-10316 03
Instrument performs nondestructive chemical analysis, data can be telemetered
JPL-SC-078 B65-10317 01
Apparatus enables automatic microanalysis of body fluids
JPL-962 B66-10515 04
Thermoelectric metal comparator determines composition of alloys and metals
ARG-235 B67-10035 01
Status of ultrachemical analysis for semiconductors
M-FS-2254 B67-10138 03
Alpha particle backscattering measurements used for chemical analysis of surfaces
ARG-116 B67-10186 03
Analytical technique characterizes all trace contaminants in water
MSC-11032 B67-10243 03
Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry
NPO-10149 B67-10245 04
Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique
ARG-277 B67-10324 03
Large volume continuous counterflow dialyzer has high efficiency
HQ-10055 B67-10395 04
Tool samples subsurface soil free of surface contaminants

MSC-10988 B67-10473 05
Simple colorimetric method determines uranium in tissue
ARG-10039 B67-10580 03
Calibration of a resistance thermometer down to 0.04 degrees K
ARG-10318 B69-10149 01
Primary radical yields in pulse irradiated alkaline aqueous solution
ARG-10322 B69-10167 02
Microdetermination of urea in urine using p-dimethylaminobenzaldehyde /PDAB/
NPO-10715 B69-10317 04
Ionene membrane battery separator
NPO-11091 B69-10501 03
Chromatographic detection and analysis of traces of hydrocarbons
KSC-10388 B69-10716 02
Effects of high-pressure hydrogen on storage vessel materials
M-FS-18605 B69-10730 03

CHEMICAL ATTACK
Heat-shrinkable jacket holds fluid in contact with tensile test specimen
MSC-13195 B69-10495 05

CHEMICAL BONDS
Synthesis of various highly halogenated monomers and polymers
M-FS-2143 B67-10100 03
Aggregation of metallochlorophylls - Examination by spectroscopy
ARG-10273 B69-10163 04

CHEMICAL CLEANING
Rotating magnetic poles used to pump mercury
LEWIS-276 B66-10434 05
Effects of surface preparation on quality of aluminum alloy weldments
M-FS-13152 B68-10302 03
Effects of hydrogen on metals
M-FS-20364 B69-10372 03
Improved nickel plating of Inconel X-750
M-FS-18604 B69-10463 05
Technique for ultrasonic cleaning with volatile solvents eliminates need for hoods or condensers
MSC-15611 B69-10552 03
Literature review on pickling inhibitors and cadmium electroplating processes
M-FS-14421 B69-10606 03

CHEMICAL COMPOSITION
Lightweight aluminum casting alloy is useful at cryogenic temperatures
M-FS-267 B65-10092 03
Computer program determines chemical composition of physical system at equilibrium
MSC-1119 B66-10670 01
Controlled ferrite content improves weldability of corrosion-resistant steel
M-FS-568 B67-10069 03
Elementary review of electron microprobe techniques and correction requirements
ARG-10062 B68-10195 03
One-dimensional reacting gas nonequilibrium performance program
MSC-11777 B68-10375 06
One-dimensional two-phase reacting gas

CHEMICAL COMPOUNDS

SUBJECT INDEX

nonequilibrium performance program
MSC-11780 B68-10376 06

Axisymmetric nonequilibrium
performance MSC-11781 B68-10377 06

CHEMICAL COMPOUNDS
Crack detection method is safe in presence of
liquid oxygen M-PS-236 B65-10107 03

Isostatic compression process converts
polyaromatics into structural material
JPL-892 B67-10168 03

Electronic circuitry used to automate paper
chromatography JPL-840 B67-10201 01

Tritiated alumina serves as reagent for
self-labeling analysis ARG-209 B67-10315 03

Product identification techniques used as
training aids for analytical chemists
SAM-10025 B68-10373 03

Advances in aluminum anodizing
M-PS-14600 B69-10144 05

CHEMICAL EFFECTS
Materials physically tested in variable-
environment chamber JPL-789 B66-10130 01

CHEMICAL ELEMENTS
Compilation of detection sensitivities in
thermal-neutron activation ARG-10068 B67-10641 03

Computer program calculates gamma ray
source strengths of materials exposed to
neutron fluxes NUC-10143 B67-10665 06

Ignition of binary alloys of uranium
ARG-10057 B68-10280 01

Detection sensitivities in 3-8 Mev
neutron activation ARG-10210 B68-10298 02

Zone purification of potassium chloride
ARG-10377 B69-10241 03

CHEMICAL ENGINEERING
Materials data handbook, aluminum alloy
7075 M-PS-2349 B67-10301 03

Handbook for design of containers of fluids
and gases for spacecraft M-PS-20502 B69-10279 05

CHEMICAL EQUILIBRIUM
Computer program determines chemical
equilibria in complex systems LEWIS-281 B66-10671 01

CHEMICAL FUELS
Handbook for design of containers of fluids
and gases for spacecraft M-PS-20502 B69-10279 05

CHEMICAL INDICATORS
Test strips detect different CO2
concentrations in closed compartments
MSC-210 B65-10390 03

CHEMICAL MACHINING
Electroless nickel resist used in alkali
etching of aluminum GSFC-284 B65-10162 03

Reusable neoprene jacket protects parts for
chemical milling WOO-071 B65-10179 03

Epoxy blanket protects milled part during
explosive forming M-PS-307 B66-10029 03

Etching process mills PH 14-8 Mo alloy
steel to precise tolerances MSC-270 B66-10110 03

Electrical upsetting of metal sheet forms weld
edge M-PS-720 B66-10248 05

Chemical milling solution produces smooth
surface finish on aluminum MSC-549 B66-10312 03

Gage of 6.5 per cent Si-Fe sheet is
chemically reduced MSC-537 B66-10454 03

Modified thermocouple is effective from
minus 250 deg to 5000 deg F MSC-420 B66-10461 01

Continuous internal channels formed in
aluminum fusion welds M-PS-2399 B67-10183 05

Chemical milling solution reveals stress
corrosion cracks in titanium alloy
LANGLEY-10077 B67-10322 03

Acid spray technique mills aluminum alloy
materials without immersion M-PS-1250C B67-10463 03

CHEMICAL PROPERTIES
Substituted silane-diol polymers have
improved thermal stability M-PS-469 B66-10259 03

Silazane elastomer remains resilient at
400 deg C M-PS-1144 B66-10667 05

New class of thermosetting plastics has
improved strength, thermal and chemical
stability LEWIS-10108 B67-10197 03

High strength nickel-base alloy with
improved oxidation resistance up to 2200
degrees F LEWIS-10115 B68-10094 03

Sintering characteristics and properties
of PuS and PuP are determined ARG-10228 B69-10058 03

Reduction by monovalent zinc, cadmium, and
nickel cations ARG-10328 B69-10170 03

CHEMICAL REACTIONS
Ceramic-coated boat is chemically inert,
provides good heat transfer LANGLEY-9C B65-10063 05

Polymer film exhibits thermal and radiation
stability LANGLEY-100 B66-10043 03

Hot-wire detector for chemically active
materials used in gas chromatography
MSC-269 B66-10139 03

Silazane polymers show promise for high-
temperature application M-PS-466 B66-10194 03

Freon provides heat transfer for solid CO2
calibration standard M-PS-644 B66-10257 02

Chemical regeneration of emitter surface
increases thermionic diode life LEWIS-17 B66-10435 02

Uranyl phthalocyanines show promise in the

SUBJECT INDEX

CHLOROFORM

treatment of brain tumors
ARG-100 B67-10188 04

Experiments shed new light on
nickel-fluorine reactions
ARG-10008 B67-10397 03

Quantum mechanical calculations of reactive
scattering cross sections in bimolecular
encounters
M-FS-13594 B67-10527 03

New rapid-curing, stable polyimide
polymers with high-temperature strength
and thermal stability
LEWIS-10576 B69-10118 03

Production of metals and compounds by
radiation chemistry
LEWIS-10231 B69-10123 03

A new solid lubricant
LEWIS-10812 B69-10250 03

Coordination chemistry in fused-salt
solutions
ARG-10469 B69-10423 03

Synthesis of polyethers of hexafluorobenzene
and hexafluoropentanediol
M-FS-14962 B69-10636 03

Synthesis of perbromates
ARG-10459 B69-10647 03

CHEMICAL REACTORS
Oxide film on metal substrate reduced to
form metal-oxide-metal layer structure
ARG-48 B67-10187 03

Abrasion and resistant discharge valve
developed
ARG-10219 B69-10044 05

Automatic filter-blowback systems used with
sintered-metal filters
ARG-10324 B69-10342 05

CHEMILUMINESCENCE
Porous glass makes effective substrate for
ozone-sensing reagent
GSFC-388 B65-10364 03

Quantum mechanical calculations of reactive
scattering cross sections in bimolecular
encounters
M-FS-13594 B67-10527 03

CHEMISORPTION
Study made of Raney nickel technology
M-FS-2054 B67-10208 03

CHEMISTRY
Chemistry laboratory safety manual
available
SAN-10030 B68-10419 03

Thermophysical properties of sodium
ARG-10363 B69-10240 03

CHIPS
Technique for abrasive cutting of
thick-film conductors for hybrid circuits
MSC-13242 B69-10235 03

Improved method of dicing integrated circuit
wafers into chips
ERC-10138 B69-10441 01

CHLORATES
Improved chlorate candle provides
concentrated oxygen source
MSC-1137 B67-10095 03

CHLORELLA
Substitution of stable isotopes in
Chlorella
ARG-10258 B69-10197 04

CHLORIDES
Trace levels of metallic corrosion in water
determined by emission spectrography
MSC-1193 B66-10701 03

Thermocouple-flexible cable connector
insulator is highly reliable
NU-0082 B66-10709 01

Fluid-bed fluoride volatility process
recovers uranium from spent uranium alloy
fuels
ARG-232 B67-10032 03

Saran film is fire-retardant in oxygen
atmosphere
MSC-11604 B68-10177 03

Technique for ultrasonic cleaning with
volatile solvents eliminates need for
hoods or condensers
MSC-15611 B69-10552 03

CHLORINE
Chemical regeneration of emitter surface
increases thermionic diode life
LEWIS-17 B66-10435 02

One-dimensional reacting gas nonequilibrium
performance program
MSC-11777 B68-10375 06

One-dimensional two-phase reacting gas
nonequilibrium performance program
MSC-11780 B68-10376 06

Axisymmetric reacting gas nonequilibrium
performance program
MSC-11781 B68-10377 06

Analysis of secondary cells with
lithium anodes and immobilized
fused-salt electrolytes
ARG-10452 B69-10613 01

CHLORINE COMPOUNDS
Organic reactants rapidly produce plastic foam
LANGLEY-37 B65-10288 03

Surfactant for dye-penetrant inspection is
insensitive to liquid oxygen
M-FS-475 B66-10131 03

New class of compounds have very low vapor
pressures
ARG-115 B67-10184 03

Corrosion of aluminum alloys by chlorinated
hydrocarbon/methanol mixtures
MSC-11365 B67-10442 03

CHLOROAROMATICS
Process produces chlorinated aromatic
isocyanate in high yield
M-FS-1658 B66-10646 03

CHLOROETHYLENE
Solvent residue content measured by light
scattering technique
M-FS-850 B66-10320 01

Degreasing of titanium to minimize stress
corrosion
LEWIS-382 B67-10147 03

Liquid oxygen dicting cleaned by falling
film method
M-FS-11816 B67-10299 03

Cold machining of high density tungsten
and other materials
ARG-10289 B69-10110 05

CHLOROFORM
Corrosion of aluminum alloys by chlorinated
hydrocarbon/methanol mixtures
MSC-11365 B67-10442 03

CHLOROPHYLLS

SUBJECT INDEX

CHLOROPHYLLS

The preparation, identification and properties of chlorophyll derivatives
ARG-10205 B68-10409 03

Aggregation of metallochlorophylls - Examination by spectroscopy
ARG-10273 B69-10163 04

Comparative chromatography of chloroplast pigment
ARG-10415 B69-10425 03

CHLOROPLASTS

Comparative chromatography of chloroplast pigment
ARG-10415 B69-10425 03

CHLOROPRENE RESINS

Chain friction system gives positive, reversible drive
ARC-8 B63-10009 05

Elastomers bonded to metal surfaces seal electrochemical cells
GSFC-168 B64-10113 03

Reusable neoprene jacket protects parts for chemical milling
WOO-071 B65-10179 03

Composite seal reduces alkaline battery leakage
GSFC-337 B65-10271 01

Buoyant stokes litter assembly used for sea rescue operations
MSC-131 B66-10019 05

Self-inflating lifevest stores in small package
MSC-5A B66-10184 04

Fiberglass container shells form contamination-free storage units
WOO-275 B66-10217 05

Isostatic compression process converts polyaromatics into structural material
JPL-892 B67-10168 03

Method prevents secondary radiation in radiographic inspection
M-FS-13383 B67-10391 02

CHLOROSILANES

Substituted silane-diol polymers have improved thermal stability
M-FS-469 B66-10259 03

CHOKES (RESTRICTIONS)

Potassium plasma cell facilitates thermionic energy conversion process
ARG-10010 B67-10399 01

Broadband choke suppresses spurious currents in antenna structure
MSC-10013 B67-10675 01

Improved limiter for turn-on current transient
GSFC-10413 B68-10384 01

CHROMATES

Inexpensive infrared source improvised from flashlight
M-FS-494 B66-10096 02

Corrosion protection of aluminum alloys in contact with other metals
M-FS-18526 B69-10098 03

CHROMATOGRAPHY

Reusable chelating resins concentrate metal ions from highly dilute solutions
JPL-758 B66-10451 03

Tritiated alumina serves as reagent for self-labeling analysis

ARG-209 B67-10315 03

Study of behavior of sterols at interfaces
ARG-10085 B68-10281 03

The preparation, identification and properties of chlorophyll derivatives
ARG-10205 B68-10409 03

Novel multipurpose timer for laboratories
ARG-10147 B69-10410 01

Coordination chemistry in fused-salt solutions
ARG-10469 B69-10423 03

Comparative chromatography of chloroplast pigment
ARG-10415 B69-10425 03

Chromatographic detection and analysis of traces of hydrocarbons
KSC-10388 B69-10716 02

CHROMIC ACID

Corrosion protection of aluminum alloys in contact with other metals
M-FS-18526 B69-10098 03

Masking of aluminum surface against anodizing
M-FS-12964 B69-10335 05

A method for precision anodize stripping
MSC-15040 B69-10581 03

CHROMITES

Electrolytic separation of crystals of transition-metal oxides
ARG-10506 B69-10642 03

CHROMIUM

Lightweight aluminum casting alloy is useful at cryogenic temperatures
M-FS-267 B65-10092 03

Thin-film resistors used in functional electronic blocks
GSFC-380 B65-10305 01

Submicron metal powders produced by ball milling with grinding aids
LEWIS-188 B66-10221 03

New weldable high strength aluminum alloy developed for cryogenic service
M-FS-737 B66-10613 05

Coating protects magnesium-lithium alloys against corrosion
M-FS-2446 B67-10149 03

Method of improving contact bonds in silicon integrated circuits
M-FS-1753 B67-10335 01

Nickel-base superalloy's excellent properties promote its service to 2200 degrees F
LEWIS-10355 B68-10380 03

High temperature coatings for gas bearings
LEWIS-10793 B69-10200 03

High strength, superplastic superalloy
LEWIS-10805 B69-10293 03

Effects of hydrogen on metals
M-FS-20364 B69-10372 03

CHROMIUM ALLOYS

Nickel-base superalloys developed for high-temperature applications
LEWIS-226 B66-10222 03

Composites of porous metal and solid lubricants increase bearing life
LEWIS-307 B67-10007 03

SUBJECT INDEX

CIRCUIT BREAKERS

Application of the solid lubricant molybdenum disulfide by sputtering LEWIS-10544	B68-10340	03	Device serves as hinge and electrical connector for circuit boards M-PS-743	B66-10359	01
Tungsten fiber-reinforced nickel superalloy LEWIS-10424	B68-10369	03	Process produces accurate registry between circuit board prints LANGLEY-288	B66-10660	02
Evaluation of lubricants for ball bearings at high temperatures LEWIS-10578	B69-10025	03	Edge-type connectors evaluated by electrical noise measurement M-PS-2243	B67-10125	01
Improved high-temperature silicide coatings LEWIS-10817	B69-10266	03	Polarized light reveals stress in machined laminated plastics LEWIS-10018	B67-10383	03
CHROMIUM CARBIDES High temperature coatings for gas bearings LEWIS-10793	B69-10200	03	Multiplexer uses insulated gate-field effect transistors M-PS-13096	B67-10396	01
CHROMIUM OXIDES Ceramic-coated boat is chemically inert, provides good heat transfer LANGLEY-90	B65-10063	05	Study made of anodized aluminum circuit boards M-PS-13580	B67-10425	01
Chromium oxide coatings improve thermal emissivity of alumina WOO-263	B66-10227	03	Aluminum heat sink enables power transistors to be mounted integrally with printed circuit board M-PS-13663	B67-10426	01
CHROMOSOMES Study of radiation effects on mammalian cells in vitro ARG-10191	B68-10294	02	Adhesives for laminating polyimide insulated flat conductor cable M-PS-12066	B67-10429	03
Microscopes and computers combined for analysis of chromosomes ARG-10256	B69-10088	04	Warpage eliminated in copper-clad microwave circuit laminates M-PS-13892	B67-10454	03
CHRONOLOGY Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna ARG-10345	B69-10258	02	Areas of irregular, discontinuous patterns rapidly and accurately measured GSFC-10184	B67-10674	01
CINEMATOGRAPHY Crack growth measured on flat and curved surfaces at cryogenic temperatures LEWIS-389	B67-10384	01	Inspection criteria ensure quality control of parallel gap soldering M-PS-14530	B68-10257	05
CIRCLES (GEOMETRY) Circular, explosion-proof lamp provides uniform illumination MSC-382	B66-10156	02	Random access-random release relay switching matrix M-PS-12590	B68-10301	01
CIRCUIT BOARDS Modular chassis simplifies packaging and interconnecting of circuit boards JPL-236A	B63-10174	01	Standards for compatibility of printed circuit and component lead materials M-PS-14531	B68-10310	01
Front and back printed circuit layouts presented on single sheet GSFC-93	B63-10596	01	Remotely-actuated biomedical switch ARC-10105	B69-10117	01
Compact coaxial connector for printed circuit adds reliability MSC-57	B64-10016	01	New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118	03
Screening technique makes reliable bond at room temperature M-PS-227	B65-10004	03	Self-shielding printed circuit boards for high frequency amplifiers and transmitters HQ-10433	B69-10314	01
Hand tool bends component leads accurately M-PS-308	B65-10181	05	Folded stick module NPO-10854	B69-10498	01
Handtool facilitates extraction of circuit modules LANGLEY-38	B65-10231	05	Circuit board hole coordinate locator concept M-PS-14737	B69-10539	01
Assembly jig assures reliable solar cell modules GSFC-455	B66-10040	05	Development of improved potting and conformal coating compounds M-PS-20219	B69-10559	03
New television camera eliminates vidicon tube M-PS-472	B66-10112	01	Device for reflowing electrodeposited solder on terminals M-PS-13821	B69-10670	01
Fixture aids soldering of electronic components on circuit board ARC-56	B66-10162	01	Investigation of the development of cracks in solder joints M-PS-20444	B69-10807	01
Tool forms right angles in component leads M-PS-722	B66-10346	05	CIRCUIT BREAKERS Solid-state recoverable fuse functions as circuit breaker GSFC-560	B66-10691	01

CIRCUIT DIAGRAMS

SUBJECT INDEX

Current-limiting voltage regulator MSC-11824	B68-10305	01	LANGLEY-129	B65-10193	01
Breakaway electrical connector NPO-11140	B69-10474	01	Tester periodically registers dc amplifier characteristics MSC-190	B66-10148	01
Fuse protects circuit from voltage and current overloads MSC-12135	B69-10490	01	Two-light circuit continuously monitors ac ground, phase, and neutral wires MSC-356	B66-10163	01
CIRCUIT DIAGRAMS			Complementary monostable circuits achieve low power drain and high reliability GSFC-433	B66-10179	01
Simple tunnel diode circuit for accurate zero crossing timing ARG-10309	B69-10116	01	Computer program detects transient malfunctions in switching circuits MSC-604	B67-10002	01
Self-starting circuit for switching regulators LEWIS-10686	B69-10128	05	Test and inspection for process control of monolithic circuits M-FS-13084	B67-10507	01
CIRCUIT PROTECTION			Analog buffer isolates high impedance source from low impedance load M-FS-13481	B67-10544	01
Single connector provides safety fuses for multiple lines MSC-199	B66-10050	01	Multipulse current source offers low power losses and high reliability LANGLEY-68	B67-10603	01
Rugged microelectronic module package supports circuitry on heat sink MSC-81A	B66-10245	01	Improved compensation circuit for direct-coupled amplifiers MSC-11148	B68-10133	01
Circuit protects regulated power supply against overload current GSFC-453	B66-10292	01	Low energy ohmmeter can be used to test sensitive circuits, other meters SAN-10013	B68-10269	01
Electrical cabling withstands severe environmental conditions M-FS-1585	B66-10427	01	Solid state high-voltage pulser operates with low supply voltage M-FS-14034	B68-10308	01
Trisphere spark gap actuates overvoltage relay ARC-68	B66-10557	01	Analysis and design of a class-D amplifier M-FS-14803	B68-10313	01
Solid-state recoverable fuse functions as circuit breaker GSFC-560	B66-10691	01	Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time ARG-10110	B68-10328	01
Fused diode provides visual indication of fuse condition KSC-67-16	B67-10230	01	Closed circuit TV system automatically guides welding arc M-FS-20084	B68-10357	01
Circuit provides overcurrent protection to push-pull amplifier MSC-12033	B67-10300	01	Microelectronic oscillator GSFC-10375	B69-10064	01
Eutectic fuse provides current and thermal protection under high vibration M-FS-13664	B67-10535	01	Analysis of magnetically-controlled processes in pulse-modulation systems GSFC-10241	B69-10070	01
Low energy ohmmeter can be used to test sensitive circuits, other meters SAN-10013	B68-10269	01	Concept for a multifunctional oscilloscope probe M-FS-16390	B69-10129	01
Current-limiting voltage regulator MSC-11824	B68-10305	01	CIRCUITS		
Short circuit protection for a power distribution system M-FS-14993	B68-10443	01	Small digital recording head has parallel bit channels, minimizes cross talk JPL-0029	B63-10284	01
Method for measuring alternator voltage transients LEWIS-10373	B68-10513	01	Two-stage emitter follower is temperature stabilized MSC-20	B63-10493	01
CIRCUIT RELIABILITY			Circuit switches latching relay in response to signals of different polarity WOO-055	B63-10508	01
Increased performance reliability obtained with dual /redundant/ oscillator system GSFC-36	B63-10027	01	Connector for thermocouple leads saves costly wire, makes reliable connectors LANGLEY-26	B63-10529	01
Circuit reliability boosted by soldering pins of disconnect plugs to sockets JPL-447	B64-10002	01	Simple circuit provides adjustable voltage with linear temperature variation JPL-WOO-029	B63-10537	01
Continuity tester screens out faulty socket connections JPL-596	B64-10065	01	High efficient square-wave oscillator operator at high power levels GSFC-112	B63-10554	01
Circuit improvement produces monostable multivibrator with load-carrying capability GSFC-34A	B65-10011	01			
Logic circuit exhibits optimum performance					

SUBJECT INDEX

CIRCUITS CONT

Computer determines high-frequency phase stability GSFC-113	B63-10555	01	Pulse generator permits nondestructive testing of component breakdown voltage MSC-122	B65-10054	01
Tiny sensor-transmitter can withstand extreme acceleration, gives digital output ARC-22	B63-10561	01	FM oscillator uses tetrode transistor JPL-82	B65-10055	01
Simple circuit continuously monitors thermocouple sensor M-FS-61	B63-10567	01	Feed-through has polyterminal feature M-FS-25	B65-10057	01
Device calibrates vibration transducer at amplitudes up to 20 g M-FS-86	B63-10572	01	Sensitive level sensor made with spirit level, gives electrical output LANGLEY-49	B65-10067	01
Circuit controls transients in SCR inverters GSFC-120	B63-10600	01	Feedback oscillator functions as low-level pulse stretcher GSFC-261	B65-10069	01
Monostable circuit with tunnel diode has fast recovery GSFC-132	B63-10603	01	Synchronized pulse generator needs no external power GSFC-274	B65-10072	01
Temperature-sensitive network drives astable multivibrator GSFC-137	B63-10609	01	Light-sensitive potentiometer measures product of two variables GSFC-240	B65-10076	01
Blocking oscillator uses low triggering voltage MSC-58	B64-10017	01	Phase detector circuit synthesizes own reference signal M-FS-247	B65-10080	01
Efficient circuit triggers high-current, high-voltage pulses MSC-14	B64-10024	01	Transducer senses displacements of panels subjected to vibration ARC-37	B65-10085	01
Continuity tester screens out faulty socket connections JPL-596	B64-10065	01	Digital system accurately controls velocity of electromechanical drive GSFC-287	B65-10096	01
Improved insertion-loss tester JPL-358	B64-10080	01	Variable load automatically tests dc power supplies GSFC-291	B65-10105	01
Emission tester for high-power vacuum tubes JPL-628	B64-10158	01	Unijunction frequency divider is free of backward loading JPL-W00-010	B65-10112	01
Field effect transistors used as voltage controlled resistors M-FS-174	B64-10163	01	Simplified electrometer has excellent operating characteristics JPL-413	B65-10125	01
PTC thermistor protects multiloaded power supplies GSFC-236	B64-10281	01	Traveling-wave tube circuit simplifies microwave relay GSFC-299	B65-10127	01
Transistorized converter provides nondissipative regulation GSFC-238	B64-10305	01	Piezoresistive gage tests pin-connector sockets JPL-675	B65-10128	01
Voltage generator sweeps oscillator frequency linearly with time M-FS-219	B64-10320	01	Simple circuit positions film frames in projector JPL-508	B65-10132	02
Bandwidth switching is transient-free, avoids loss of loop lock W00-054	B64-10349	01	Instrument calibrates low gas-rate flowmeters MSC-134	B65-10137	01
Circuit converts AM signals to FM for magnetic recording GSFC-227	B65-10001	01	High-gain amplifier has excellent stability and low power consumption GSFC-272	B65-10138	01
Circuit improvement produces monostable multivibrator with load-carrying capability GSFC-34A	B65-10011	01	Auxiliary circuit enables automatic monitoring of EKG's MSC-106	B65-10142	01
Zener diode function generator requires no external reference voltage JPL-0031	B65-10013	01	Logarithmic amplifier uses field effect transistors JPL-509	B65-10145	01
Use of tear ring permits repair of sealed module circuitry M-FS-210	B65-10014	05	Rotor position sensor switches currents in brushless dc motors GSFC-315	B65-10151	01
Carbon arc ignition improved by simple auxiliary circuit MSC-103	B65-10018	01	Circuit reduces distortion of FM modulator GSFC-257	B65-10152	01
Circuit detects errors in address currents for magnetic core arrays M-FS-234	B65-10047	01	Phase shift frequency synthesizer is efficient, small in size M-FS-250	B65-10169	01
			Pressure transducer system is force-balanced,		

CIRCUITS CONT

SUBJECT INDEX

has digital output M-FS-154	B65-10174	05	Function generator eliminates necessity of series summation GSFC-214	B66-10351	01
Dc to ac converter operates efficiently at low input voltages GSFC-130	B65-10178	01	Hydrogen fire detection system features sharp discrimination M-FS-643	B66-10368	01
Oscillator circuit measures liquid level in tanks M-FS-245	B65-10209	01	Solid state detectors monitor relay contacts JPL-785	B66-10396	01
Detector circuit compensates for vidicon beam current variations GSFC-310	B65-10212	01	Control circuit maintains unity power factor of reactive load MSC-192	B66-10431	01
Simple BCD circuit accurately counts to 24 GSFC-317	B65-10225	01	Remote preamplifier circuit maintains stability over wide temperature range WOO-278	B66-10432	01
Simple circuit produces high-speed, fixed duration pulses GSFC-285	B65-10228	01	Shaft encoder presents digital output JPL-SC-191	B66-10436	01
Electrometer has automatic zero bias control GSFC-350	B65-10242	01	Semiconductors can be tested without removing them from circuitry M-FS-1163	B66-10447	01
Inductor flyback characteristic gives voltage regulator fast response GSFC-361	B65-10257	01	Simple, one transistor circuit boosts pulse amplitude GSFC-501	B66-10480	01
Gapped toroid provides infinite resolution of delay-line pickup GSFC-370	B65-10258	01	Circuit prevents overcharging of secondary cell batteries GSFC-454	B66-10492	01
Electrometer preamplifier has drift correction feedback JPL-SC-074	B65-10267	01	Electronic circuit delivers pulse of high interval stability MSC-673	B66-10501	01
Electronic ohmmeter provides direct digital output GSFC-363	B65-10274	01	Point-source light sensor circuit is insensitive to background light JPL-778	B66-10502	01
Added diodes increase output of balanced mixer circuit GSFC-354	B65-10276	01	Solid state annunciator facilitates complex system troubleshooting M-FS-1258	B66-10505	01
Circuit maintains digital decision threshold at preset level M-FS-331	B65-10281	01	Antenna simulator permits preinstallation system checkout GSFC-522	B66-10518	01
Boron nitride housing cools transistors WOO-079	B65-10289	01	Collector/collector guard ring balancing circuit eliminates edge effects JPL-SC-143	B66-10563	01
Electrostatically driven dynamic capacitor employs capacitive feedback JPL-771	B65-10293	01	Electronic circuit provides accurate sensing and control of dc voltage NU-0089	B66-10591	01
Hybrid circuit achieves pulse regeneration with low power drain GSFC-382	B65-10314	01	MOSFET analog memory circuit achieves long duration signal storage M-FS-860	B66-10603	01
Compact SCR trigger circuit for ignitron switch operates efficiently M-FS-371	B65-10347	01	Electrical continuity scanner facilitates identification of wires for soldering to connectors MSC-626	B66-10605	01
Frequency discriminator with binary output eliminates tuned circuits M-FS-376	B65-10349	01	Resistance thermometer has linear resistance-temperature coefficient at low temperatures WOO-190	B66-10612	01
Multiphase clock-pulse generator uses simplified circuitry M-FS-297	B65-10353	01	Magnetoresistor monitors relay performance M-FS-1754	B66-10650	01
Adhesive-backed terminal board eliminates mounting screws MSC-173	B65-10396	01	Actuator device schedules rate of valve closure M-FS-1556	B66-10686	05
Computer circuit calculates cardiac output MSC-274	B66-10006	01	Polarimeter provides transient response in nanosecond range JPL-890	B67-10021	02
Portable self-powered device detects internal flaws in tubular structures NU-0019	B66-10028	01	Multipurpose instrumentation cable provides integral thermocouple circuit NU-0108	B67-10046	01
Circuit operates as sine function generator MSC-255	B66-10038	01	Solid-state time-to-pulse-height converter developed		
Noncontacting transducer measures shaft torque M-FS-474	B66-10048	01			

SUBJECT INDEX

CIRCUITS CONT

ARG-170	B67-10053	01	MSC-10983	B67-10370	01
Control circuit ensures solar cell operation at maximum power			Circuit automatically calibrates flowmeter against liquid-level gage reference		
GSFC-432	B67-10061	01	M-FS-2194	B67-10376	01
Portable detector set discloses helium leak rates			Crack growth measured on flat and curved surfaces at cryogenic temperatures		
M-FS-1733	B67-10065	01	LEWIS-389	B67-10384	01
Strain gage circuitry provides fatigue testing machine with accurate cycle count			Computer program for network synthesis by frequency response fit		
NU-0114	B67-10093	01	M-FS-12686	B67-10406	06
Heater control circuit provides both fast and proportional control			Interference effects eliminated in random oriented space station antenna system		
M-FS-906	B67-10097	01	MSC-11004	B67-10435	01
Personal communication system combines high performance with miniaturization			Stable ac phase and amplitude comparator		
MSC-720	B67-10119	01	M-FS-13086	B67-10459	01
Electrometer amplifier operates over dynamic range of five orders of magnitude			Series transistors isolate amplifier from flyback voltage		
ARC-75	B67-10199	01	MSC-11023	B67-10468	01
Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry			Dual photochemical replenisher system reduces chemical losses		
NPO-10149	B67-10245	04	KSC-67-111	B67-10485	02
Experimental coherent fractional frequency multiplier at S-band			Long time constant timer requires no recovery time		
M-FS-2427	B67-10250	01	GSFC-10091	B67-10487	01
Fast-response frequency-to-analog converter			Improved circuit for measuring capacitive and inductive reactances		
M-FS-709	B67-10257	01	M-FS-13083	B67-10513	01
System precisely controls oscillation of vibrating mass			Apparatus makes klystron operating frequency adjustable from remote point		
M-FS-1875	B67-10276	01	NPO-09831	B67-10514	01
Vibrator elapsed time is automatically controlled			Adaptive control circuit prevents amplifier saturation		
M-FS-2573	B67-10284	01	ERC-10026	B67-10648	02
Circuit provides overcurrent protection to push-pull amplifier			Electron beam deflected to determine focal point location		
MSC-12033	B67-10300	01	M-FS-14107	B67-10649	01
Transistor biased amplifier minimizes diode discriminator threshold attenuation			One-shot pulse shaper circuit		
ARG-163	B67-10311	01	XGS-11379	B68-10012	01
Electronic test instrument generates extremely small current signals			Synchronized circuit improves accuracy of fluid transfer measurements		
ARG-276	B67-10318	01	MSC-11167	B68-10057	05
Transient Analysis Generator /TAG/ simulates behavior of large class of electrical networks			Gyrator-type circuits replace ungrounded inductors		
NPO-10031	B67-10319	06	XAC-10608	B68-10084	01
Braze joint quality tested electromagnetically			Circuit enhances vertical resolution in raster scanning systems		
M-FS-12795	B67-10333	01	MSC-12123	B68-10121	01
Field effect transistors improve buffer amplifier			Compensation circuit improves operation of inductive coupling transformers		
M-FS-916	B67-10334	01	M-FS-13801	B68-10129	01
Method of improving contact bonds in silicon integrated circuits			Improved compensation circuit for direct-coupled amplifiers		
M-FS-1753	B67-10335	01	MSC-11148	B68-10133	01
Digital-to-analog converter operates from low level inputs			Tunnel diode circuit used as nanosecond-range time marker		
JPL-907	B67-10357	01	ARG-90164	B68-10173	01
Signal generator converts direct current to multiphase supplies			Welder analyzer		
MSC-11043	B67-10368	01	MSC-12068	B68-10242	01
Multiple meter monitoring circuits served by single alarm			Silicon strain sensors enable pressure measurement at cryogenic temperatures		
MSC-10984	B67-10369	01	M-FS-14703	B68-10262	01
Mechanical properties of wire insulation automatically determined			Improved fuel-cell-type hydrogen sensor		
			M-FS-14656	B68-10263	01
			Low energy ohmmeter can be used to test sensitive circuits, other meters		
			SAN-10013	B68-10269	01

CIRCULAR CONES

SUBJECT INDEX

System measures arc energy dissipated in relay contact cycling M-FS-14541	B68-10312	01	Flexible high-voltage supply for experimental electron microscope ARG-10482	B69-10603	01
Method of reducing time base error in digital magnetic recorders GSFC-10108	B68-10317	01	Pulse-height analyzer with digital readout ARG-10503	B69-10640	01
Low-cost, fast-response drive circuit for electromagnetic torque motors LEWIS-10143	B68-10386	01	Miniature backward-diode pressure sensor features stability and low power consumption ERC-10229	B69-10690	01
Two-way digital driver/receiver uses one set of lines ERC-10055	B68-10437	01	Battery charge-discharge controller MSC-11836	B69-10747	01
Performance analysis of electrical circuits /PANE/ M-FS-15001	B68-10448	06	CIRCULAR CONES Problem of oscillating cone in supersonic flow is solved by small perturbation techniques M-FS-869	B66-10700	02
Readout system for radiation detector MSC-90180	B68-10501	01	CIRCULAR CYLINDERS Flexible coiled spline securely joins mating cylinders WOO-270	B66-10172	05
Locating **sneak paths** in electrical circuitry M-FS-15018	B68-10565	01	Cylindrical claw clamp has quick release feature M-FS-513	B66-10213	05
Welding skate with computerized controls M-FS-20224	B68-10566	01	Special mandrel permits uniform welding of out-of-round tubing M-FS-706	B66-10323	05
Device for diode tuning in a stripline varactor harmonic multiplier M-FS-20153	B69-10013	01	Friction loading device enables accurate testing of brittle materials NU-0051	B66-10345	05
Microelectronic oscillator, 2 GSFC-10387	B69-10063	01	A design procedure for the weight optimization of straight finned radiators GSFC-547	B66-10618	05
Concept for a multifunctional oscilloscope probe M-FS-16390	B69-10129	01	Metal flame spray coating protects electrical cables in extreme environment NUC-10077	B67-10351	03
Schmitt trigger multivibrator MSC-10955	B69-10143	01	Digital computer program predicts effects of local pressure transients on deformation and stresses in cylindrical ducts M-FS-13058	B67-10631	06
Positive and negative output circuits LEWIS-10715	B69-10151	01	CIRCULAR ORBITS Generalized Newton-Raphson trajectory optimization-generator 1 M-FS-15020	B68-10422	06
A prototype high power portable lamp M-FS-20229	B69-10189	02	CIRCULAR PLATES Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates ARG-151	B66-10601	05
Proposed technique for vertical alignment of a crane's cable M-FS-16496	B69-10202	05	Device enables calibration of microphones at high sound pressure levels M-FS-11980	B67-10336	01
Technique for abrasive cutting of thick-film conductors for hybrid circuits MSC-13242	B69-10235	03	Computer program performs frequency analysis of nonuniform turbine disk subjected to temperature gradients NUC-10301	B68-10006	06
Piezoelectric lock mechanism resists lockpicking SAN-10037	B69-10281	01	CIRCULAR POLARIZATION Omnidirectional antennas transmit and receive over large bandwidth GSFC-436	B66-10133	01
Semiautomatic inspection of microfilm records M-FS-20240	B69-10301	02	Improved circularly polarized planar-array antenna NPO-10301	B69-10382	01
Circuit counts pulses and indicates time of occurrence of slow pulses XNP-06234	B69-10313	01	CIRCULAR SHELLS Radial coolant channels fabricated by simplified method NU-0070	B66-10267	05
Simple, accurate automatic frequency control circuit KSC-10393	B69-10323	01	CIRCULAR TUBES Special mandrel permits uniform welding of out-of-round tubing M-FS-706	B66-10323	05
Improved dc voltage regulator XKS-06467	B69-10369	01			
A positive taper traveling-wave tube LANGLEY-10263	B69-10407	01			
Simplified, reliable circuit sorts binary numbers in order of magnitude NPO-10112	B69-10503	01			
Synchronizing redundant power oscillators XGS-09377	B69-10546	01			
High voltage pulse generator MSC-12178	B69-10548	01			

SUBJECT INDEX

CLAMPS

Niobium-uranium alloys with voids of predetermined size and total volume ARG-10490	B69-10641	03	LANGLEY-21	B64-10119	05
CIRCULATION			Apparatus permits flexure testing of specimens at cryogenic temperatures M-FS-257	B65-10129	02
Fine-particle filter prevents damage to vacuum pumps LEWIS-106	B63-10489	05	Spiral heater coils hand-formed with fixture LEWIS-208	B65-10192	05
Welds chilled by liquid coolant manifold M-FS-679	B66-10354	05	Self-aligning fixture used in lathe chuck jaw refacing FRC-21	B65-10198	05
Two systems developed for purifying inert atmospheres ARG-10234	B69-10026	03	Electrical cable connector-clamp has smooth exterior surface MSC-154	B65-10201	05
Self-sustained hydrodynamic oscillations in a natural-circulation two-phase-flow boiling loop ARG-10461	B69-10620	02	Remotely operated clamping tool has positive grip NU-0020	B65-10254	05
Liquid-metal-piston MHD generator ARG-10500	B69-10771	02	Die and telescoping punch form convolutions in thin diaphragm JPL-SC-135	B65-10393	05
CIRCULATORS (PHASE SHIFT CIRCUITS)			Compact retractor protects cabling loops M-FS-561	B66-10018	05
Double-throw microwave device switches two lines quickly JPL-410	B63-10258	01	Resilient clamp holds fuel cell stack through resilient clamp holds fuel cell stack through thermal cycle MSC-313	B66-10035	05
CIRCULATORY SYSTEM			Bench vise adapter grips tubing securely and safely MSC-279	B66-10056	05
Improved sample capsule for determination of oxygen in hemolyzed blood MSC-11017	B67-10408	04	Calibrated clamp facilitates pressure application MSC-298	B66-10059	05
Carbon offers advantages as implant material in human body M-FS-18207	B69-10087	04	Pipe cutting tool is useful in limited space MSC-36	B66-10102	05
CITRIC ACID			Chart case opens to form briefing easel MSC-349	B66-10135	05
Nonhazardous acid etches weld samples M-FS-975	B66-10378	05	Split glass tube assures quality in electron beam brazing M-FS-564	B66-10151	05
Improved pH buffering agent for sodium hypochlorite MSC-15443	B69-10084	03	Fixture aids soldering of electronic components on circuit board ARC-56	B66-10162	01
CLADDING			Multisurface fixture permits easy grinding of tool bit angles M-FS-586	B66-10171	05
Zirconium alloys with small amounts of iron and copper or nickel show improved corrosion resistance in superheated steam ARG-226	B67-10050	03	Lifting clamp positively grips structural shapes M-FS-593	B66-10176	05
Study made of corrosion resistance of stainless steel and nickel alloys in nuclear reactor superheaters ARG-230	B67-10051	03	Cylindrical claw clamp has quick release feature M-FS-513	B66-10213	05
Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/ ARG-10148	B68-10368	03	Hand tool permits shrink sizing of assembled tubing MSC-504	B66-10239	05
CLAMPING CIRCUITS			Fixed vacuum plate clamps styrofoam for machining M-FS-683	B66-10283	05
Increased performance reliability obtained with dual /redundant/ oscillator system GSFC-36	B63-10027	01	Extensometer automatically measures elongation in elastomers M-FS-517	B66-10284	05
Transistorized circuit clamps voltage with 0.1 percent error GSFC-196	B65-10118	01	Swiveling lathe jaw concept for holding irregular pieces M-FS-783	B66-10321	05
Simple circuit provides reliable multiple signal average and reject capability NU-0069	B66-10282	01	Adapter assembly prevents damage to tubing during high pressure tests MSC-563	B66-10330	02
CLAMPS			Latching mechanism operates in limited access area		
Reference black body is compact, convenient to use ARC-3	B63-10004	03			
Sleeve and cutter simplify disconnecting welded joint in tubing JPL-384	B63-10240	05			
Novel clamps align large rocket cases, eliminate back-up bars M-FS-1	B63-10376	05			
Buckle joins web straps quickly, adjusts easily					

CLASSIFYING

SUBJECT INDEX

MSC-230	B66-10338	05	Improved atmospheric particle analyzer ERC-33	B67-10231	01
Welds chilled by liquid coolant manifold M-FS-679	B66-10354	05	Fogging technique used to coat magnesium with plastic LEWIS-10316	B67-10584	03
Micromanipulation tool is easily adapted to many uses JPL-129	B67-10004	05	Locating and sealing air leaks in multiroomed buildings NUC-10304	B68-10024	05
Process sequence produces strong, lightweight reflectors of excellent quality LEWIS-331	B67-10010	05	Vacuum probe sampler removes micron-sized particles from surfaces SAN-10003	B68-10231	04
Tool facilitates installation of Harmon clamps M-FS-2039	B67-10105	05	Biological isolation garment MSC-12206	B68-10500	04
Clamp provides efficient connection for high-density currents M-FS-2417	B67-10140	01	Microbiological aspects of sterilization development laboratories NPO-11197	B69-10593	04
Fixture facilitates helium leak testing of pipe welds M-FS-2167	B67-10178	05	CLEANERS Dispenser leak-tests and sterilizes rubber gloves MSC-285	B66-10166	03
Cable clamp bolt fixture facilitates assembly in close quarters KSC-67-80	B67-10244	05	Apparatus automatically measures soluble residue content of volatile solvents SAN-10032	B69-10292	03
Metal flame spray coating protects electrical cables in extreme environment NUC-10077	B67-10351	03	A method for precision anodize stripping MSC-15040	B69-10581	03
Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01	CLEANING Metals plated on fluorocarbon polymers JPL-544	B63-10612	03
Clamp for detonating fuze M-FS-13399	B68-10072	05	Refractory thermal insulation for smooth metal surfaces M-FS-160	B64-10099	03
Improved traveling wave maser amplifier NPO-10548	B68-10244	01	Elastomers bonded to metal surfaces seal electrochemical cells GSFC-168	B64-10113	03
Quick-attach clamp IFR-05421	B68-10250	05	Stringent cleaning technique assures reliable epoxy bond GSFC-161	B64-10142	03
Detachable caster adapter MSC-91215	B69-10164	05	Ceramic-coated boat is chemically inert, provides good heat transfer LANGLEY-9C	B65-10063	05
Sealing a rubber bladder between two sections of an accumulator M-FS-20403	B69-10355	05	Portable tool cleans pipes and tubing MSC-238	B65-10375	05
Improved design of item in high speed rotating machinery M-FS-18441	B69-10373	05	Surfactant for dye-penetrant inspection is insensitive to liquid oxygen M-FS-475	B66-10131	03
Tool repairs tube components in situ MSC-15348	B69-10379	05	Portable sandblaster cleans small areas MSC-523	B66-10242	05
Quick-set temporary bonding clamps NPO-10695	B69-10406	03	Ultrasonic cleaning restores depth-type filters M-FS-540	B66-10298	03
CLASSIFYING Transplutonium elements processed from rock debris of underground detonations ARG-10222	B69-10054	03	Solvent residue content measured by light scattering technique M-FS-850	B66-10320	01
Visual task analysis /VISTA/ M-FS-14716	B69-10394	06	Grit blasting nozzle fabricated from mild tool steel proves satisfactory M-FS-1420	B66-10597	05
CLAYS Colloidal suspension simulates linear dynamic pressure profile WOO-266	B66-10214	05	Silver plating technique seals leaks in thin wall tubing joints NU-0090	B66-10703	05
CLEAN ROOMS Dispenser leak-tests and sterilizes rubber gloves MSC-285	B66-10166	03	Silver plating ensures reliable diffusion bonding of dissimilar metals M-FS-1975	B67-10124	03
Fiberglass container shells form contamination-free storage units WOO-275	B66-10217	05	Degreasing of titanium to minimize stress corrosion LEWIS-382	B67-10147	03
Cleanroom air sampler counts, categorizes, and records particle data M-FS-2221	B67-10076	01	Liquid oxygen dicting cleaned by falling		

SUBJECT INDEX

CLOUD COVER

film method M-FS-11816	B67-10299	03	Simple BCD circuit accurately counts to 24 GSFC-317	B65-10225	01
Fogging technique used to coat magnesium with plastic LEWIS-10316	B67-10584	03	Nonlinear feedback reduces analog-to-digital converter error ARC-46	B65-10277	01
Vacuum probe sampler removes micron-sized particles from surfaces SAN-10003	B68-10231	04	Electronic phase-locked-loop speed control system is stable JPL-SC-084	B66-10232	01
Miniature paint-spray gun for recessed areas MSC-13060	B68-10387	05	FM carrier deviation measured by differential probability method M-FS-2166	B67-10213	01
Conditioning flat conductors for flat conductor cable production M-FS-14914	B68-10429	01	Vibrator elapsed time is automatically controlled M-FS-2573	B67-10284	01
Welded repairs of punctured thin-walled aluminum pressure vessels M-FS-14836	B69-10051	05	CLOSED CIRCUIT TELEVISION		
Improved mouse cage provides versatility and ease in handling laboratory mice MSC-12250	B69-10124	04	Infrared television used to detect hydrogen fires M-FS-654	B66-10363	01
Space-saving hoist for tank manholes M-FS-16508	B69-10180	05	Junction connectors permit strategic placement of television cameras KSC-66-22	B66-10391	01
Technique for abrasive cutting of thick-film conductors for hybrid circuits MSC-13242	B69-10235	03	Closed circuit TV system monitors welding operations MSC-11002	B67-10162	01
Diffusion bond method of joining steel and a TFE-bronze composite M-FS-20482	B69-10237	03	Thermal neutron image intensifier tube provides brightly visible radiographic pattern ARG-120	B67-10296	02
Improved retort for cleaning metal powders with hydrogen LEWIS-10718	B69-10468	03	Improved head-controlled TV system produces high-quality remote image ARG-128	B67-10317	01
CLEANLINESS			Closed circuit TV system automatically guides welding arc M-FS-20084	B68-10357	01
Indium adhesion provides quantitative measure of surface cleanliness SAN-10024	B68-10342	01	Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01
CLEARANCES			CLOSED CYCLES		
Spherical joint connects axially misaligned flanges M-FS-2238	B67-10273	05	Closed fluid system without moving parts controls temperature LEWIS-222	B65-10331	02
CLEAVAGE			CLOSING		
Electronic modules easily separated from heat sink MSC-142	B65-10186	02	Gas-injection valve operates at high speed HQ-49	B66-10381	05
Basal-plane metallography of deformed pyrolytic carbon NPO-11196	B69-10488	03	Actuator device schedules rate of valve closure M-FS-1556	B66-10686	05
CLIMATOLOGY			CLOSURES		
Dewpoint temperature inversions analyzed ARG-10316	B69-10057	02	Valve designed with elastic seat JPL-442	B65-10040	05
CLINICAL MEDICINE			Flexible fastener effects airtight material closure JPL-684	B66-10304	05
New low-level a-c amplifier provides adjustable noise cancellation and automatic temperature compensation ARC-2	B63-10003	04	Inflatable C-ring seal would ease closing of hatch cover plate MSC-740	B66-10385	05
CLIPPER CIRCUITS			Self-sealing closure enables access to several fluid containers NPO-10123	B67-10207	04
Tunnel-diode circuit features zero-level clipping GSFC-241	B65-10002	01	CLOTTING		
CLOCKS			Hand-held instrument should relieve hematoma pressure MSC-599	B67-10332	04
Solenoid permits remote control of stop watch and assures restarting FRC-17	B63-10024	01	CLOUD COVER		
Binary system generates sidereal rate from standard solar rate GSFC-190	B64-10200	01	Scanning photometer system automatically determines atmospheric layer height MSC-245	B66-10170	01
Variable frequency magnetic multivibrator generates stable square-wave output GSFC-AE-21	B65-10124	01	Electronic shutter gates image orthicon on		

CLOUDS

SUBJECT INDEX

and off HQ-96	B67-10270	01	spectroradiometer using cryogenically cooled detector MSC-11688	B68-10245	02
CLOUDS					
A piezo-bar pressure probe LEWIS-393	B67-10259	01	Food products for space applications MSC-11697	B68-10324	04
CLUTCHES			Detection of effect of deposits on optical windows of pyrometer measurements LEWIS-10366	B68-10367	01
Quick-acting clutch disengages idle drive motor GSFC-143	B64-10028	05	Direct indication of particle size in fluidized beds ARG-10130	B69-10083	05
Torque wrench designed for restricted areas LEWIS-246	B66-10011	05	Multilayer infrared beamsplitter film system XGS-11036	B69-10260	02
Diaphragm spring gives clutch over-center toggle effect GSFC-499	B66-10297	05	Study of high-speed angular-contact ball bearings under dynamic load M-FS-20562	B69-10367	05
Gear drive automatically indexes rotary table M-FS-753	B66-10383	05	COATINGS		
Electromechanical rotary actuator operates over wide temperature range M-FS-18402	B69-10100	05	Wire winding increases lifetime of oxide coated cathodes LEWIS-154	B65-10032	03
CLUTTER			Titanium treatment improves brazed joints MSC-127	B65-10153	05
Frequency offset in linear FM/CW transponder eliminates clutter M-FS-249	B65-10146	01	Modified developer increases line resolution in photosensitive resist GSFC-386	B65-10278	01
COATING			Adherent protective coatings plated on magnesium-lithium alloy M-FS-365	B65-10294	03
Refractory thermal insulation for smooth metal surfaces M-FS-160	B64-10099	03	Special coatings control temperature of structures GSFC-444	B65-10337	03
Elastomers bonded to metal surfaces seal electrochemical cells GSFC-168	B64-10113	03	Polymer film exhibits thermal and radiation stability LANGLEY-100	B66-10043	03
Plastic films for reflective surfaces reproduced from masters GSFC-188	B64-10151	03	Solid-film lubricant is effective at high temperatures in vacuum LEWIS-228	B66-10087	03
Solder flux leaves corrosion-resistant coating on metal JPL-611	B64-10206	03	Optically driven switch turn-off time reduced by opaque coatings JPL-SC-107	B66-10141	01
Flexible curtain shields equipment from intense heat fluxes M-FS-48	B65-10044	03	Gallium alloy films investigated for use as boundary lubricants LEWIS-245	B66-10165	03
Coating method enables low-temperature brazing of stainless steel NU-0030	B65-10250	03	Rubber-coated bellows improves vibration damping in vacuum lines LEWIS-273	B66-10187	02
Pigmented coating resists thermal shock JPL-SC-083	B65-10354	03	Silazane polymers show promise for high- temperature application M-FS-466	B66-10194	03
Gage of 6.5 per cent Si-Fe sheet is chemically reduced MSC-537	B66-10454	03	Chromium oxide coatings improve thermal emissivity of alumina WOO-263	B66-10227	03
Copper-acrylic enamel serves as lubricant for cold drawing of refractory metals ARG-54	B66-10471	05	Standards for electron probe microanalysis of silicates prepared by convenient method GSFC-469	B66-10234	03
Combination spacer and gasket provides effective static seal M-FS-1397	B66-10485	05	Electrically conductive fibers thermally isolate temperature sensor GSFC-456	B66-10349	01
Crucible cast from beryllium oxide and refractory cement is impervious to flux and molten metal ARG-22	B66-10527	03	Film coating permits low-force scribing MSC-990	B66-10609	03
Multilayer refractory nozzles produced by plasma-spray process WOO-318	B66-10611	05	Improved method of edge coating flat ribbon wire M-FS-902	B66-10684	03
Study made of anodized aluminum circuit boards M-FS-13580	B67-10425	01	Process reduces secondary resonant emission in electronic components JPL-934	B66-10685	01
A method of determining combustion gas flow M-FS-13757	B67-10455	03			
Improved relay optical element for					

SUBJECT INDEX

COBALT

Mechanism facilitates coating of inner surfaces of metal cylinders GSFC-515	B66-10698	05	JPL-63	B63-10091	01
Abraded cadmium-plated cable connectors repaired by conversion coating M-FS-1424	B67-10014	03	Modified RF coaxial connector ends vacuum chamber wiring problem GSFC-150	B64-10010	01
Dispersion of borax in plastic is excellent fire-retardant heat insulator ARG-5	B67-10016	03	Compact coaxial connector for printed circuit adds reliability MSC-57	B64-10016	01
An improved soft X-ray photoionization detector GSFC-540	B67-10072	02	High-pass RF coaxial filter rejects dc and low frequency signals GSFC-73	B64-10173	01
Liquid crystals detect voids in fiber glass laminates LEWIS-10104	B67-10286	03	Cutter and stripper reduces coaxial cable connection time ARC-40	B65-10094	05
Scribable coating for plastic films MSC-11194	B67-10409	03	Lightweight coaxial cable connector reduces signal loss JPL-720	B65-10244	01
Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01	Boron trifluoride nuclear detector preamplifier uses single-cable connection LEWIS-178	B65-10255	01
Bacteriostatic conformal coating for electronic components GSFC-10007	B67-10599	03	Antenna configurations provide polarization diversity GSFC-74	B66-10066	01
Application of the solid lubricant molybdenum disulfide by sputtering LEWIS-10544	B68-10340	03	Semiconductor forms biomedical radiation probe MSC-320	B66-10252	04
High-emittance coatings on metal substrates LEWIS-10325	B68-10381	03	Junction connectors permit strategic placement of television cameras KSC-66-22	B66-10391	01
Method for making small pointed thermocouples SAN-10014	B68-10389	01	Plug-in connector socket accepts coaxial cable end ARG-9	B66-10478	01
Method of making conical fiber optical components XNP-09745	B69-10020	02	High frequency wide-band transformer uses coax to achieve high turn ratio and flat response ARG-107	B66-10600	01
Improved pH buffering agent for sodium hypochlorite MSC-15443	B69-10084	03	Connector acts as quick coupling in coaxial cable application JPL-803	B66-10621	01
Coatings decrease metal fatigue failure ARC-10015	B69-10176	03	Process reduces secondary resonant emission in electronic components JPL-934	B66-10685	01
Investigation of spacecraft coatings M-FS-20458	B69-10181	06	Current pulse amplifier transmits detector signals with minimum distortion and attenuation NUC-10055	B67-10347	01
High temperature coatings for gas bearings LEWIS-10793	B69-10200	03	Coaxial cable stripping device facilitates RF cabling fabrication NPO-10315	B67-10419	05
Remote balance weighs accurately amid high radiation ARG-10387	B69-10242	05	Adhesives for laminating polyimide insulated flat conductor cable M-FS-12066	B67-10429	03
Simple test indicates degree of cure of polyimide coatings MSC-15487	B69-10330	03	Broadband choke suppresses spurious currents in antenna structure MSC-10013	B67-10675	01
Improved vacuum deposition apparatus NPO-11009	B69-10365	02	Cryogenic liquid level measuring probe ARG-10138	B68-10291	01
Improved ferrous shielding for flat cables M-FS-14524	B69-10401	01	Coaxial cable stripper for confined areas KSC-10167	B68-10444	05
Improved primer for bonding polyurethane adhesives to metals M-FS-90591	B69-10540	03	COAXIAL FLOW Seal allows blind assembly and thermal expansion of components NU-0005	B65-10053	05
Development of improved potting and conformal coating compounds M-FS-20219	B69-10559	03	COBALT Vibration analysis utilizing Mossbauer effect M-FS-11974	B67-10339	01
Investigation of the development of cracks in solder joints M-FS-20444	B69-10807	01	Practical new method of measuring thermal-neutron fluence		
COAXIAL CABLES Modified filter prevents conduction of microwave signals along high-voltage power supply leads					

COBALT ALLOYS

SUBJECT INDEX

NUC-10086	B67-10352	02	Versatile impact hand tool M-FS-20140	B68-10371	05
Nickel-base superalloy*s excellent properties promote its service to 2200 degrees F LEWIS-10355			TRANSISTOR		
			Transistor voltage comparator performs own sensing GSFC-228	B65-10028	01
Spectrographic analysis of bismuth-tin eutectic alloys by spark-ignited low-voltage ac-arc excitation ARG-10288			Variable word length encoder reduces TV bandwidth requirements LANGLEY-87	B65-10345	01
Tungsten thermal neutron dosimeter LEWIS-10880			Pneumatic binary encoder replaces multiple solenoid system M-FS-665	B66-10374	01
B69-10249					
Heparin insolubilized with crosslinking agent NFO-10834			Shaft encoder presents digital output JPL-SC-191	B66-10436	01
B69-10299					
COBALT ALLOYS			Multiplexing control device enables handling of wide variations in sampling rates M-FS-1871	B67-10150	01
New cobalt alloys have high-temperature strength and long life in vacuum environments LEWIS-47			Accumulator for shaft encoder M-FS-13599	B68-10093	01
B63-10351					
Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics LEWIS-320			Color-televised medical microscopy MSC-13086	B68-10314	01
B66-10373					
Process yield Co-Fe alloys with superior high temperature magnetic properties LEWIS-333			High-speed pulse camera MSC-11353	B68-10329	02
B66-10535					
Cobalt-tungsten, ferromagnetic high-temperature alloy LEWIS-10378			Simultaneous message framing and error detection MSC-12001	B68-10330	01
B68-10095					
High temperature alloy LEWIS-10377			Ring laser angle encoder MSC-13099	B69-10115	01
B68-10253					
Inspection criteria ensure quality control of parallel gap soldering M-FS-14530			Encode/Decode facility for FORTRAN 4 ARG-10335	B69-10169	06
B68-10257					
Helical recorder GSFC-10614			CODES		
B69-10340			Pocket-size manual tape reader device aids computer tape checking KSC-10058	B67-10361	01
High-temperature, gas-filled ceramic rectifiers, thyatrons, and voltage-reference tubes LEWIS-90271			Design for a rapid automatic sync acquisition system NFO-10214	B69-10538	01
B69-10376					
COBALT COMPOUNDS			CODING		
New class of compounds have very low vapor pressures ARG-115			Uppercase and lowercase computer printcut increases readability HQ-12	B65-10286	01
B67-10184					
Separation technique provides rapid quantitative determination of cesium-137 in irradiated nuclear fuel NUC-10047			Tester periodically registers dc amplifier characteristics MSC-190	B66-10148	01
B67-10194					
COBALT OXIDES			Detection system ensures positive alarm activation in digital message loss WOO-208	B66-10287	01
Solid-film lubricant is effective at high temperatures in vacuum LEWIS-228			Automated drafting system uses computer techniques M-FS-788	B66-10362	01
B66-10087					
Cobalt improves nickel hydroxide electrodes for batteries LEWIS-10760			Data retrieval system provides unlimited hardware design information MSC-1144	B67-10170	01
B69-10228					
COBALT 60			A conceptual, parallel operating data compression processor NPO-10068	B67-10204	01
Irradiation improves properties of an aromatic polyester LANGLEY-115			Run numbering system for use with data recorders M-FS-2557	B67-10215	01
B65-10164					
COBOL			Coded photographic proof paper could serve as convenient densitometer M-FS-13374	B67-10443	02
Translator program converts computer printout into braille language M-FS-2061			Improved digital TV encoding and decoding system MSC-11147	B67-10562	01
B67-10087					
DSN seven day/twelve week schedule program NPO-10752			Unique frequency-shift-keyed demodulation		
B68-10410					
COCKS					
Improved sample capsule for determination of oxygen in hemolyzed blood MSC-11017					
B67-10408					

SUBJECT INDEX

COILS

system GSFC-217	B67-10668	01	Miniaturization of magnetic logic circuitry LANGLEY-10037	B69-10148	06
LABCON - Laboratory Job Control program M-FS-18141	B69-10106	06	Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06
Computer grading of examinations ARG-10269	B69-10159	06	COHERENT LIGHT Improvement in recording and reading holograms ERC-10151	B68-10347	02
Piezoelectric lock mechanism resists lockpicking SAN-10037	B69-10281	01	Repetitively pulsed, wavelength-selective carbon dioxide laser ERC-10178	B68-10564	02
Wide-band doubler and sine wave quadrature generator NPO-11133	B69-10383	01	COHERENT RADIATION Detector measures power in 50 to 30,000 GHz radiation band ERC-26	B66-10581	01
COEFFICIENT OF FRICTION Kinetic-energy absorber employs frictional force between mating cylinders LEWIS-75	B63-10442	05	COHESION Instrumentation for nondestructive testing of composite honeycomb materials M-FS-20405	B69-10366	03
Lateral ring metal elastic wheel absorbs shock loading M-FS-1312	B66-10663	05	Nondestructive determination of cohesive strength of adhesive-bonded composites M-FS-20397	B69-10464	03
Land landing couch dynamics computer program MSC-1210	B67-10233	06	COILS Solenoid permits remote control of stop watch and assures restarting PRC-17	B63-10024	01
Soft metal plating enables hard metal seal to operate successfully in low temperature, high pressure environment NUC-10083	B67-10350	03	Improved variable-reluctance transducer measures transient pressures LANGLEY-10	B63-10321	01
Device measures static friction of magnetic tape GSFC-10360	B67-10586	03	Improved magnetometer uses toroidal gating coil GSFC-249	B65-10103	01
Rolamite - A new mechanical design concept SAN-10001	B67-10611	05	Collar positions strip stock used to form coil on mandrel JPL-198	B65-10130	05
Prediction of friction coefficients for gases LEWIS-10774	B69-10112	02	Probe measures characteristics of hot gas stream M-FS-240	B65-10133	02
A new solid lubricant LEWIS-10812	B69-10250	03	High permeability semiconductors permit close-tolerance soldering GSFC-319	B65-10134	05
COEFFICIENTS Radiation used to temperature compensate semiconductor strain gages LANGLEY-207	B66-10186	02	Spiral heater coils hand-formed with fixture LEWIS-208	B65-10192	05
Resistance thermometer has linear resistance-temperature coefficient at low temperatures WOO-190	B66-10612	01	Multiple test chamber exposes materials to various environments MSC-179	B65-10268	01
Glass formulation has high coefficient of thermal expansion NU-0084	B66-10705	03	Flexible coiled spline securely joins mating cylinders WOO-270	B66-10172	05
Computer subroutine ISUDS accurately solves large system of simultaneous linear algebraic equations NUC-10051	B67-10344	06	Rectilinear accelerometer possesses self- calibration feature M-FS-1480	B66-10452	01
Computer program generates averaged value data tapes M-FS-12728	B67-10411	06	Heat exchanger tubes supported in high vibration environment M-FS-1401	B66-10567	05
Linear systems of equations solved using mathematical algorithms ARG-10146	B68-10292	06	Rotational fluid coupling eliminates hose entanglements MSC-312	B66-10585	05
Technique for predicting the thermal expansion coefficients of cryogenic metallic alloys NUC-10554	B69-10707	02	Electronic circuit provides accurate sensing and control of dc voltage NU-0089	B66-10591	01
COERCIVITY New sintering process adjusts magnetic value of ferrite cores GSFC-129	B63-10606	01	Pressure probe compensates for dimensional tolerance variations LEWIS-302	B66-10599	01
Process yield Co-Fe alloys with superior high temperature magnetic properties LEWIS-333	B66-10535	03	Braze joint quality tested electromagnetically M-FS-12795	B67-10333	01

COINCIDENCE CIRCUITS

SUBJECT INDEX

Simplified technique demonstrates magnetic domain switching M-FS-13153	B67-10342	02	Combustion method for assay of biological materials labeled with carbon-14 or tritium, or double-labeled ARG-10331	B69-10208	04
Series transistors isolate amplifier from flyback voltage MSC-11023	B67-10468	01	Control for maintaining constant level of a cryogenic liquid NFO-11177	B69-10573	05
Environmental control system for cryogenic testing of tensile specimens HUC-10523	B67-10618	02	COLD WORKING Upsetting butt edge increases weld-joint strength M-FS-175	B64-10164	05
Eddy current disk valve LEWIS-10123	B67-10638	05	New weldable high strength aluminum alloy developed for cryogenic service M-FS-737	B66-10613	05
Quick-attach clamp XFR-05421	B68-10250	05	Excellent spring properties developed in two nickel alloys for use at cryogenic temperatures NUC-10084	B67-10349	03
Novel terminal strips for transformers NFO-10842	B69-10246	01	Extrusion of small-diameter, thin-wall tungsten tubing LEWIS-90335	B67-10355	05
Induction probe determines levels of liquid metals ARG-10348	B69-10256	03	Stabilizing stainless steel components for cryogenic service M-FS-13127	B67-10377	05
Design of printed circuit coils HQ-10431	B69-10665	01	Cold machining of high density tungsten and other materials ARG-10289	B69-10110	05
COINCIDENCE CIRCUITS Improved sensor counts micrometeoroid penetrations LEWIS-76	B63-10443	01	COLLAPSE Analysis of stability-critical orthotropic cylinders subjected to axial compression M-FS-12869	B67-10375	03
Pressure sensor responds only to shock wave M-FS-238	B65-10184	01	Dynamics of moving bubbles in single and binary component systems M-FS-14845	B68-10339	02
TV synchronization system features stability and noise immunity JPL-915	B67-10118	01	COLLECTION Technique for highly efficient recovery of microbiological contaminants MSC-13250	B69-10273	04
Manganese-56 coincidence-counting facility precisely measures neutron-source strength ARG-90261	B69-10621	01	Direct in-vial collection for liquid-scintillation assay of carbon-14 and tritium ARG-10424	B69-10412	03
COLD CATHODES Cold cathode ionization gage has rigid metal housing GSFC-445	B66-10041	01	COLLIMATION Instrument performs nondestructive chemical analysis, data can be telemetered JPL-SC-078	B65-10317	01
Preparation of superconducting thin films of transition-metal interstitial compounds HQ-10445	B69-10470	01	Small, high-intensity flasher permits continuous close-in photography NU-0043	B66-10119	03
COLD DRAWING Copper-acrylic enamel serves as lubricant for cold drawing of refractory metals ARG-54	B66-10471	05	Thermionic scanner pinpoints work function of emitter surfaces JPL-SC-177	B66-10444	01
COLD PRESSING Integral ribs formed in metal panels by cold-press extrusion M-FS-230	B65-10141	05	Optical superheterodyne receiver uses laser for local oscillator M-FS-1605	B66-10584	01
Porous mandrels provide uniform deformation in hydrostatic powder metallurgy M-FS-1972	B67-10209	03	Neutron diffractometer allows both magnetic and crystallographic analyses ARG-191	B67-10131	02
COLD ROLLING Radial coolant channels fabricated by simplified method NU-0070	B66-10267	05	Wideband, high efficiency optical modulator requires less than 10 watts drive power M-FS-12733	B67-10289	01
Process yield Co-Fe alloys with superior high temperature magnetic properties LEWIS-333	B66-10535	03	Improvement in recording and reading holograms ERC-10151	B68-10347	02
COLD TRAPS Liquid trap seals thermocouple leads M-FS-688	B66-10212	05	Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons ARG-10220	B69-10211	02
Cold trap increases sensitivity of gas chromatography M-FS-1617	B66-10517	03	Laser action from a terbium beta-ketoenolate		
Electronic circuit provides automatic level control for liquid nitrogen traps KSC-10127	B68-10061	01			

SUBJECT INDEX

COLOR TELEVISION

at room temperature GSFC-10593	B69-10324	02	treatment of brain tumors ARG-100	B67-10188	04
Energy-storage of a prescribed impedance NPO-10303	B69-10380	01	Corrosion reduction of aluminum alloys in flowing high-temperature water ARG-10244	B69-10029	03
Oculometer for remote tracking of eye movement ERC-10114	B69-10444	02	COLONIES Study of radiation effects on mammalian cells in vitro ARG-10191	B68-10294	02
COLLIMATORS Attachment converts microscope to point source autocollimator JPL-499	B64-10124	05	COLOR Inorganic paint is durable, fireproof, easy to apply GSFC-366	B65-10156	03
Sensitive level sensor made with spirit level, gives electrical output LANGLEY-49	B65-10067	01	Multicolor stroboscope pinpoints resonances in vibrating components JPL-0033	B66-10223	01
Unique construction makes interferometer insensitive to mechanical stresses JPL-725	B65-10295	02	Legibility of electroluminescent instrument panels investigated MSC-494	B66-10316	02
Optical automatic gain channel M-FS-1550	B66-10596	02	Device to color modulate a stationary light beam gives high intensity HQ-44	B66-10476	01
Star/horizon simulator used to test space guidance system MSC-407	B67-10110	02	Liquid crystals detect voids in fiber glass laminates LEWIS-10104	B67-10286	03
Vibration analysis utilizing Mossbauer effect M-FS-11974	B67-10339	01	New electron microscope employs new video display technique ARG-158	B67-10312	03
Electron beam parallel X-ray generator MSC-11022	B67-10372	02	Simplified technique demonstrates magnetic domain switching M-FS-13153	B67-10342	02
Method for X-ray study under extreme temperature and pressure conditions MSC-11232	B67-10474	02	Thermodynamic properties of saturated liquid parahydrogen charted for important temperature range NUC-10018	B67-10346	03
Improved electro-optical tracking system M-FS-14791	B68-10311	01	Pocket-size manual tape reader device aids computer tape checking KSC-10058	B67-10361	01
Modified sine bar device measures small angles with high accuracy GSFC-438	B68-10322	02	Use of color-coded sleeve shutters accelerates oscillograph channel selection KSC-10092	B67-10382	01
Training manual on optical alignment instruments M-FS-20292	B68-10574	02	Fuel cell life improved by metallic sinter activation after electrode assembly welding MSC-10965	B67-10436	03
Ring laser angle encoder MSC-13099	B69-10115	01	Luminescent screen composition for cathode ray tubes ERC-19	B68-10056	01
Method for copper staining of germanium crystals ARG-10403	B69-10257	03	Fluidic-thermochromic display device ERC-10031	B68-10350	01
Precision mounting for instrument optical elements provided by polyimide bonding M-FS-20293	B69-10310	05	Production of solvated electrons ARG-10416	B69-10430	03
Method of directing a laser beam with very high accuracy NPO-11087	B69-10508	02	Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01
Improved camera for better X-ray powder photographs HQ-10424	B69-10537	01	COLOR CENTERS Zone purification of potassium chloride ARG-10377	B69-10241	03
COLLINEARITY Proposed acousto-optic filter HQ-10440	B69-10466	02	COLOR PHOTOGRAPHY Shortened procedure for obtaining reproducible copies of 35 mm color slides KSC-09957	B68-10560	02
COLLOIDS Magnetic fluid readily controlled in zero gravity environment LEWIS-126	B65-10335	03	Shortened processing time technique for color industrial radiography ARG-10235	B69-10001	02
Colloidal suspension simulates linear dynamic pressure profile WOO-266	B66-10214	05	COLOR TELEVISION Video signal processing system uses gated current mode switches to perform high speed		
Standards for electron probe microanalysis of silicates prepared by convenient method GSFC-469	B66-10234	03			
Uranyl phthalocyanines show promise in the					

COLOR VISION

SUBJECT INDEX

multiplication and digital-to-analog conversion MSC-781	B66-10429	01	vent stack outlet M-FS-2042	B67-10098	05
Scan rate converter for tape recording and playback of TV pictures NPO-10166	B67-10676	01	Temperature or pressure controller LEWIS-10297	B68-10337	01
Color-televised medical microscopy MSC-13086	B68-10314	01	Analysis of annular combustors LEWIS-10399	B68-10356	06
COLOR VISION			Technique for assessing potential fire hazards HQ-10279	B69-10287	03
Slide rule-type color chart predicts reproduced photo tones MSC-1227	B66-10680	01	Improved fire resistant radio frequency anechoic materials M-FS-16600	B69-10450	05
COLORIMETRY			Life detection NPO-10510	B69-10475	04
Test strips detect different CO2 concentrations in closed compartments MSC-210	B65-10390	03	Burn-rate testing apparatus MSC-10947	B69-10740	03
Apparatus enables automatic microanalysis of body fluids JPL-962	B66-10515	04	COMBUSTION CHAMBERS		
Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry NPO-10149	B67-10245	04	Centrifugal device separates liquid from gas MSC-282	B65-10394	05
Simple colorimetric method determines uranium in tissue ARG-10039	B67-10580	03	Combustion chamber inlet manifold separates vapor from liquid M-FS-531	B66-10052	05
Optimetric system facilitates colorimetric and fluorometric measurements NPO-10233	B68-10316	01	Microminiature thermocouple monitors own installation M-FS-1111	B66-10463	05
COLUMNS			Combustion chamber struts can be effectively transpiration cooled M-FS-1830	B66-10643	03
Gas chromatographic column enables analysis of propellant hydrazines MSC-1161	B66-10586	03	Machining heavy plastic sections M-FS-12720	B67-10381	03
COLUMNS (PROCESS ENGINEERING)			Analysis of annular combustors LEWIS-10399	B68-10356	06
Subminiaturized gas chromatograph gives fast, efficient analysis JPL-735	B66-10182	01	Improved combustion chamber optical probe MSC-10953	B69-10142	02
Trace hydrazines in aqueous solutions accurately determined by gas chromatography MSC-11222	B67-10290	03	Two-step rocket engine bipropellant valve concept MSC-10951	B69-10280	05
Comparative chromatography of chloroplast pigment ARG-10415	B69-10425	03	Computer simulation of high-frequency combustion instability and its suppression HQ-10391	B69-10368	06
COLUMNS (SUPPORTS)			Pneumatic flow comparator M-FS-18373	B69-10400	05
Extendible column can be stowed on drum JPL-686	B65-10191	05	Single-element coaxial injector for rocket fuel NPO-11095	B69-10547	05
Computer program simplifies selection of structural steel columns NU-0044	B66-10097	01	New type pressure transducer for severe thermal environments M-FS-20208	B69-10652	01
Cone and column solar energy concentrator LANGLEY-210	B67-10517	01	COMBUSTION CONTROL		
Deployable lattice column NPO-10228	B68-10082	05	Development of detonation reaction engine M-FS-14020	B67-10652	01
COMBINATORIAL ANALYSIS			Fuel element concept for long life high power nuclear reactors LEWIS-10309	B69-10154	03
Binary sequence detector uses minimum number of decision elements JPL-673	B66-10264	01	COMBUSTION EFFICIENCY		
COMBUSTION			Combustion method for assay of biological materials labeled with carbon-14 or tritium, or double-labeled ARG-10331	B69-10208	04
Plastic bags in evacuated chamber make lightweight gas sampling system FRC-31	B65-10264	01	COMBUSTION PRODUCTS		
Infrared television used to detect hydrogen fires M-FS-654	B66-10363	01	Improved system measures output energy of pyrotechnic devices WOO-256	B66-10159	01
Computer program determines chemical equilibria in complex systems LEWIS-281	B66-10671	01	Hydrogen fire detection system features sharp discrimination M-FS-643	B66-10368	01
Toroidal ring prevents gas ignition at					

SUBJECT INDEX

COMMUTATORS

Development of detonation reaction engine M-FS-14020	B67-10652	01	Thin-film ferrites vapor deposited by one-step process in vacuum MSC-259	B66-10398	03
Properties of air and combustion products of fuels with air LEWIS-11030	B69-10711	03	Astronaut space suit communication antenna MSC-12101	B68-10238	01
COMBUSTION STABILITY			Improved traveling wave maser amplifier NPO-10548	B68-10244	01
Automatic cryogenic liquid level controller is safe for use near combustible substances LEWIS-195	B66-10482	01	Optically induced free carrier light modulator GSFC-10216	B69-10114	01
A method of determining combustion gas flow M-FS-13757	B67-10455	03	Improved circularly polarized planar-array antenna NPO-10301	B69-10382	01
Computer simulation of high-frequency combustion instability and its suppression HQ-10391	B69-10368	06	Improved fire resistant radio frequency anechoic materials M-FS-1660C	B69-10450	05
Elimination of dissolved gases in hypergolic engine propellants M-FS-16179	B69-10692	03	Folded stick module NPO-10854	B69-10498	01
COMETS			Pocket-sized tone-modulated FM transmitter NPO-11180	B69-10725	01
Experiments to investigate particulate materials in reduced gravity fields M-FS-13308	B67-10394	02	COMMUNICATION SATELLITES		
CONFORT			Omnidirectional antennas transmit and receive over large bandwidth GSFC-436	B66-10133	01
One-piece transparent shell improves design of helmet assembly MSC-187	B66-10390	05	Multi-feed cone for Cassegrainian antenna NPO-10539	B69-10269	01
COMMAND AND CONTROL			Design for a rapid automatic sync acquisition system NPO-10214	B69-10538	01
Remote control electrical switching system has 1000-output capability M-FS-380	B65-10318	01	Millimeter-wave atmospheric loss prediction method NPO-11054	B69-10584	01
COMMAND GUIDANCE			COMMUTATION		
Polynomial manipulator AP-168 MSC-1231	B67-10103	01	Magnetometer measures orthogonal components of magnetic fields GSFC-395	B65-10315	01
COMMAND MODULES			An electronic circuit for sensing malfunctions in test instrumentation KSC-10209	B69-10392	01
Electronic circuit delivers pulse of high interval stability MSC-673	B66-10501	01	COMMUTATORS		
Land landing couch dynamics computer program MSC-1210	B67-10233	06	Explosives actuate nonmagnetic indexing device GSFC-237	B65-10017	05
Analytical technique characterizes all trace contaminants in water MSC-11032	B67-10243	03	Rotor position sensor switches currents in brushless dc motors GSFC-315	B65-10151	01
COMMUNITION			Brushless dc motor uses electron beam switching tube as commutator GSFC-345	B65-10237	01
Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06	Brushless dc motor has high efficiency, long life GSFC-181	B66-10355	01
COMMUNICATING			Solid-state switch increases switching speed WOO-298	B66-10430	01
Interior servicing platform simplifies maintenance of storage tanks M-FS-1300	B66-10425	05	Security warning system monitors up to fifteen remote areas simultaneously KSC-66-39	B66-10548	01
Optical superheterodyne receiver uses laser for local oscillator M-FS-1605	B66-10584	01	Thermocouples electrically checked while connected to data system LANGLEY-182	B66-10623	01
Wide-band doubler and sine wave quadrature generator NPO-11133	B69-10383	01	Current steering commutator offers versatility JPL-812	B67-10410	01
COMMUNICATION EQUIPMENT			Computer memory access technique NPO-10201	B67-10585	01
Simple circuit produces high-speed, fixed duration pulses GSFC-285	B65-10228	01	Bootstrap unloader		
Circuit maintains digital decision threshold at preset level M-FS-331	B65-10281	01			
Multicolor stroboscope pinpoints resonances in vibrating components JPL-0033	B66-10223	01			
One-piece transparent shell improves design of helmet assembly MSC-187	B66-10390	05			

COMPACTING

SUBJECT INDEX

XNP-09768	B69-10120	01	Stable ac phase and amplitude comparator M-FS-13086	B67-10459	01
COMPACTING			Simple first order data compression processor concept NPO-10338		
Electron beam seals outer surfaces of porous bodies M-FS-562	B66-10033	03	Optical system facilitates inspection of printed circuit boards GSFC-07971	B67-10553	01
Isostatic compression process converts polyaromatics into structural material JPL-892	B67-10168	03	Closed circuit TV system automatically guides welding arc M-FS-20084	B68-10021	02
Primary cell uses neither liquid nor fused electrolytes NPO-10001	B67-10275	01	Pulse-height analyzer with digital readout ARG-10503	B68-10357	01
COMPARATOR CIRCUITS			COMPARISON		
Electromechanical flowmeter accurately monitors fluid flow GSFC-357	B65-10273	01	Comparative chromatography of chloroplast pigment ARG-10415	B69-10640	01
Electronic frequency discriminator M-FS-2434	B67-10151	01	Simple quasi-exponential slope generator NPO-11130	B69-10425	03
FM carrier deviation measured by differential probability method M-FS-2166	B67-10213	01	COMPARTMENTS		
Solid state circuit averages multiple signals and rejects those varying significantly from the average NUC-10066	B67-10262	01	Control system maintains compartment at constant temperature JPL-SC-145	B69-10439	01
Highly linear, sensitive analog-to-digital converter MSC-13110	B69-10230	01	Device removes hydrogen gas from enclosed spaces GSFC-495	B66-10188	05
Simplified, reliable circuit sorts binary numbers in order of magnitude NPO-10112	B69-10503	01	Reparable, high-density microelectronic module provides effective heat sink M-FS-13075	B66-10340	03
COMPARATORS			COMPATIBILITY		
Analog-to-digital converter has increased reliability and reduced power consumption GSFC-246	B65-10194	01	Synthesis of various highly halogenated monomers and polymers M-FS-2143	B67-10356	01
Nonlinear feedback reduces analog-to-digital converter error ARC-46	B65-10277	01	Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/ ARG-10148	B67-10100	03
System proportions fluid-flow in response to demand signals GSFC-457	B66-10094	01	An overview of electromagnetic interference problems in spacecraft NPO-11170	B68-10368	03
FET comparator detects analog signal levels without loading analog device M-FS-503	B66-10224	01	COMPENSATORS		
System monitors discrete computer inputs M-FS-1021	B66-10389	01	Servo system facilitates photoelastic strain measurements on resins JPL-504	B69-10362	01
Digital system provides superregulation of nanosecond amplifier-discriminator circuit ARG-61	B66-10500	01	Detector circuit compensates for vidicon beam current variations GSFC-310	B64-10280	01
Monitor assures availability and quality of communication channels KSC-66-38	B67-10028	01	Heavy duty precision leveling jacks expedite setup time on horizontal boring mill M-FS-1084	B65-10212	01
Thermoelectric metal comparator determines composition of alloys and metals ARG-235	B67-10035	01	Logarithmic current simulator generates electrical currents accurately between 10 to the minus 11 ampere to 10 to the minus 3 ampere NU-0087	B66-10411	05
A conceptual, parallel operating data compression processor NPO-10068	B67-10204	01	Polarimeter provides transient response in nanosecond range JPL-890	B66-10706	01
FM carrier deviation measured by differential probability method M-FS-2166	B67-10213	01	Modified univibrator compensates for output timing errors ARG-85	B67-10021	02
Run numbering system for use with data recorders M-FS-2557	B67-10215	01	Compensation circuit improves operation of inductive coupling transformers M-FS-13801	B67-10130	01
Tester automatically checks insulation of individual conductors in multiple-strand cables NUC-10068	B67-10260	01	Improved compensation circuit for direct-coupled amplifiers MSC-11148	B68-10129	01
			Technique developed for measuring transmittance of optical birefringent	B68-10133	01

SUBJECT INDEX

COMPONENTS

networks M-FS-14267	B68-10260	02	insulator is highly reliable NU-0082	B66-10709	01
Synthesis of electro-optic modulators for amplitude modulation of light M-FS-14268	B68-10275	02	Fixture tests bellows reliability through repetitive pressure/temperature cycling MSC-1176	B67-10111	01
Acceleration insensitive fluid expansion compensator ERC-10152	B68-10559	01	Study indicates fluid digital computation systems are feasible M-FS-520	B67-10181	01
Reducing quantizer deadband with a **range switching** digital filter M-FS-20419	B69-10259	01	Analytical technique permits comparison of reliability of alternate mechanical designs NUC-10065	B67-10261	06
COMPILERS			Stabilizing stainless steel components for cryogenic service M-FS-13127	B67-10377	05
CINDA - Chrysler Improved Numerical Differencing Analyzer computer program M-FS-2298	B67-10278	06	Study made of acoustical monitoring for mechanical checkout M-FS-13372	B67-10430	02
General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-FS-13094	B67-10331	06	Vibration damping composition has flush-away feature M-FS-597	B67-10432	03
Saturn S-2 Automatic Software System /SASS/ M-FS-1741	B67-10405	06	Composite scalar cell matrix is reliable, lightweight and flexible NPO-10821	B67-10503	01
Compilation of detection sensitivities in thermal-neutron activation ARG-10068	B67-10641	03	Dynamic valve seal is reliable at cryogenic temperatures M-FS-12987	B67-10526	05
JFLII-JPL FORTRAN language with interval pre-processor NPO-10835	B69-10187	06	Jet engine powers large, high-temperature wind tunnel M-FS-13544	B67-10621	02
COGENT programming manual ARG-10463	B69-10656	06	Development of dual solid cryogenics for high reliability refrigeration system GSFC-10188	B67-10644	02
COMPLEX VARIABLES			Development of reliability prediction technique for semiconductor diodes GSFC-10231	B67-10651	06
Digital filter synthesis computer program ARC-10130	B68-10164	06	Solenoid valve design minimizes vibration and sliding wear problem M-FS-14079	B67-10667	05
COMPONENT RELIABILITY			New method for critical failure prediction of complex systems M-FS-14133	B68-10252	02
Continuity tester screens out faulty socket connections JPL-596	B64-10065	01	Low energy ohmmeter can be used to test sensitive circuits, other meters SAN-10013	B68-10269	01
Improved insertion-loss tester JPL-358	B64-10080	01	Electronic component reliability analysis by data reduction system NPO-10243	B68-10507	05
New nut and sleeve improve flared connections M-FS-194	B65-10180	05	Concept for a multifunctional oscilloscope probe M-FS-16390	B69-10129	01
Analog-to-digital converter has increased reliability and reduced power consumption GSFC-246	B65-10194	01	Exact minimal-state system reliability analysis M-FS-16551	B69-10409	06
Control of component differential hardness increases bearing life LEWIS-190	B65-10251	05	Breakaway electrical connector NPO-11140	B69-10474	01
Interferometer construction assures parallelism of critical components JPL-704	B65-10292	02	System for computing operational probability equations M-FS-16410	B69-10566	06
Apparatus presents visual display of semiconductor surface characteristics JPL-665	B66-10200	01	COMPONENTS		
Solar cell submodule design facilitates assembly of lightweight arrays JPL-728	B66-10231	02	Chart system simplifies identification of complex design assemblies MSC-752	B66-10460	05
Magnetically operated limit switch has improved reliability, minimizes arcing MSC-422	B66-10270	01	Computerized parts list system coordinates engineering releases, parts control, and manufacturing planning NUC-10073	B67-10348	06
Semiautomatic device tests components with biaxial leads MSC-516	B66-10337	03	Computer program analyzes generalized		
Device serves as hinge and electrical connector for circuit boards M-FS-743	B66-10359	01			
Thermocouple-flexible cable connector					

COMPOSITE MATERIALS

SUBJECT INDEX

environmental control and life support systems MSC-1157	B67-10415	06	Flexible coiled spline securely joins mating cylinders WOO-270	B66-10172	05
Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes ARG-10274	B69-10047	02	Composite bulkhead fabrication development M-FS-1264	B66-10582	05
Reidentifying hardware after loss of serial number M-FS-18133	B69-10059	05	A modal combination computer program for dynamic analysis of structures NPO-10129	B67-10217	06
Investigation of the development of cracks in solder joints M-FS-20444	B69-10807	01	Composite solar cell matrix is reliable, lightweight and flexible NPO-10821	B67-10503	01
COMPOSITE MATERIALS			Nondestructive testing techniques used in analysis of honeycomb structure bond strength M-FS-1214	B67-10574	01
Boron carbide whiskers produced by vapor deposition HQ-24	B65-10261	03	Evaluation of superconducting magnets, a study M-FS-14808	B68-10396	02
Aluminum/steel wire composite plates exhibit high tensile strength M-FS-401	B66-10262	05	Adhesive for cryogenic temperature applications LEWIS-10264	B69-10074	03
Composite gaskets are compatible with liquid oxygen, resist compression set M-FS-455	B66-10395	03	COMPOUNDING		
Tungsten fiber-reinforced copper composites form high strength electrical conductors LEWIS-338	B66-10572	03	Submicron metal powders produced by ball milling with grinding aids LEWIS-188	B66-10221	03
Intergranular metal phase increases thermal shock resistance of ceramic coating M-FS-1862	B66-10651	03	COMPRESSED AIR		
Composites of porous metal and solid lubricants increase bearing life LEWIS-307	B67-10007	03	Vacuum-type backup bar speeds weld repairs M-FS-12	B63-10384	05
Composite weld rod corrects individual filler weaknesses M-FS-1923	B67-10107	05	Pneumatic power is transmitted through air bearing MSC-8	B64-10141	05
Aluminum-titanium hydride-boron carbide composite provides lightweight neutron shield material NUC-10069	B67-10265	03	Die and telescoping punch form convolutions in thin diaphragm JPL-SC-135	B65-10393	05
A ceramic composite thermal insulation M-FS-13991	B67-10608	03	Extendable mast used in one shot soil penetrometer JPL-685	B66-10146	05
Study made of mechanics of deformation and fracture of fibrous composites HQ-10035	B67-10660	03	Tool permits damage-free removal of solar cell GSFC-467	B66-10219	05
Reinforced thermal-shock resistant ceramics LEWIS-10376	B68-10085	03	Pneumatic wrench retains or discharges nuts or bolts as desired NU-0085	B66-10707	05
Fiber glass reinforced structural materials for aerospace application M-FS-14806	B68-10360	03	Compact monitoring and control console for pressurized gas bottles M-FS-14874	B68-10401	05
Tungsten fiber-reinforced nickel superalloy LEWIS-10424	B68-10369	03	COMPRESSIBILITY		
Self-lubricating gear M-FS-14971	B69-10408	05	Shock-absorbing caster wheel is simple and compact SAN-10019	B68-10266	05
Improved method of producing oxide-dispersion-strengthened alloys HQ-10461	B69-10536	03	COMPRESSIBILITY EFFECTS		
Controlled substrate cooling improves reproducibility of vapor deposited semiconductor composites ERC-10161	B69-10732	01	Computer program for high pressure real gas effects LEWIS-10820	B69-10222	06
Explosive bonding of metal-matrix composites M-FS-20657	B69-10804	05	COMPRESSIBLE FLOW		
COMPOSITE STRUCTURES			Computer program determines gas flow rates in piping systems M-FS-443	B66-10300	01
Composite seal reduces alkaline battery leakage GSFC-337	B65-10271	01	Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds LANGLEY-10191	B67-10666	06
			Magnetohydrodynamic generators using two-phase liquid-metal flows ARG-10168	B69-10162	01
			COMPRESSIBLE FLUIDS		
			Coaxial capacitor used to determine fluid density LEWIS-232	B65-10296	02

SUBJECT INDEX

COMPRESSOR BLADES

Analysis of dynamic systems with DAP4H computer program M-FS-13999	B67-10523	06	a nickel or silver grid GSFC-10764	B69-10227	05
Water-glycol system volume calculation MSC-15193	B69-10563	02	Temperature-controlled resistor NPO-10713	B69-10440	01
COMPRESSING			Two-functional seal for hose connection M-FS-14062	B69-10588	05
Thermocompression bonding produces efficient surface-barrier diode JPL-SC-066	B65-10007	05	COMPRESSION LOADS		
Bench vise adapter grips tubing securely and safely MSC-279	B66-10056	05	Crystal measures short-term, large-magnitude forces JPL-77	B65-10187	01
T-handle wrench has torque-limiting action MSC-280	B66-10065	05	Diffusion bonding makes strong seal at flanged connector M-FS-637	B66-10250	05
Pneumatic shutoff and time-delay valve operates at controlled rate M-FS-602	B66-10189	05	Gage accurately controls force for placing chips on substrates M-FS-1941	B66-10675	01
A conceptual design for squeeze film bearings M-FS-573	B66-10226	05	Glass bead shot peening retards stress corrosion failure of titanium tanks LANGLEY-319	B67-10198	05
Device facilitates centering of workpieces in lathe chuck M-FS-685	B66-10277	05	Technique eliminates high voltage arcing at electrode-insulator contact area LEWIS-10133	B67-10470	01
High pressure tube coupling requires no threads or flares MSC-600	B66-10285	05	Circuit measures hysteresis loop areas at 30 Hz M-FS-13069	B67-10519	01
Tool pre-tensions covers prior to lacing MSC-631	B66-10301	05	Development of helical seal for high temperature /2000 degrees F/ application M-FS-13304	B67-10655	05
Torus elements used in effective shock absorber WOO-114	B66-10318	05	Study made of mechanics of deformation and fracture of fibrous composites HQ-10035	B67-10660	03
Bellows joint absorbs torsional deflections in duct system M-FS-882	B66-10332	04	Stress-testing of the throat of a rocket*s nozzle NPO-10311	B69-10358	05
Shock-operated valve would automatically protect fluid systems M-FS-801	B66-10335	03	COMPRESSION TESTS		
Concealed hinge permits flush mounting of doors and hatches MSC-623	B66-10336	03	Buckling strength of filament-wound cylinders under axial compression is investigated HQ-10032	B67-10659	03
Inexpensive insulation is effective for cryogenic transfer lines MSC-618	B66-10348	02	COMPRESSION WAVES		
Gas-injection valve operates at high speed HQ-49	B66-10381	05	Bell nozzle kernel analysis program M-FS-18456	B69-10146	06
Composite gaskets are compatible with liquid oxygen, resist compression set M-FS-455	B66-10395	03	COMPRESSIVE STRENGTH		
Combination double door high-vacuum valve provides access to vacuum chamber JPL-849	B66-10697	05	Refractory ceramic has wide usage, low fabrication cost M-FS-67	B63-10481	03
Isostatic compression process converts polyaromatics into structural material JPL-892	B67-10168	03	New class of thermosetting plastics has improved strength, thermal and chemical stability LEWIS-10108	B67-10197	03
Post-stressed concrete foundation may reduce machinery vibration ARG-130	B67-10237	05	Transducer measures embedment stresses in electronic modules M-FS-13486	B67-10367	01
Improved compression molding process LANGLEY-10027	B67-10302	03	Study made of mechanics of deformation and fracture of fibrous composites HQ-10035	B67-10660	03
Fluorocarbon seal replaces metal piston ring in low density gas environment LEWIS-10277	B67-10591	05	Nondestructive method for measuring residual stresses in metals, a concept KSC-10237	B68-10378	03
Development of helical seal for high temperature /2000 degrees F/ application M-FS-13304	B67-10655	05	COMPRESSOR BLADES		
Electrochemical sintering process for producing electrodes from cadmium felt and			Wire material reduces compressor blade vibration LEWIS-357	B66-10666	03
			MAGNTY - Program for calculating velocities in magnified region of turbomachines LEWIS-10789	B69-10132	06
			FORTTRAN 4 program calculates velocities and streamlines in a tandem blade		

COMPRESSORS

SUBJECT INDEX

turbomachine LEWIS-10743	B69-10219	06	Two devices for analysis of nystagnus HQ-10273	B69-10224	01
COMPRESSORS			COMPUTER COMPONENTS		
Vented piston seal prevents fluid leakage between two chambers JPL-179	B63-10141	05	Computer circuit will fit on single silicon chip JPL-513	B63-10514	01
Pickup device reads pressures from ports in rotating mechanisms LEWIS-158	B65-10021	05	Delayed ripple counter simplifies square-root computation GSFC-398	B65-10343	01
Radioactive tracer system detects oil contaminants in fluid lines M-FS-512	B66-10090	03	Improved wire memory matrix uses very little power JPL-SC-167	B65-10359	01
Improved cryogenic refrigeration system JPL-731	B67-10128	02	Queuing register uses fluid logic elements M-FS-317	B66-10100	05
Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01	Detection system ensures positive alarm activation in digital message loss WOO-208	B66-10287	01
Combination probe for airflow measurements LEWIS-10281	B68-10558	01	Study indicates fluid digital computation systems are feasible M-FS-520	B67-10181	01
COMPTON EFFECT			Computer program simulates physical systems by solving the simultaneous differential equations describing the systems NPO-10019	B67-10193	06
The response of monoenergetic gamma rays in finite media are investigated ARG-10295	B69-10080	02	Logic realization of simple majority voting connectives JPL-727	B67-10511	06
Direct measurement of carbon-14 in carbon dioxide by liquid scintillation counting ARG-10237	B69-10092	03	COMPUTER DESIGN		
COMPUTATION			Study indicates fluid digital computation systems are feasible M-FS-520	B67-10181	01
Computer programs simplify optical system analysis GSFC-306	B65-10093	01	Computer memory access technique NPO-10201	B67-10585	01
Contact stresses calculated for miniature slip rings M-FS-280	B65-10098	05	Two-way digital driver/receiver uses one set of lines ERC-10055	B68-10437	01
Disk calculator indicates legible lettering size for slide projection GSFC-409	B65-10339	05	Current-switching technique for analog pulse circuits ARG-10479	B69-10445	01
Delayed ripple counter simplifies square-root computation GSFC-398	B65-10343	01	Folded stick module NPO-10854	B69-10498	01
Computer circuit calculates cardiac output MSC-274	B66-10006	01	Simplified, reliable circuit sorts binary numbers in order of magnitude NPO-10112	B69-10503	01
Subroutine allows easy computation in extended precision arithmetic M-FS-1136	B66-10504	01	COMPUTER GRAPHICS		
Computational procedure for finite difference solution of one-dimensional heat conduction problems reduces computer time MSC-1120	B66-10566	01	Veitch diagram plotter simplifies Boolean functions JPL-385	B63-10241	05
An orthonormalization procedure for multivariable function approximation M-FS-1313	B66-10579	01	Computer circuit calculates cardiac output MSC-274	B66-10006	01
Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters M-FS-13594	B67-10527	03	FORTTRAN program flow chart is automatically produced		
New technique for determination of cross-power spectral density with damped oscillators M-FS-14022	B67-10602	02			
Computer program for interplanetary conic patching M-FS-14296	B68-10033	06			
MAGNTY - Program for calculating velocities in magnified region of turbomachines LEWIS-10789	B69-10132	06			
Computer grading of examinations ARG-10269	B69-10159	06			

SUBJECT INDEX

COMPUTER PROGRAMS

M-FS-369	B66-10062	01	Numerical solutions of differential equations		
Automated drafting system uses computer techniques			M-FS-20537	B69-10779	02
M-FS-788	B66-10362	01	COMPUTER PROGRAMS		
Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter			Computer modification reduces time of performing iterative division	B65-10005	01
NUC-10044	B67-10222	06	M-FS-166		
Computer program samples digital data for CRT display			Computer programs simplify optical system analysis	B65-10093	01
MSC-999	B67-10249	01	GSFC-306		
X-Y plotter adapter developed for SDS-930 computer			Density trace made with computer printout	B65-10200	01
NPO-10220	B67-10654	06	GSFC-322		
Phase plane displays detect incipient failure in servo system testing			Uppercase and lowercase computer printout increases readability	B65-10286	01
HQ-10018	B67-10662	01	HQ-12		
Computer program developed for flowsheet calculations and process data reduction			FORTTRAN program flow chart is automatically produced	B66-10062	01
ARG-10134	B69-10023	06	M-FS-369		
COMPUTER PROGRAMMING			Computer program simplifies selection of structural steel columns	B66-10097	01
Logic circuit exhibits optimum performance			NU-0044		
LANGLEY-129	B65-10193	01	Computer program determines gas flow rates in piping systems	B66-10300	01
Self-starting procedure simplifies numerical integration			M-FS-443		
ARC-50	B67-10013	01	Instrument calculates moments of inertia of complex plane figures	B66-10306	01
Structural Analysis and Matrix Interpretive System /SAMIS/			MSC-628		
NPO-10130	B67-10171	01	New computer system simplifies programming of mathematical equations	B66-10361	01
Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter			M-FS-441		
NUC-10044	B67-10222	06	Human transfer functions used to predict system performance parameters	B66-10379	01
Master control data handling program uses automatic data input			LANGLEY-203		
M-FS-2259	B67-10280	06	New computer program solves wide variety of heat flow problems	B66-10404	01
MOP /Matrix Operation Programs system/			M-FS-421		
NPO-10429	B68-10005	06	Study compares methods for the numerical solution of ordinary differential equations	B66-10466	01
Accumulator for shaft encoder			M-FS-830		
M-FS-13599	B68-10093	01	Computer program performs flow analysis through turbines	B66-10496	01
Dewpoint temperature inversions analyzed			LEWIS-236		
ARG-10316	B69-10057	02	Computer program determines performance efficiency of remote measuring systems	B66-10503	01
Structural Analysis and Matrix Interpretive System /SAMIS/			M-FS-1137		
NPO-10839	B69-10093	01	Subroutine allows easy computation in extended precision arithmetic	B66-10504	01
Performance statistics of the FORTRAN 4 /H/ library for the IBM system/360			M-FS-1136		
ARG-10299	B69-10157	06	Computer program determines inventory size	B66-10506	01
Thermophysical properties of sodium			M-FS-1135		
ARG-10363	B69-10240	03	Computer routine adds plotting capabilities to existing programs	B66-10511	01
Time-shared Cathode Ray Tube			GSFC-490		
MSC-12238	B69-10243	06	Computer program performs statistical analysis for random processes	B66-10525	01
Buckling Of Shells Of Revolution /BOSOR/ with various wall constructions			M-FS-723		
LANGLEY-10441	B69-10300	06	Computer program searches characteristic data of diodes and transistors	B66-10529	01
LM lookangle program			GSFC-493		
MSC-13179	B69-10370	06	Computer programs perform spectral analyses of up to seven time series	B66-10539	01
Phase multiplying electronic scanning array			M-FS-1133		
NPO-10302	B69-10381	01	Computer used to program numerically controlled milling machine	B66-10541	01
Water-glycol system volume calculation			M-FS-1608		
MSC-15193	B69-10563	02	Ultrasonic quality inspection of bonded honeycomb assemblies is automated	B66-10544	01
COGENT programming manual			MSC-859		
ARG-10463	B69-10656	06			
Battery charge-discharge controller					
MSC-11836	B69-10747	01			

COMPUTER PROGRAMS CONT

SUBJECT INDEX

Computer programs calculate potential and charge distributions in a plasma M-FS-871	B66-10553	01	in two-region problems /the GAROL code/ NUC-10045	B67-10223	06
Computer program simplifies transient and steady-state temperature prediction for complex body shapes MSC-989	B66-10619	01	Computer program calculates steady-state temperature distribution within plane or axisymmetric solids NUC-10049	B67-10224	06
Computer program determines chemical composition of physical system at equilibrium MSC-1119	B66-10670	01	Land landing couch dynamics computer program MSC-1210	B67-10233	06
Computer program determines chemical equilibria in complex systems LEWIS-281	B66-10671	01	Computer program simplifies design of rotating components of turbomachinery NUC-10046	B67-10235	06
Equivalent circuit for a field effect transistor established for computer simulation M-FS-1752	B66-10690	01	Computer program samples digital data for CRT display MSC-999	B67-10249	01
Program computes single-point failures in critical system designs MSC-603	B67-10001	01	CINDA - Chrysler Improved Numerical Differencing Analyzer computer program M-FS-2298	B67-10278	06
Computer program detects transient malfunctions in switching circuits MSC-604	B67-10002	01	Computer program for determination of natural frequencies of closed spherical sandwich shells MSC-1246	B67-10279	06
Computer/PERT technique monitors actual versus allocated costs LEWIS-260	B67-10025	01	Computer program predicts thermal and flow transients experienced in a reactor loss-of-flow accident NUC-10054	B67-10281	06
Computer program simulates design, test, and analysis phases of sensitivity experiments M-FS-1496	B67-10077	01	Computer program provides linear sampled-data analysis for high order systems M-FS-12821	B67-10287	06
Translator program converts computer printout into braille language M-FS-2061	B67-10087	01	Computer program uses Monte Carlo techniques for statistical system performance analysis M-FS-2234	B67-10306	06
Polynomial manipulator AP-168 MSC-1231	B67-10103	01	Computer program determines thermal environment and temperature history of lunar orbiting space vehicles M-FS-12916	B67-10307	06
Computer program reduces calculation time of normal response functions M-FS-1517	B67-10108	01	Computer program for mass optional solutions of some endpoint trajectory problems M-FS-12976	B67-10310	06
Computer program calculates monotonic maximum likelihood estimates using method of reversals M-FS-1516	B67-10136	01	Computer program utilizes FORTRAN 4 subroutines for contour plotting WFO-10127	B67-10323	06
A power-spectral-density computer program WFO-10126	B67-10160	01	Multiple correlation computer program determines relationships between several independent and dependent variables M-FS-13024	B67-10327	06
Study of dynamic response of elastic space stations WFO-10124	B67-10169	06	Computer optimization program finds values for several independent variables that minimize a dependent variable M-FS-13030	B67-10328	06
Data retrieval system provides unlimited hardware design information MSC-1144	B67-10170	01	Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries M-FS-1910	B67-10329	06
Space trajectories program for IBM 7090 WFO-10125	B67-10172	06	Improved computer program for elastic analysis of highly redundant structural configurations M-FS-13087	B67-10330	06
Linear circuit analysis program for IBM 1620 Monitor 2, 1311/1443 data processing system /CIRCS/ WFO-10131	B67-10173	06	General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-FS-13094	B67-10331	06
Stress calculator speedily converts strain data M-FS-2021	B67-10182	03	Computer subroutine ISUDS accurately solves large system of simultaneous linear algebraic equations NUC-10051	B67-10344	06
Computer program simulates physical systems by solving the simultaneous differential equations describing the systems WFO-10019	B67-10193	06	Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations		
A modal combination computer program for dynamic analysis of structures WFO-10129	B67-10217	06			
Calculation of resonance neutron absorption					

SUBJECT INDEX

COMPUTER PROGRAMS CONT

NUC-10052	B67-10345	06	Assembly processor program converts symbolic programming language to machine language	M-FS-13262	B67-10493	06
Computerized parts list system coordinates engineering releases, parts control, and manufacturing planning						
NUC-10073	B67-10348	06	Computer program performs aerothermodynamic flight test data correlation	MSC-10075	B67-10494	06
Automatic telemetry checkout system						
M-FS-12580	B67-10402	01	Multidimensional reaction kinetic ablation program /BEKAP/	MSC-10079	B67-10495	06
Control apparatus for spectral energy source						
LEWIS-391	B67-10404	01	Neutron irradiation of Am-241 effectively produces curium	ARG-10030	B67-10501	03
Saturn S-2 Automatic Software System /SASS/						
M-FS-1741	B67-10405	06	Computer programs for antenna feed system design and analysis	NPO-10359	B67-10504	06
Computer program for network synthesis by frequency response fit						
M-FS-12686	B67-10406	06	Program computes equilibrium normal shock and stagnation point solutions for arbitrary gas mixtures	LANGLEY-10090	B67-10509	06
Earth orbit rendezvous evaluation program						
M-FS-13016	B67-10407	06	Computer program performs rectangular fitting stress analysis	M-FS-13010	B67-10520	06
Computer program generates averaged value data tapes						
M-FS-12728	B67-10411	06	General frequency response program calculates frequency response of system, open at any specified element	M-FS-12817	B67-10521	06
Computer program provides steady state analysis for liquid propellant propulsion systems						
MSC-10064	B67-10414	06	Computerized Schedule Effectiveness Technique /SET/ determines present and future schedule position	M-FS-13012	B67-10522	06
Computer program analyzes generalized environmental control and life support systems						
MSC-1157	B67-10415	06	Analysis of dynamic systems with DAP4H computer program	M-FS-13999	B67-10523	06
Computer program FPIP-REV calculates fission product inventory for U-235 fission						
NUC-10089	B67-10450	06	DIANA - An advanced programming system for large classes of dynamic and equivalent systems	M-FS-12084	B67-10524	06
Computer program MCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid						
NUC-10042	B67-10456	06	Program computes zero lift wave drag of entire aircraft	LANGLEY-10079	B67-10530	06
Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid						
NUC-10043	B67-10457	06	Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles	LANGLEY-10093	B67-10531	06
Computer program conducts facilities utilization and occupancy survey						
NPO-10326	B67-10476	06	M-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program	NUC-10126	B67-10536	06
KOPE /Kalendar Oriented Program Efforts/ provides data for management decisions						
M-FS-12331	B67-10478	06	SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield	NUC-10142	B67-10537	06
Fortran 4 program for two-impulse rendezvous analysis						
M-FS-13971	B67-10479	06	Computer program calculates peripheral water injection cooling of axisymmetric subsonic diffuser	NUC-10541	B67-10543	06
Numerical least-square method for resolving complex pulse height spectra						
GSFC-10142	B67-10480	06	Computer program for optical systems ray tracing	FRC-10017	B67-10549	06
Computer program calculates sonic-boom pressure signatures						
LANGLEY-10096	B67-10489	06	Computer program ETC improves computation of elastic transfer matrices of Legendre polynomials P_0 and P_1	NUC-10070	B67-10566	06
Computer program uses characteristics method for free-jet investigation						
LANGLEY-10117	B67-10490	06	Propellant tank pressurization analysis program	M-FS-1506	B67-10625	06
Material fatigue data obtained by card-programmed hydraulic loading system						
LANGLEY-10042	B67-10491	03	Computer program for Video Data Processing System /VDPS/	NPO-10042	B67-10630	06
Computer program reduces and provides profile plot of surface plate calibration data						
M-FS-13866	B67-10492	06				

COMPUTER PROGRAMS CONT

SUBJECT INDEX

Digital computer program predicts effects of local pressure transients on deformation and stresses in cylindrical ducts M-FS-13058	B67-10631	06	dynamical systems M-FS-14654	B68-10217	06
Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes NUC-10143	B67-10665	06	Computer program analyzes Buckling Of Shells Of Revolution with various wall construction, BOSOR LANGLEY-10290	B68-10226	06
Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds LANGLEY-10191	B67-10666	06	SEAL /Subnetwork Enumeration And Listing/ ERC-10116	B68-10227	06
Computer program /P1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas NUC-10141	B67-10678	06	HICOV - Newton-Raphson calculus of variation with automatic transversalities M-FS-14468	B68-10232	06
Computer program performs frequency analysis of nonuniform turbine disk subjected to temperature gradients NUC-10301	B68-10006	06	Computer graphics data conditioning M-FS-14695	B68-10296	06
Computer program calculates and plots surface area and pore size distribution data GSFC-10362	B68-10009	06	Computer program analyzes and designs supersonic wing-body combinations ARC-10141	B68-10335	06
Computer program for interplanetary conic patching M-FS-14296	B68-10033	06	FORTTRAN optical lens design program NPO-10603	B68-10354	06
General computer program for calculation of radiation from inhomogeneous, nonisobaric, nonisothermal rocket exhaust plume M-FS-14314	B68-10044	06	Analysis of annular combustors LEWIS-10399	B68-10356	06
Fast method for obtaining scale dimensions on tape-controlled milling machine MSC-11609	B68-10047	05	Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06
Computer program performs stiffness matrix structural analysis NPO-10502	B68-10096	06	Axisymmetric two-phase perfect gas performance program MSC-11774	B68-10374	06
Computer program calculates velocities and streamlines in turbomachines LEWIS-10252	B68-10097	06	One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06
Computer program conducts facilities utilization and occupancy survey NPO-10438	B68-10137	06	One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06
Computer program aids dual reflector antenna system design NPO-10501	B68-10139	06	Axisymmetric reacting gas nonequilibrium performance program MSC-11781	B68-10377	06
Computer programs for thermodynamic and transport properties of hydrogen NUC-10537	B68-10150	06	Internal velocity factors MSC-15002	B68-10403	06
Computer program determines exact two-sided tolerance limits for normal distributions M-FS-18045	B68-10158	06	Analysis of filament reinforced metal-shell pressure vessels LEWIS-10352	B68-10405	06
Computer program determines vibration in three-dimensional space of hydraulic lines excited by forced displacements M-FS-12226	B68-10159	06	DSN seven day/twelve week schedule program NPO-10752	B68-10410	06
Digital filter synthesis computer program ARC-10130	B68-10164	06	CIRCUS--A digital computer program for transient analysis of electronic circuits M-FS-15002	B68-10416	06
ELAS - A general purpose computer program for the equilibrium problems of linear structures NPO-10598	B68-10187	06	Computer program for machine design of Cassegrain feed systems NPO-10588	B68-10421	06
JPKNIC - General key word in context and subject index report generator NPO-10589	B68-10208	06	Generalized Newton-Raphson trajectory optimization-generator 1 M-FS-15020	B68-10422	06
Computer program determines system stability /DIGSTA/ LEWIS-10395	B68-10216	06	Symbolic reduction of block diagrams using FORMAC LEWIS-10409	B68-10423	06
Computer program offers new method for constructing periodic orbits in nonlinear			Conditioning flat conductors for flat conductor cable production M-FS-14914	B68-10429	01
			GERT EXCLUSIVE-OR combining paths and loops of electrical networks ERC-10206	B68-10435	06
			Modified Multhopp mean camber computer program LANGLEY-10376	B68-10446	06
			Plume radiation program M-FS-13202	B68-10447	06

SUBJECT INDEX

COMPUTER PROGRAMS CONT

Single degree of freedom antenna pointing program /ANTENA/ NPO-10756	B68-10449	06	SPAN - Terminal sterilization process analysis program NPO-10804	B69-10104	06
Computer program TRACK performs transient and/or steady state thermal analysis with coupled fluid flow and heat conduction NUC-10189	B68-10450	06	Midcourse maneuver operations program NPO-10735	B69-10105	06
A request-oriented information selection program LEWIS-10255	B68-10451	06	LABCON - Laboratory Job Control program M-FS-18141	B69-10106	06
Modified Multhopp lifting surface loading program LANGLEY-10375	B68-10452	06	Geometry and design point performance of axial flow turbines LEWIS-10471	B69-10111	06
Computer program for parameter optimization ARC-10168	B68-10453	06	Circuitry selectively limits data storage in general purpose computer GSFC-10605	B69-10121	01
GERT simulation program for GERT network analysis ERC-10209	B68-10457	06	MAGNTY - Program for calculating velocities in magnified region of turbomachines LEWIS-10789	B69-10132	06
Welding skate with computerized controls M-FS-20224	B68-10566	01	Mass spectograph analysis MSC-13239	B69-10134	06
Digital computer technique for setup and checkout of an analog computer M-FS-13969	B68-10576	06	VICAR-DIGITAL image processing system NPO-10770	B69-10139	06
Daughter growth in freshly separated Ra-226, Ac-227 and U-232 ARG-10226	B69-10003	02	Bell nozzle kernel analysis program M-FS-18456	B69-10146	06
Propellant tank pressurization analysis program M-FS-12623	B69-10007	06	Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems M-FS-14447	B69-10158	06
Nondispersive X-ray emission analysis for geochemical exploration GSFC-10568	B69-10011	02	Advanced mission analysis programs GSFC-10575	B69-10171	06
Computer program developed for flowsheet calculations and process data reduction ARG-10134	B69-10023	06	Computer programs for axial flow compressor design LEWIS-10765	B69-10174	06
The compatible conversion system M-FS-15010	B69-10031	06	Shell design computer program LEWIS-10734	B69-10175	06
Computer program analyzes whirl critical speeds and bearing loads for shafts coupled by nonlinear springs to machine housing NUC-10308	B69-10034	06	Neutron therapy of cancer ARG-10310	B69-10203	04
General series solution technique for bending of irregular laterally loaded flat plates NUC-10170	B69-10035	06	FORTAN 4 program calculates velocities and streamlines in a tandem blade turbomachine LEWIS-10743	B69-10219	06
Computer program calculates the effective temperature for a crystalline solid /DETS/ NUC-10161	B69-10036	06	Computer program for high pressure real gas effects LEWIS-10820	B69-10222	06
Monte Carlo direct view factor and generalized radiative heat transfer programs M-FS-15051	B69-10038	06	A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voight line profile ARC-10221	B69-10232	06
SPAN C - Terminal sterilization process analysis program NPO-10805	B69-10039	06	Finite element analysis of compressible solids with nonlinear material properties NUC-10342	B69-10238	06
Ratio matching of half-bridge weldable strain gages, computer program FRC-10032	B69-10040	06	Thermal Network Analyzer Program NUC-10540	B69-10239	06
Weight Control System M-FS-15028	B69-10041	06	Simplified system displays complex curves corresponding to input data HQ-10073	B69-10247	01
On-line computer system for use with low-energy nuclear physics experiments is reported ARG-10257	B69-10094	01	Computer program for off-design performance of radial inflow turbines LEWIS-10764	B69-10267	06
ABTRAJ on-site tracking prediction program NPO-10836	B69-10103	06	Technique for assessing potential fire hazards HQ-10279	B69-10287	03
			Analysis of space vehicle structures using the transfer-function concept NPO-11162	B69-10337	06
			Study of high-speed angular-contact ball		

COMPUTER STORAGE DEVICES

SUBJECT INDEX

bearings under dynamic load M-FS-20562	B69-10367	05	New sintering process adjusts magnetic value of ferrite cores GSFC-129	B63-10606	01
Improved dc voltage regulator KKS-06467	B69-10369	01	Circuit detects errors in address currents for magnetic core arrays M-FS-234	B65-10047	01
Sonic boom propagation in stratified atmosphere LANGLEY-10480	B69-10391	06	Analog-to-digital converter has increased reliability and reduced power consumption GSFC-246	B65-10194	01
Visual task analysis /VISTA/ M-FS-14716	B69-10394	06	Magnetic-shift-register circuit controls step motor operation GSFC-340	B65-10226	01
Improved method of optical design GSFC-10743	B69-10405	02	Improved wire memory matrix uses very little power JPL-SC-167	B65-10359	01
Exact minimal-state system reliability analysis M-FS-16551	B69-10409	06	Simplified circuit corrects faults in parallel binary information channels JPL-SC-090	B66-10261	01
A compact rotary vane attenuator NPO-10562	B69-10427	01	Binary sequence detector uses minimum number of decision elements JPL-673	B66-10264	01
GAMBIT program NUC-10243	B69-10433	06	Thin-film ferrites vapor deposited by one-step process in vacuum MSC-259	B66-10398	03
Fast Fourier Transform Spectral Analysis Program M-FS-15062	B69-10434	06	Process yield Co-Fe alloys with superior high temperature magnetic properties LEWIS-333	B66-10535	03
Determination of quadric equation coefficients describing three-dimensional surfaces, their constraint and skewed planes, and view point areas M-FS-15043	B69-10435	06	One-count memory circuit prevents machine mode interaction ARG-90	B66-10559	01
Estimation of signal-to-noise ratios XNP-05254	B69-10557	01	MOSFET analog memory circuit achieves long duration signal storage M-FS-860	B66-10603	01
System for computing operational probability equations M-FS-16410	B69-10566	06	Improved memory word line configuration allows high storage density GSFC-559	B66-10617	01
Spacecraft Thermal Radiation Environment Computer Program M-FS-15054	B69-10574	06	Multiplexing control device enables handling of wide variations in sampling rates M-FS-1871	B67-10150	01
Frequency domain analysis and synthesis of lumped parameter systems using nonlinear least squares techniques M-FS-15033	B69-10577	02	Linear circuit analysis program for IBM 1620 Monitor 2, 1311/1443 data processing system /CIRCS/ NPO-10131	B67-10173	06
Millimeter-wave atmospheric loss prediction method NPO-11054	B69-10584	01	A conceptual, parallel operating data compression processor NPO-10068	B67-10204	01
Automatic computation of data-set definitions ARG-10475	B69-10608	06	Computer subroutine ISUDS accurately solves large system of simultaneous linear algebraic equations NUC-10051	B67-10344	06
Design of multilayer insulation systems ARC-10166	B69-10615	05	Computer memory access technique NPO-10201	B67-10585	01
IBM-1620 monitor 2-D disk-storage subroutines ARG-10376	B69-10618	01	Development of Curie point switching for thin film, random access, memory device NPO-10402	B67-10633	02
Pulse-height analyzer with digital readout ARG-10503	B69-10640	01	X-Y plotter adapter developed for SDS-930 computer NPO-10220	B67-10654	06
Biomedical bulk data processing program FRC-10015	B69-10720	06	Multilayer plated wire shows promise as memory device MSC-11587	B68-10205	01
Application of cryptanalytic techniques to the analysis of NiCd space batteries GSFC-10569	B69-10731	01	Fully automatic telemetry data processor GSFC-10576	B68-10336	01
Engineering thermal analyzer /BETA 2/ M-FS-15055	B69-10760	06	Microwave interferometer controls cutting depth of plastics M-FS-14673	B69-10012	01
COMPUTER STORAGE DEVICES			The compatible conversion system		
Transfluxor circuit amplifies sensing current for computer memories JPL-406	B63-10255	01			
Computer determines high-frequency phase stability GSFC-113	B63-10555	01			

SUBJECT INDEX

COMPUTERS

M-FS-15010	B69-10031	06	display system to analog computer simulation	B66-10590	01
Weight Control System			M-FS-1263		
M-FS-15028	B69-10041	06	Equivalent circuit for a field effect transistor established for computer simulation	B66-10690	01
Optically exciting a magnetic memory - A feasibility study			M-FS-1752		
M-FS-14854	B69-10060	02	Computer program simulates design, test, and analysis phases of sensitivity experiments	B67-10077	01
Circuitry selectively limits data storage in general purpose computer			M-FS-1496		
GSFC-10605	B69-10121	01	Linear circuit analysis program for IBM 1620 Monitor 2, 1311/1443 data processing system /CIRCS/	B67-10173	06
Encode/Decode facility for FORTRAN 4			NPO-10131		
ARG-10335	B69-10169	06	Transient Analysis Generator /TAG/ simulates behavior of large class of electrical networks	B67-10319	06
Time-shared Cathode Ray Tube			NPO-10031		
MSC-12238	B69-10243	06	Computer program performs rectangular fitting stress analysis	B67-10520	06
Simplified system displays complex curves corresponding to input data			M-FS-13010		
HQ-10073	B69-10247	01	X-Y plotter adapter developed for SDS-930 computer	B67-10654	06
Reducing quantizer deadband with a **range switching** digital filter			NPO-10220		
M-FS-20419	B69-10259	01	Assembly, checkout, and operation optimization analysis technique for complex systems	B68-10222	05
Method reduces computer time for smoothing functions and derivatives through ninth order polynomials			M-FS-14105		
NUC-10334	B69-10524	06	GERT simulation program for GERT network analysis	B68-10457	06
Electrooptical scanning of film			ERC-10209		
NPO-11106	B69-10568	01	Computer simulation of high-frequency combustion instability and its suppression	B69-10368	06
IBM-1620 monitor 2-D disk-storage subroutines			HQ-10391		
ARG-10376	B69-10618	01	Monte Carlo simulation by computer for life-cycle costing	B69-10590	05
Technique for improving solid state mosaic images			M-FS-14754		
M-FS-20532	B69-10676	01			
COMPUTER SYSTEMS PROGRAMS					
The compatible conversion system			COMPUTERS		
M-FS-15010	B69-10031	06	Modular chassis simplifies packaging and interconnecting of circuit boards	B63-10174	01
JFLIP-JFL FORTRAN language with interval pre-processor			JPL-236A		
NPO-10835	B69-10187	06	Solar-angle sensor has no moving parts	B63-10260	02
COMPUTERIZED DESIGN					
Data retrieval system provides unlimited hardware design information			Computer determines high-frequency phase stability	B63-10555	01
MSC-1144	B67-10170	01	GSFC-113		
Computer programs for antenna feed system design and analysis			Monostable circuit with tunnel diode has fast recovery	B63-10603	01
NPO-10359	B67-10504	06	GSFC-132		
Computer program aids dual reflector antenna system design			Molded elastomer provides compact ferrite-core holder, simplifies assembly	B64-10084	05
NPO-10501	B68-10139	06	JPL-584		
FORTRAN optical lens design program			Novel circuit combines pulse stretcher with NOR gate	B64-10150	01
NPO-10603	B68-10354	06	GSFC-187		
Analysis of annular combustors			Variable word length encoder reduces TV bandwidth requirements	B65-10345	01
LEWIS-10399	B68-10356	06	LANGLEY-87		
Geometry and design point performance of axial flow turbines			Laser measuring system accurately locates point coordinates on photograph	B66-10560	02
LEWIS-10471	B69-10111	06	ARG-74		
A thirty-six element array antenna system			Computational procedure for finite difference solution of one-dimensional heat conduction problems reduces computer time	B66-10566	01
M-FS-20435	B69-10390	01	MSC-1120		
COMPUTERIZED SIMULATION					
Computer simulation program is adaptable to industrial processes			Triple Modular Redundancy /TMR/ computer operation improved	B67-10085	01
LEWIS-240	B66-10426	01	MSC-831		
Video signal processing system uses gated current mode switches to perform high speed multiplication and digital-to-analog conversion					
MSC-781	B66-10429	01			
Study made of application of stereoscopic					

CONCENTRATING

SUBJECT INDEX

Digital-to-analog converter operates from low level inputs JPL-907	B67-10357	01	LEWIS-75	B63-10442	05
Pocket-size card tape reader device aids computer tape checking KSC-10058	B67-10361	01	Seal allows blind assembly and thermal expansion of components NU-0005	B65-10053	05
Small, low power analog-to-digital converter M-FS-13954	B68-10016	01	Rotational fluid coupling eliminates hose entanglements MSC-312	B66-10585	05
Circuit detects voltage decrease in computer power supply KSC-67-120	B68-10019	01	Torsion system for creep testing with multiple stress reversals HQ-10039	B69-10147	03
Electronic calorimetric computer LEWIS-90254	B68-10138	01	Ultra-high-flux heat exchanger M-FS-18135	B69-10201	02
Design techniques - Stochastic controllers MSC-11554	B68-10234	02	CONCENTRICITY Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates ARG-151	B66-10601	05
Fluidic-thermochromic display device ERC-10031	B68-10350	01	System for measuring roundness and concentricity of large tanks M-FS-13362	B68-10099	05
Electronic component reliability analysis by data reduction system NPO-10243	B68-10507	05	Shock-absorbent mountings for bearings NPO-10626	B69-10331	05
Computer grading of examinations ARG-10269	B69-10159	06	CONCRETES Post-stressed concrete foundation may reduce machinery vibration ARG-130	B67-10237	05
Astronaut's tool for withdrawing/replacing computer cards M-FS-20453	B69-10183	05	Ballast barge concept for underwater structures KSC-10196	B68-10168	05
Two devices for analysis of nystagmus HQ-10273	B69-10224	01	Fatigue of reinforced concrete beams under dynamic loading M-FS-1498C	B68-10515	05
Root-cubing and general root-powering methods for finding the zeros of polynomials ARG-10444	B69-10424	02	CONDENSATES Crystal microbalance measures condensable molecular fluxes JPL-845	B67-10012	03
Special purpose computer provides programmable digital filter for sampled-data control systems M-FS-20290	B69-10454	06	Axisymmetric two-phase perfect gas performance program MSC-11774	B68-10374	06
Solar activity history model M-FS-20529	B69-10776	01	CONDENSATION Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen LEWIS-15	B63-10340	05
Trajectory optimization using regularized variables MSC-13370	B69-10810	02	Adhesives for laminating polyimide insulated flat conductor cable M-FS-12066	B67-10429	03
CONCENTRATING Uranyl phthalocyanines show promise in the treatment of brain tumors ARG-100	B67-10188	04	New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118	03
CONCENTRATION (COMPOSITION) Ion exchange determines iodine-131 concentration in aqueous samples ARG-208	B67-10129	04	CONDENSERS (LIQUIFIERS) Reaction heat used in static water removal from fuel cells M-FS-532	B66-10013	01
Electronic circuitry used to automate paper chromatography JPL-840	B67-10201	01	Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons LEWIS-263	B66-10104	03
Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry NPO-10149	B67-10245	04	Reaction of steam with molybdenum is studied ARG-295	B67-10502	03
Dynamics of moving bubbles in single and binary component systems M-FS-14845	B68-10339	02	CONDENSING Xenon fluorides show potential as fluorinating agents ARG-113	B67-10185	03
Flow properties of suspensions rich in solids ARG-10481	B69-10622	02	Quartz crystals detect gas contaminants during vacuum chamber evacuation NPO-10144	B67-10205	01
CONCENTRATORS Cone and column solar energy concentrator LANGLEY-210	B67-10517	01	Development of detonation reaction engine		
CONCENTRIC CYLINDERS Kinetic-energy absorber employs frictional force between mating cylinders					

SUBJECT INDEX

CONES

M-FS-14020	B67-10652	01	Helical coaxial-resonator makes excellent RF filter		
Cooling of 2 kW H subscript 2-0 subscript 2 fuel cell			GSFC-243	B65-10012	01
M-FS-13737	B68-10544	01	Improved conductive paste secures biomedical electrodes		
Technique for ultrasonic cleaning with volatile solvents eliminates need for hoods or condensers			MSC-107	B65-10015	03
MSC-15611	B69-10552	03	Feed-through has polyterminal feature		
A rotating, noncapillary heat pipe			M-FS-25	B65-10057	01
LEWIS-10298	B69-10684	05	Laser beam transmits electric power		
CONDUCTING FLUIDS			GSFC-293	B65-10158	01
Inductive system detects level of conducting fluids			Video signal processing system uses gated current mode switches to perform high speed multiplication and digital-to-analog conversion		
LEWIS-322	B66-10392	01	MSC-781	B66-10429	01
Concept to convert electrical power			Rotating magnetic poles used to pump mercury		
GSFC-10222	B68-10321	01	LEWIS-276	B66-10434	05
CONDUCTION BANDS			Plug-in connector socket accepts coaxial cable end		
Optically exciting a magnetic memory - A feasibility study			ARG-9	B66-10478	01
M-FS-14854	B69-10060	02	High frequency wide-band transformer uses coax to achieve high turn ratio and flat response		
CONDUCTIVE HEAT TRANSFER			ARG-107	B66-10600	01
Simple transducer measures low heat-transfer rates			Electrical continuity scanner facilitates identification of wires for soldering to connectors		
JPL-466	B64-10122	01	MSC-626	B66-10605	01
Inexpensive insulation is effective for cryogenic transfer lines			Multipurpose instrumentation cable provides integral thermocouple circuit		
MSC-618	B66-10348	02	NU-0108	B67-10046	01
Computer program simplifies transient and steady-state temperature prediction for complex body shapes			Reparable, high-density microelectronic module provides effective heat sink		
MSC-989	B66-10619	01	M-FS-13075	B67-10356	01
Cold solid propellant motor has stop-restart capability			Adhesives for laminating polyimide insulated flat conductor cable		
JPL-836	B66-10673	03	M-FS-12066	B67-10429	03
Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries			Inspection criteria ensure quality control of parallel gap soldering		
M-FS-1910	B67-10329	06	M-FS-14530	B68-10257	05
Method for X-ray study under extreme temperature and pressure conditions			Technique for abrasive cutting of thick-film conductors for hybrid circuits		
MSC-11232	B67-10474	02	MSC-13242	B69-10235	03
Technique for assessing potential fire hazards			Channel-wall limitations in the magnetohydrodynamic induction generator		
HQ-10279	B69-10287	03	ARG-10128	B69-10255	02
A rotating, noncapillary heat pipe			Leakage tester for flat conductor cable connector		
LEWIS-10298	B69-10684	05	M-FS-20427	B69-10284	05
CONDUCTIVITY			Evaluation of magnetic materials for static inverters and converters		
Improved radiographic image amplifier panel			LEWIS-10343	B69-10306	01
M-FS-14522	B68-10363	02	Leads integral with the internal interconnection that penetrate the molded wall of a package		
Improved ferrous shielding for flat cables			LANGLEY-10228	B69-10436	01
M-FS-14524	B69-10401	01	Magnetic field mapper		
Quick don-doff electrode pastes			LEWIS-10782	B69-10476	01
MSC-13249	B69-10598	04	CONES		
Design of multilayer insulation systems			Lathe attachment used to machine elliptical cones		
ABC-10166	B69-10615	05	MSC-100	B65-10168	05
CONDUCTIVITY METERS			Gage tests tube flares quickly and accurately		
Vibrating diaphragm measures high electrostatic field strengths			KSC-66-19	B66-10537	05
MSC-189	B65-10352	01	Orbital tube flaring system produces tubing connectors with zero leakage		
Sensitive bridge circuit measures conductance of low-conductivity electrolyte solutions			M-FS-2016	B67-10019	05
ARG-147	B67-10294	01			
CONDUCTORS					
Metal strip forms 21 foot boom, rolls up for compact storage					
GSFC-151	B64-10011	05			

CONFERENCES

SUBJECT INDEX

Cone and column solar energy concentrator LANGLEY-210 B67-10517	01	GSFC-150	B64-10010	01
Tensile testing grips ensure uniform loading of bimetal tubing specimens LEWIS-10267 B68-10248	05	Compact coaxial connector for printed circuit adds reliability MSC-57 B64-10016		01
Method of making conical fiber optical components INP-09745 B69-10020	02	High-pass RF coaxial filter rejects dc and low frequency signals GSFC-73 B64-10173		01
CONFERENCES		Connector seals fluid lines at cryogenic temperatures and high vacuums GSFC-253 B64-10327		05
An overview of electromagnetic interference problems in spacecraft NPO-11170 B69-10362	01	Pickup device reads pressures from ports in rotating mechanisms LEWIS-158 B65-10021		05
Molecular radiation - Its application in physical measurements and analyses M-FS-14816 B69-10562	02	Gage measures electrical connector pin retention force JPL-SC-071 B65-10034		03
CONFIDENCE LIMITS		Feed-through has polyterminal feature M-FS-25 B65-10057		01
Design reliability goal developed from small sample M-FS-403 B66-10405	05	Cutter and stripper reduces coaxial cable connection time ARC-40 B65-10094		05
CONFIGURATIONS		New nut and sleeve improve flared connections M-FS-194 B65-10180		05
Integral ribs formed in metal panels by cold- press extrusion M-FS-230 B65-10141	05	Improved solderless connector is easily disconnected JPL-SC-060 B65-10197		01
CONFINING		Electrical probe ensures reliable contact in socket M-FS-315 B65-10215		01
Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495 B69-10236	04	Lightweight coaxial cable connector reduces signal loss JPL-720 B65-10244		01
CONICAL BODIES		Thermocouple-to-instrumentation connector features quick assembly NU-0022 B65-10246		05
Blackbody cavity radiometer has rapid response JPL-521 B66-10679	01	Feed-through connector withstands high temperatures in vacuum environment GSFC-442 B65-10328		01
Tool samples subsurface soil free of surface contaminants MSC-10988 B67-10473	05	Keyed plugs and sockets prevent improper connections MSC-231 B65-10381		01
Flow liner extends operating life of high-angulation bellows M-FS-12023 B67-10512	05	Threaded split ring connector separates structural sections LANGLEY-145 B65-10383		05
Multi-feed cone for Cassegrainian antenna NPO-10539 B69-10269	01	Shrinkable sleeve eliminates shielding gap in RF cable WOO-207 B65-10387		01
Flared-tube fittings with replaceable seat inserts MSC-15372 B69-10519	05	Rubber-coated bellows improves vibration damping in vacuum lines LEWIS-273 B66-10187		02
CONICAL NOZZLES		Tool enables proper mating of accelerometer and cable connector M-FS-611 B66-10208		05
Venturi meter with separable diffuser LEWIS-10483 B68-10295	05	Pressure-welded flange assembly provides leaktight seal at reduced bolt loads M-FS-640 B66-10247		05
Axisymmetric two-phase perfect gas performance program MSC-11774 B68-10374	06	Diffusion bonding makes strong seal at flanged connector M-FS-637 B66-10250		05
One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780 B68-10376	06	Tool separates sleeve-type unions without heat MSC-497 B66-10253		05
Bell nozzle kernel analysis program M-FS-18456 B69-10146	06	Remotely controlled system couples and decouples large diameter pipes NU-0062 B66-10276		05
CONICS		Vacuum test fixture improves leakage rate measurements		
Strippable grid facilitates removal of grid-surfaced conical workpiece from die M-FS-716 B66-10334	01			
Advanced mission analysis programs GSFC-10575 B69-10171	06			
CONNECTORS				
Connector for vacuum-jacketed lines cuts tubing system cost LEWIS-66 B63-10367	05			
Portable display paneling has wide use, easy take down and assembly ARC-17 B63-10435	05			
Modified RF coaxial connector ends vacuum chamber wiring problem				

SUBJECT INDEX

CONSTRAINTS

MSC-271	B66-10286	01	M-FS-20427	B69-10284	05
Union would facilitate joining of tubing, minimize braze contamination			A mechanically extendible boom		
MSC-777	B66-10311	05	NPO-11118	B69-10328	05
Adapter assembly prevents damage to tubing during high pressure tests			Connect-disconnect coupling for preadjusted rigid shafts		
MSC-563	B66-10330	02	MSC-15470	B69-10375	05
Modified pliers facilitate coupling of bayonet-type connectors			Leads integral with the internal interconnection that penetrate the molded wall of a package		
M-FS-1344	B66-10417	05	LANGLEY-10228	B69-10436	01
Electrical continuity scanner facilitates identification of wires for soldering to connectors			Air-cushion lift pad		
MSC-626	B66-10605	01	M-FS-14685	B69-10448	05
Connector acts as quick coupling in coaxial cable application			Rotary antenna attenuator		
JPL-803	B66-10621	01	NPO-10648	B69-10502	01
Abraded cadmium-plated cable connectors repaired by conversion coating			Two-functional seal for hose connection		
M-FS-1424	B67-10014	03	M-FS-14062	B69-10588	05
Orbital tube flaring system produces tubing connectors with zero leakage			A sterilizable high-impact antenna		
M-FS-2016	B67-10019	05	NPO-10231	B69-10697	01
Feed-through connector couples RF power into vacuum chamber			CONSOLES		
NU-0096	B67-10027	01	Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi		
Clamp provides efficient connection for high-density currents			NUC-10067	B67-10263	01
M-FS-2417	B67-10140	01	Compact monitoring and control console for pressurized gas bottles		
Line adapter provides quick disconnect under moderate side loading			M-FS-14874	B68-10401	05
M-FS-2159	B67-10256	05	Improved perceptual-motor performance measurement system		
Spherical joint connects axially misaligned flanges			HQ-10123	B69-10385	01
M-FS-2238	B67-10273	05	CONSTANTAN		
Test device prevents weld joint damage by eliminating axial pin forces on unpotted modules			Multipurpose instrumentation cable provides integral thermocouple circuit		
LEWIS-10201	B67-10359	01	NU-0108	B67-10046	01
Large volume continuous counterflow dialyzer has high efficiency			Dewpoint temperature inversions analyzed		
HQ-10055	B67-10395	04	ARG-10316	B69-10057	02
Improved sample capsule for determination of oxygen in hemolyzed blood			CONSTRAINTS		
MSC-11017	B67-10408	04	New package for Belleville spring permits rate change, easy disassembly		
Coaxial cable stripping device facilitates RF cabling fabrication			JPL-392	B63-10247	05
NPO-10315	B67-10419	05	A technique for making animal restraints		
Aluminum heat sink enables power transistors to be mounted integrally with printed circuit board			ARC-25	B63-10564	05
M-FS-13663	B67-10426	01	Safety restrainer prevents whipping of ruptured high-pressure hose		
Protected, high-temperature connecting cable			LEWIS-99	B64-10348	05
LEWIS-10149	B67-10461	01	Lightweight hinged bellows restraint has high load capacity		
Flat cable insulation stripping machine			WOO-151	B65-10341	03
M-FS-13776	B67-10581	05	Universal bellows joint restraint permits angular and offset movement		
Reconnect mechanism			WOO-102	B65-10371	05
M-FS-12968	B67-10670	05	Torque wrench designed for restricted areas		
Remotely operated gripper provides vertical control rod movement			LEWIS-246	B66-10011	05
ARG-10160	B68-10359	05	Beam splitter used in dual filming technique		
Refractory oxide insulated thermocouple designed and analyzed for high temperature applications			M-FS-501	B66-10072	02
ARG-10202	B69-10053	03	Pipe cutting tool is useful in limited space		
Leakage tester for flat conductor cable connector			MSC-36	B66-10102	05
			Body-fitted harness provides safe and easy component handling		
			M-FS-533	B66-10202	05
			Torque wrench allows readings from inaccessible locations		
			M-FS-598	B66-10204	05
			Portable sandblaster cleans small areas		
			MSC-523	B66-10242	05
			Ultrasonic hand tool allows convenient scanning of spot welds		

CONSTRUCTIONS

SUBJECT INDEX

M-FS-539	B66-10289	02	potential		
Pneumatic separator gives quick release to heavy loads			MSC-158	B65-10320	01
KSC-66-10	B66-10294	05	CONTACT RESISTANCE		
Latching mechanism operates in limited access area			Diffusion technique stabilizes resistor values		
MSC-230	B66-10338	05	MSC-205	B66-10142	01
Design concept for pressure switch calibrator			Reducing contact resistance at semiconductor to metal or aluminum to metal interfaces		
HQ-36	B66-10598	01	ERC-10254	B69-10689	01
Integrated mobility measurement and notation system			CONTAINERS		
MSC-726	B67-10114	04	Miniature oxygen-hydrogen cutting torch constructed from hypodermic needle		
Single wrench separates nuts from free-floating bolts			JPL-545	B63-10517	05
NUC-10013	B67-10158	05	New inflatable liferaft is nontippable		
Self-sealing closure enables access to several fluid containers			MSC-4A	B64-10001	05
NPO-10123	B67-10207	04	Viscous-pendulum damper suppresses structural vibrations		
Cable clamp bolt fixture facilitates assembly in close quarters			LANGLEY-45	B64-10272	05
KSC-67-80	B67-10244	05	Compact assembly generates plastic foam, inflates flotation bag		
Precision metal molding			LANGLEY-96	B65-10090	05
M-FS-13305	B67-10423	05	Multiple test chamber exposes materials to various environments		
Optically exciting a magnetic memory - A feasibility study			MSC-179	B65-10268	01
M-FS-14854	B69-10060	02	Electrically heated diaphragm eliminates use of pyrotechnics		
Midcourse maneuver operations program			MSC-241	B65-10400	01
NPO-10735	B69-10105	06	Large diameter metal ring seal prevents gas leakage at 5000 psi		
CONSTRUCTIONS			M-FS-1064	B66-10422	05
Electrochemical cell has internal resistive heater element			Seal-off assembly permits rapid evacuation of air from containers		
GSFC-10358	B68-10325	01	GSFC-513	B66-10446	05
Magnetomotive forming for precision sizing and joining of large-diameter tubes			Irradiated gases transferred without contamination or dilution		
M-FS-20481	B69-10422	05	LEWIS-278	B67-10044	03
CONSTRUCTION			Method prevents secondary radiation in radiographic inspection		
Improved atomic resonance gas cell for use in frequency standards			M-FS-13383	B67-10391	02
MSC-11666	B68-10230	01	Graphite cloth facilitates vacuum evaporation of silicon monoxide		
Possible correlation between work-hardening and fatigue-failure			M-FS-14764	B68-10256	03
ARG-10371	B69-10414	03	Contact-spring forming machine for flat conductor cable receptacles		
CONSTRUCTION MATERIALS			M-FS-20126	B68-10550	05
Swiveling lathe jaw concept for holding irregular pieces			Inflatable bladder to facilitate handling of heavy objects - A concept		
M-FS-783	B66-10321	05	M-FS-14272	B69-10069	05
Isostatic compression process converts polyaromatics into structural material			CONTAINMENT		
JPL-892	B67-10168	03	Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys		
Study made of procedures for externally loading and corrosion testing stress corrosion specimens			ARG-199	B66-10594	03
M-FS-12064	B67-10451	03	Hydrodynamics of a new concept of primary containment by energy absorption		
Fiber glass reinforced structural materials for aerospace application			ARG-10242	B69-10046	05
M-FS-14806	B68-10360	03	CONTAMINANTS		
Study of fluoride corrosion of nickel alloys			Sensor detects hydrocarbon oil contaminants in fluid lines		
ARG-10224	B69-10048	03	M-FS-522	B66-10068	01
CONTACT LENSES			Brazing process using Al-Si filler alloy reliably bonds aluminum parts		
Thin transparent films formed from powdered glass			MSC-448	B66-10241	05
GSFC-352	B65-10217	03	Improved rolling element bearings provide low torque and small temperature rise in ultrahigh vacuum environment		
CONTACT POTENTIALS			LEWIS-359	B66-10678	05
Electrometer has automatic zero bias control			Valve effectively controls amount of contaminant in flow stream		
GSFC-350	B65-10242	01			
Rugged pressed disk electrode has low contact					

SUBJECT INDEX

CONTAMINATION

M-FS-1771	B66-10683	05	minimize braze contamination MSC-777	B66-10311	05
Quartz crystals detect gas contaminants during vacuum chamber evacuation NPO-10144	B67-10205	01	Brazing retort manifold design concept may minimize air contamination and enhance uniform gas flow M-FS-707	B66-10371	05
Steel test panel helps control additives in pyrophosphate copper plating LEWIS-10101	B67-10358	05	Tungsten insulated susceptor cup for high temperature induction furnace eliminates contamination LEWIS-283	B66-10538	03
Tool samples subsurface soil free of surface contaminants MSC-10988	B67-10473	05	Apparatus for fabrication of americium-beryllium neutron sources prevents capsule contamination ARG-184	B67-10202	05
Indium adhesion provides quantitative measure of surface cleanliness SAN-10024	B68-10342	01	Improved head-controlled TV system produces high-quality remote image ARG-128	B67-10317	01
Preparation of high purity copper fluoride by fluorinating copper hydroxyfluoride LEWIS-10794	B69-10136	03	Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique ARG-277	B67-10324	03
Health hazards of ultrafine metal and metal oxide powders LEWIS-10878	B69-10268	04	Wear studies made of slip rings and gas bearing components M-FS-12882	B67-10403	05
Technique for highly efficient recovery of microbiological contaminants MSC-13250	B69-10273	04	Improved sample capsule for determination of oxygen in hemolyzed blood MSC-11017	B67-10408	04
Apparatus automatically measures soluble residue content of volatile solvents SAN-10032	B69-10292	03	Study made of acoustical monitoring for mechanical checkout M-FS-13372	B67-10430	02
Freon, T-B1 cutting fluid MSC-11486	B69-10485	05	Solenoid valve design minimizes vibration and sliding wear problem M-FS-14079	B67-10667	05
Heat-shrinkable jacket holds fluid in contact with tensile test specimen MSC-13195	B69-10495	05	Monitor senses amount of contamination deposited on surfaces GSFC-10212	B68-10089	01
Gamma radiation characteristics of plutonium dioxide fuel NPO-11220	B69-10733	02	Vacuum probe sampler removes micron-sized particles from surfaces SAN-10003	B68-10231	04
Gas chromatograph injection port protective device M-FS-18585	B69-10788	03	Preparation of silver-activated zinc sulfide thin films GSFC-10687	B68-10271	03
CONTAMINATION			Effects of surface preparation on quality of aluminum alloy weldments M-FS-13152	B68-10302	03
Vented piston seal prevents fluid leakage between two chambers JPL-179	B63-10141	05	Contamination control handbook M-FS-20185	B68-10392	03
Quick-acting clutch disengages idle drive motor GSFC-143	B64-10028	05	UV detector monitors organic contamination of optical surfaces M-FS-20246	B68-10413	01
Magnetic field controls carbon arc tail flame MSC-139	B65-10108	01	Levitation-melting technique for metals and alloys ARG-10240	B69-10006	03
Double gloves reduce contamination of dry box atmosphere LEWIS-211	B65-10117	03	Two systems developed for purifying inert atmospheres ARG-10234	B69-10026	03
Multiple test tubes stirred mechanically ARC-42	B65-10120	01	Production of metals and compounds by radiation chemistry LEWIS-10231	B69-10123	03
Radioactive tracer system detects oil contaminants in fluid lines M-FS-512	B66-10090	03	Battery case shear GSFC-10783	B69-10127	05
Tool provides constant purge during tube welding M-FS-547	B66-10093	05	Precision counting for instrument optical elements provided by polyimide bonding M-FS-20293	B69-10310	05
Epoxy-coated containers easily opened by wire band M-FS-592	B66-10174	05	Improved fire resistant radio frequency anechoic materials M-FS-1660C	B69-10450	05
Fiberglass container shells form contamination-free storage units WOO-275	B66-10217	05			
Insert sleeve prevents tube soldering contamination MSC-552	B66-10238	05			
Union would facilitate joining of tubing,					

CONTENT

SUBJECT INDEX

A new method for the determination of particulate contamination levels for surface cleanliness of fluid systems KSC-10267	B69-10520	02
Microbiological aspects of sterilization development laboratories NPO-11197	B69-10593	04
Fluid sample collection and storage device MSC-10962	B69-10816	05
CONTENT		
Solvent residue content measured by light scattering technique M-FS-850	B66-10320	01
CONTINUITY		
Electrical continuity scanner facilitates identification of wires for soldering to connectors MSC-626	B66-10605	01
Crack growth measured on flat and curved surfaces at cryogenic temperatures LEWIS-389	B67-10384	01
CONTINUITY EQUATION		
Computer program determines gas flow rates in piping systems M-FS-443	B66-10300	01
CONTINUOUS RADIATION		
Frequency offset in linear FM/CW transponder eliminates clutter M-FS-249	B65-10146	01
FM carrier deviation measured by differential probability method M-FS-2166	B67-10213	01
Laser system generates single-frequency light M-FS-2556	B67-10288	02
Wideband, high efficiency optical modulator requires less than 10 watts drive power M-FS-12733	B67-10289	01
Improved ultrasonic TV images achieved by use of Lamb-wave orientation technique ARG-203	B67-10295	02
Continuous wave detector has wide frequency range M-FS-1849	B67-10386	01
Shock and vibration response of multistage structure M-FS-14972	B68-10353	05
CONTINUOUS WAVE RADAR		
FM/CW system measures aircraft attitude M-FS-276	B65-10290	01
CONTOURS		
Portable flooring protects finished surfaces, is easily moved M-FS-15	B63-10387	05
Polychart contour plotter enables data extrapolation from multiple plotting charts M-FS-37	B64-10406	05
Density trace made with computer printout GSFC-322	B65-10200	01
Noncontacting vibration transducer has constant sensitivity LANGLEY-99	B65-10392	01
Aluminized fiberglass insulation conforms to curved surfaces M-FS-477	B66-10024	03
Speciman holder design improves accuracy of X-ray powder analysis JPL-SC-165	B66-10075	02

Swiveling lathe jaw concept for holding irregular pieces M-FS-783	B66-10321	05
Alignment tool facilitates pin placement on irregular horizontal surfaces LANGLEY-219	B66-10410	05
Computer program utilizes FORTRAN 4 subroutines for contour plotting NPO-10127	B67-10323	06
Development of technology for hot-drape forming of large torus sections M-FS-12141	B67-10341	05
Crack growth measured on flat and curved surfaces at cryogenic temperatures LEWIS-389	B67-10384	01
Automatic contour welder incorporates speed control system M-FS-14574	B68-10091	01
Journal gas bearing for curved surfaces M-FS-20423	B69-10182	05
Determination of the absolute contours of optical flats ARG-10352	B69-10209	05
Simplified system displays complex curves corresponding to input data HQ-10073	B69-10247	01
Long range holographic contour mapping concept HQ-10350	B69-10700	02
Photomicrometry M-FS-14556	B69-10736	01
CONTRACTION		
Composite, vacuum-jacketed tubing replaces bellows in cryogenic systems LEWIS-67	B63-10368	05
High-pressure, low temperature electrical connector makes no-leak seal MSC-276	B66-10079	02
Bismuth alloy potting seals aluminum connector in cryogenic application WOO-260	B66-10138	03
Teflon sheet permits valve and valve operator to move as a single unit in a cryogenic pipe line NU-0077	B66-10702	05
Temperature responsive valve withstands high impact loading NPO-10186	B67-10225	05
Techniques for controlling warpage and residual stresses in welded structures M-FS-20307	B69-10086	05
Improved design of item in high speed rotating machinery M-FS-18441	B69-10373	05
Investigation of the development of cracks in solder joints M-FS-20444	B69-10807	01
CONTRACTS		
KOPE /Kalendar Oriented Program Efforts/ provides data for management decisions M-FS-12331	B67-10478	06
CONTRAST		
Slide rule-type color chart predicts reproduced photo tones MSC-1227	B66-10680	01
Pocket-size manual tape reader device aids computer tape checking		

SUBJECT INDEX

CONTROL EQUIPMENT

KSC-10058	B67-10361	01	Simple control device senses solar position JPL-638	B65-10061	01
CONTROL			Pulsed plasma accelerator operates repetitively without complex controls	LANGLEY-48	B65-10062 01
Modular chassis simplifies packaging and interconnecting of circuit boards	JPL-236A	B63-10174 01	Tension is servo controlled in film advance system	LANGLEY-54	B65-10075 05
Device measures curved surface finish on gear teeth	WOO-112	B65-10064 05	Apparatus measures swelling of membranes in electrochemical cells	GSFC-280	B65-10087 01
Nitrogen dioxide produced by self-sustained pyrolysis of nitrous oxide	LANGLEY-32	B65-10074 05	Magnetic field controls carbon arc tail flame	MSC-139	B65-10108 01
Digital system accurately controls velocity of electromechanical drive	GSFC-287	B65-10096 01	Variable frequency magnetic multivibrator generates stable square-wave output	GSFC-AE-21	B65-10124 01
Bidirectional torque filter eliminates backlash	GSFC-335	B65-10148 05	Electropneumatic rheostat regulates high current	ARC-44	B65-10299 01
Solid-state switching used to speed up capacitive integrator	LANGLEY-104	B65-10159 01	Zener diode controls switching of large direct currents	MSC-188	B65-10350 01
Linear signal noise summer accurately determines and controls S/N ratio	JPL-SC-152	B66-10433 01	Rack mount device quickly inserts or extracts chassis units	MSC-244	B65-10385 05
Process controls introduction of selected impurities into semiconductor wafers	GSFC-523	B67-10303 01	Auxiliary coil controls temperature of RF induction heater	GSFC-428	B66-10067 01
Rapid-response, light-exposure control system	NPO-10238	B68-10502 01	System proportions fluid-flow in response to demand signals	GSFC-457	B66-10094 01
Fluid power-transmitting gas bearing	ERC-10097	B68-10503 05	Control system maintains compartment at constant temperature	JPL-SC-145	B66-10188 05
Digital laser-beam deflection sensor	M-FS-14785	B68-10525 01	Pneumatic shutoff and time-delay valve operates at controlled rate	M-FS-602	B66-10189 05
Root-cubing and general root-powering methods for finding the zeros of polynomials	ARG-10444	B69-10424 02	Automatic reel controls filler wire in welding machines	MSC-416	B66-10236 05
Special purpose computer provides programmable digital filter for sampled-data control systems	M-FS-20290	B69-10454 06	Modified hydraulic braking system limits angular deceleration to safe values	GSFC-476	B66-10310 05
CONTROL BOARDS			Flexible drive allows blind machining and welding in hard-to-reach areas	MSC-524	B66-10428 05
Optical projectors simulate human eyes to establish operator's field of view	WOO-250	B66-10010 02	Control circuit maintains unity power factor of reactive load	MSC-192	B66-10431 01
Legibility of electroluminescent instrument panels investigated	MSC-494	B66-10316 02	Automatic cryogenic liquid level controller is safe for use near combustible substances	LEWIS-195	B66-10482 01
Steel test panel helps control additives in pyrophosphate copper plating	LEWIS-10101	B67-10358 05	Study made of application of stereoscopic display system to analog computer simulation	M-FS-1263	B66-10590 01
X-Y plotter adapter developed for SDS-930 computer	NPO-10220	B67-10654 06	Fluid logic control circuit operates nutator actuator motor	LEWIS-294	B66-10593 05
Compact monitoring and control console for pressurized gas bottles	M-FS-14874	B68-10401 05	Gage accurately controls force for placing chips on substrates	M-FS-1941	B66-10675 01
CONTROL DATA (COMPUTERS)			Elastic guides reduce hysteresis effect in Belleville spring package	JPL-910	B67-10011 05
FORTTRAN program flow chart is automatically produced	M-FS-369	B66-10062 01	Variable-pulse switching circuit accurately controls solenoid-valve actuations	M-FS-1895	B67-10022 01
Master control data handling program uses automatic data input	M-FS-2259	B67-10280 06			
CONTROL EQUIPMENT					
Knob linkage permits one-hand control of several operations	MSC-30	B65-10022 05			

CONTROL ROCKETS

SUBJECT INDEX

Improved fluid control circuit operates on low power input LEWIS-325	B67-10042	01	function of temperature ERC-10093	B68-10537	05
Heater control circuit provides both fast and proportional control M-FS-906	B67-10097	01	Fluidic analog amplifier ERC-10102	B68-10538	05
Multiplexing control device enables handling of wide variations in sampling rates M-FS-1871	B67-10150	01	Welding skate with computerized controls M-FS-20224	B68-10566	01
Solid state circuit averages multiple signals and rejects those varying significantly from the average NUC-10066	B67-10262	01	Astronaut's tool for withdrawing/replacing computer cards M-FS-20453	B69-10183	05
Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations ARG-251	B67-10305	04	Reducing quantizer deadband with a **range switching** digital filter M-FS-20419	B69-10259	01
Limit circuit prevents overdriving of operational amplifier NUC-10082	B67-10343	01	Piezoelectric linear actuator MSC-13194	B69-10469	02
Signal generator converts direct current to multiphase supplies MSC-11043	B67-10368	01	Analysis of problems related to slingshot shock machine high-velocity shock testing NPO-11193	B69-10506	05
Control apparatus for spectral energy source LEWIS-391	B67-10404	01	Constant-frequency, variable-duty-cycle multivibrator IGS-10033	B69-10512	01
Computer program generates averaged value data tapes M-FS-12728	B67-10411	06	Gas Metal Arc /GMA/ weld torch proximity control M-FS-16327	B69-10533	01
Computer program analyzes generalized environmental control and life support systems MSC-1157	B67-10415	06	Control for maintaining constant level of a cryogenic liquid NPO-11177	B69-10573	05
Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates NPO-10316	B67-10418	05	Load current sensor for a pulse width modulator power regulator GSFC-10656	B69-10578	01
Pump simulator provides variable pressure-flow characteristics LEWIS-10122	B67-10453	05	Cryogenic pressure transducer M-FS-14909	B69-10601	01
Improved control system power unit for large parachutes MSC-12052	B67-10677	05	Versatile telemonitoring system ARG-10339	B69-10655	01
Pressure variable orifice for hydraulic control valve MSC-11323	B68-10120	05	Control jet placement on spacecraft MSC-13365	B69-10671	01
Improved active vibration isolator LANGLEY-10106	B68-10123	05	Battery charge-discharge controller MSC-11836	B69-10747	01
Device provides controlled gas leaks NPO-10298	B68-10142	03	CONTROL ROCKETS		
Design techniques - Stochastic controllers MSC-11554	B68-10234	02	Lightweight universal joint transmits both torque and thrust JPL-375		
Random access-random release relay switching matrix M-FS-12590	B68-10301	01	B63-10236 05		
Current-limiting voltage regulator MSC-11824	B68-10305	01	CONTROL RODS		
Improved limiter for turn-on current transient GSFC-10413	B68-10384	01	Uranium isotopes quantitatively determined by modified method of atomic absorption spectrophotometry ARG-210		
Automatic solar lamp intensity control system IGS-10017	B68-10399	01	B67-10236 03		
Charge control of nickel-cadmium batteries by coulometer and third electrode method GSFC-10487	B68-10431	01	Remotely operated gripper provides vertical control rod movement ARG-10160		
Fluidic transducer gives pressure output as			B68-10359 05		
			CONTROL STABILITY		
			Polynomial manipulator AP-168 MSC-1231		
			B67-10103 01		
			CONTROL SURFACES		
			Improved control system power unit for large parachutes MSC-12052		
			B67-10677 05		
			CONTROL VALVES		
			High-pressure regulating system prevents pressure surges JPL-231		
			B63-10170 05		
			Flow control valve is independent of pressure drop JPL-W00-039		
			B65-10121 05		
			Improved fluid control valve extends diaphragm life JPL-345		
			B65-10147 05		

SUBJECT INDEX

CONVERGENCE

Device disconnects several couplings simultaneously JPL-226	B65-10163	05	CONTROLLED ATMOSPHERES Multiple test chamber exposes materials to various environments MSC-179	B65-10268	01
Quick-disconnect coupling safe transfer of hazardous fluids LEWIS-125	B65-10202	01	Materials physically tested in variable-environment chamber JPL-789	B66-10130	01
Fluid check valve has fail-safe feature JPL-0019	B65-10207	05	Improved method facilitates debulking and curing of phenolic impregnated asbestos MSC-949	B66-10459	05
Inexpensive check valve is installed in standard AN fittings JPL-2A	B65-10222	05	CONTROLLERS An investigation of phase-lock loop swept-frequency synchronization M-FS-656	B66-10423	01
System proportions fluid-flow in response to demand signals GSFC-457	B66-10094	01	Design techniques - Stochastic controllers MSC-11554	B68-10234	02
Segmented ball valve is easy to open and close WOO-248	B66-10195	05	Novel multipurpose timer for laboratories ARG-10147	B69-10410	01
Self-contained clothing system provides protection against hazardous environments M-FS-536	B66-10201	05	Battery charge-discharge controller MSC-11836	B69-10747	01
Electric arc heater is self starting LANGLEY-208	B66-10230	03	CONVECTION Thermal Network Analyzer Program NUC-10540	B69-10239	06
Flow ring valve is simple, quick-acting M-FS-752	B66-10255	05	Method for determining properties of microinstabilities of a magnetized plasma HQ-10447	B69-10462	02
Diaphragm valve for corrosive and high temperature fluid flow control has unique features LEWIS-304	B66-10365	05	CONVECTIVE FLOW Study of convective magnetohydrodynamic channel flow ARG-10102	B68-10181	02
Rotary valve controls multiple hydraulic leveling cylinders M-FS-361	B66-10402	05	Mass transport mechanism in porous fuel cell electrodes HQ-10343	B69-10135	01
Miniature valve accurately controls small volume fluid flow ARG-66	B66-10473	05	CONVECTIVE HEAT TRANSFER Simple transducer measures low heat-transfer rates JPL-466	B64-10122	01
Multidimensional Reaction Kinetic Ablation Program /REKAP/ MSC-143	B66-10495	05	Computer program simplifies transient and steady-state temperature prediction for complex body shapes MSC-989	B66-10619	01
Quick-response servo amplifies small hydraulic pressure differences ARG-99	B66-10498	05	Computer program calculates steady-state temperature distribution within plane or axisymmetric solids NUC-10049	B67-10224	06
In-tank shutoff valve is provided with maximum blast protection M-FS-1529	B66-10514	05	Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries M-FS-1910	B67-10329	06
Study of vortex valve for medium temperature solid propellants LANGLEY-204	B66-10524	01	Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid NUC-10043	B67-10457	06
Monitoring circuit accurately measures movement of solenoid valve M-FS-1829	B66-10568	01	Thin film heat transfer gage is stable at higher temperatures M-FS-12396	B68-10051	01
Fuel and oxidizer valve assembly employs single solenoid actuator MSC-1046	B66-10648	05	Two-fluid, impinging-sheet injector NPO-10547	B68-10338	05
Check valve installation in pilot operated relief valve prevents reverse pressurization M-FS-1925	B66-10655	05	Technique for assessing potential fire hazards HQ-10279	B69-10287	03
Valve effectively controls amount of contaminant in flow stream M-FS-1771	B66-10683	05	Surface-renewal models for heat-transfer between walls and fluidized beds ARG-10372	B69-10772	02
Fire extinguisher control system provides reliable cold weather operation M-FS-13031	B67-10622	05	CONVERGENCE Computer program analyzes generalized environmental control and life support systems MSC-1157	B67-10415	06
Semitoroidal-diaphragm cavitating valve designed for bipropellant flow control XNP-09704	B69-10016	05			
CONTROLLABILITY Controllability of distributed-parameter systems M-FS-14929	B68-10346	02			

CONVERGENT NOZZLES

SUBJECT INDEX

CONVERGENT NOZZLES

Nozzles for size reclassification of
microfog particles
LEWIS-10705 B69-10076 05

CONVERSION

Treatment increases stress-corrosion
resistance of aluminum alloys
M-PS-1840 B66-10595 05

Transistor h parameter conversion slide
rule
JPL-649 B67-10561 01

Input gate circuit converted for use as
linear amplifier
M-PS-14265 B68-10015 01

System converts slow-scan to standard
fast-scan TV signals
MSC-90534 B69-10748 01

CONVERSION TABLES

GHT/local-time conversion chart
GSFC-10521 B67-10548 01

CONVERTERS

Circuit controls transients in SCR inverters
GSFC-120 B63-10600 01

Transistorized converter provides
nondissipative regulation
GSFC-238 B64-10305 01

Compressed gas system operates semitrailer
brakes during winching operation
JPL-0036 B64-10306 05

Dc to ac converter operates efficiently at
low input voltages
GSFC-130 B65-10178 01

Solid-state time-to-pulse-height converter
developed
ARG-170 B67-10053 01

Converter provides constant electrical
power at various output voltages
GSFC-519 B67-10481 01

Solid state single-ended switching
dc-to-dc converter
M-PS-13598 B67-10558 01

Evaluation of magnetic materials for static
inverters and converters
LEWIS-10343 B69-10306 01

CONVEYITY

Alignment tool facilitates pin placement on
irregular horizontal surfaces
LANGLEY-219 B66-10410 05

Improved method of dicing integrated circuit
wafers into chips
ERC-10138 B69-10441 01

CONVOLUTION INTEGRALS

Numerical inversion of finite Toeplitz
matrices and vector Toeplitz matrices
ARG-10445 B69-10415 02

COOLANTS

Pulsed plasma accelerator operates
repetitively without complex controls
LANGLEY-48 B65-10062 01

Transducer measures temperature differentials in
presence of strong electromagnetic fields
ARC-27 B65-10089 01

Radial coolant channels fabricated by
simplified method
NU-0070 B66-10267 05

Copper-acrylic enamel serves as lubricant
for cold drawing of refractory metals
ARG-54 B66-10471 05

High intensity radiation heat source is
capable of sustained operation
ARC-61 B66-10547 02

A design procedure for the weight
optimization of straight finned radiators
GSFC-547 B66-10618 05

Low rate flow switch can be used for gas or
liquid
JPL-867 B66-10696 01

Coldplate of pin fin design makes efficient
heat exchanger
MSC-1093 B67-10073 05

New class of compounds have very low vapor
pressures
ARG-115 B67-10184 03

Computer optimization program finds values
for several independent variables that
minimize a dependent variable
M-PS-13030 B67-10328 06

Welding torch and wire feed manipulator
M-PS-13102 B67-10385 05

Modified blackbody device emits high-density
radiation
M-PS-12744 B67-10388 02

Standard surface grinder for precision
machining of thin-wall tubing
ARG-10014 B67-10400 05

Concept for cryogenic liquid reclamation
system
NPO-10322 B67-10420 02

Computer program MCAP-TOSS calculates
steady-state fluid dynamics of coolant in
parallel channels and temperature
distribution in surrounding heat-generating
solid
NUC-10042 B67-10456 06

Computer program MCAP provides for steady
state thermal and flow analysis of multiple
parallel channels in heat generating solid
NUC-10043 B67-10457 06

Technique eliminates high voltage arcing
at electrode-insulator contact area
LEWIS-10133 B67-10470 01

High temperature thermocouple design
provides gas cooling without increasing
overall size of unit
NUC-10515 B67-10497 01

Coolants with selective optical filtering
characteristics for ruby laser applications
M-PS-20188 B68-10508 02

Analysis of transient thermal stress in
heat-generating plates and hollow cylinders
caused by sudden environmental temperature
changes
ARG-10274 B69-10047 02

Cold machining of high density tungsten
and other materials
ARG-10289 B69-10110 05

Design and testing of liquid hydrogen-cooled,
ultrahigh-speed ball bearings
M-PS-18453 B69-10178 05

Automatic calorimetry system monitors RF
power
NPO-11033 B69-10384 01

Pneumatic flow comparator
M-PS-18373 B69-10400 05

Rate of heat extraction controller for
environmental control
HQ-10318 B69-10516 01

SUBJECT INDEX

COOLING SYSTEMS

Mixed ether bath for electrodeposition of aluminum LANGLEY-10200	B69-10737	03	microwave circuit laminates M-FS-13892	B67-10454	03
COOLING			Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01
Indium foil with beryllia washer improves transistor heat dissipation GSFC-42	B63-10033	01	Thermal short improves sensitivity of cryogenically cooled maser WFO-09975	B68-10059	01
Cooling method prolongs life of hot-wire transducer LEWIS-41	B63-10344	02	Detection sensitivities in 3-8 MeV neutron activation ARG-10210	B68-10298	02
Integral coolant channels supply made by melt-out method M-FS-91	B63-10497	05	Microprobe investigation of brittle segregates in aluminum MIG and TIG welds M-FS-14720	B68-10334	03
Test device prevents molecular bounce-back GSFC-82	B63-10546	03	Dynamics of moving bubbles in single and binary component systems M-FS-14845	B68-10339	02
Lathe converted for grinding aspheric surfaces GSFC-115	B63-10556	05	Evaluation of superconducting magnets, a study M-FS-14808	B68-10396	02
New method forms bond line free of voids LANGLEY-20	B63-10558	05	Battery-package design provides for cell cooling and constraint MSC-11839	B68-10398	05
Cryogenic waveguide window is sealed with plastic foam JPL-559	B63-10613	01	Heat-load simulator for heat sink design MSC-15170	B68-10510	02
Mounting for diodes provides efficient heat sink M-FS-197	B64-10283	01	High conductance vapor thermal switch GSFC-10109	B68-10519	02
Fastener provides cooling and compensates for thermal expansion NU-0003	B65-10038	05	Cooling of 2 kW H subscript 2-0 subscript 2 fuel cell M-FS-13737	B68-10544	01
Automatic thermal switch accelerates cooling-down of cryogenic system JPL-655	B65-10068	01	Method for copper staining of germanium crystals ARG-10403	B69-10257	03
Nitrogen dioxide produced by self-sustained pyrolysis of nitrous oxide LANGLEY-32	B65-10074	05	Modular packaging technique for combining integrated circuits and discrete components GSFC-10369	B69-10453	01
Internal cooling increases range of immersion-type temperature probe LEWIS-171	B65-10157	02	Single-element coaxial injector for rocket fuel WFO-11095	B69-10547	05
Insulation accelerates rate of cooling with cryogenic fluid MSC-161	B65-10240	02	Modified cryogenic storage tank subsystem KSC-10380	B69-10556	02
Boron nitride housing cools transistors WOO-079	B65-10289	01	Control for maintaining constant level of a cryogenic liquid WFO-11177	B69-10573	05
Copper foil provides uniform heat sink path MSC-262	B66-10004	02	Strain-age cracking in Rene 41 alloy M-FS-18650	B69-10605	03
Special mandrel permits uniform welding of out-of-round tubing M-FS-706	B66-10323	05	Niobium-uranium alloys with voids of predetermined size and total volume ARG-10490	B69-10641	03
Auxiliary titanium sublimation pump produces ultrahigh /10 to the minus 11 torr/ vacuum LANGLEY-212	B66-10388	02	Controlled substrate cooling improves reproducibility of vapor deposited semiconductor composites ERC-10161	B69-10732	01
Cryogenic cooling reduces high voltage arcing between electrodes operating in a vacuum ARG-109	B66-10499	02	COOLING SYSTEMS		
Glass formulation has high coefficient of thermal expansion NU-0084	B66-10705	03	Probe samples components of rocket engine exhaust M-FS-485	B65-10384	03
Metal flame spray coating protects electrical cables in extreme environment NUC-10077	B67-10351	03	Argon purge gas cooled by chill box M-FS-560	B66-10153	02
Reparable, high-density microelectronic module provides effective heat sink M-FS-13075	B67-10356	01	Electropneumatic transducer automatically limits motor current LEWIS-253	B66-10160	01
Study made of ductility limitations of aluminum-silicon alloys M-FS-12524	B67-10392	03	Radial coolant channels fabricated by simplified method NU-0070	B66-10267	05
Warpage eliminated in copper-clad			Modular Porous Plate Sublimator /MPPS/		

COORDINATES

SUBJECT INDEX

requires only water supply for coolant M-FS-1374	B66-10409	01	metal surfaces M-FS-160	B64-10099	03
Improved cryogenic refrigeration system JPL-731	B67-10128	02	Composite gaskets are compatible with liquid oxygen, resist compression set M-FS-455	B66-10395	03
Water cooled anode increases life of high temperature arc lamp NPO-10180	B67-10247	02	Thermoplastic rubberlike material produced at low cost JPL-793	B66-10453	03
Computer program predicts thermal and flow transients experienced in a reactor loss-of-flow accident NUC-10054	B67-10281	06	Warpage eliminated in copper-clad microwave circuit laminates M-FS-13892	B67-10454	03
Development of dual solid cryogenics for high reliability refrigeration system GSFC-10188	B67-10644	02	Ionene membrane battery separator NPO-11091	B69-10501	03
Viscosity and density of methanol/water mixtures at low temperatures M-FS-14991	B68-10274	03	COPPER		
Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01	Method of welding joint in closed vessel improves quality of seam JPL-170	B63-10139	05
Dual-purpose chamber-cooling system NPO-10467	B68-10506	02	Connector for vacuum-jacketed lines cuts tubing system cost LEWIS-66	B63-10367	05
A rotating, noncapillary heat pipe LEWIS-10298	B69-10684	05	Improved molybdenum disulfide-silver motor brushes have extended life M-FS-64	B63-10479	03
COORDINATES			Gate valve with ceramic-coated base operates at high temperatures ARC-23	B63-10562	03
Solar-angle sensor has no moving parts JPL-418	B63-10260	02	Solder flux leaves corrosion-resistant coating on metal JPL-611	B64-10206	03
Simple scale interpolator facilitates reading of graphs LANGLEY-88	B65-10070	05	Improved technique for localizing electropolishing features novel nozzles WOO-101	B64-10271	01
Device enables measurement of moments of inertia about three axes GSFC-49	B65-10176	05	Mounting for diodes provides efficient heat sink M-FS-197	B64-10283	01
Simple scale interpolator facilitates reading of graphs LEWIS-92	B66-10302	05	Wide-angle sensor measures radiant heat energy in corrosive atmospheres M-FS-228	B65-10019	05
Laser measuring system accurately locates point coordinates on photograph ARG-74	B66-10560	02	Improved holder protects crystal during high acceleration and impact JPL-463	B65-10037	05
Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter NUC-10044	B67-10222	06	Lightweight aluminum casting alloy is useful at cryogenic temperatures M-FS-267	B65-10092	03
Computer program utilizes FORTRAN 4 subroutines for contour plotting NPO-10127	B67-10323	06	Inert gas spraying device aids in repair of hazardous systems LEWIS-88	B65-10115	05
Earth orbit rendezvous evaluation program M-FS-13016	B67-10407	06	Coating method enables low-temperature brazing of stainless steel NU-0030	B65-10250	03
Simplified system displays complex curves corresponding to input data HQ-10073	B69-10247	01	Adherent protective coatings plated on magnesium-lithium alloy M-FS-365	B65-10294	03
LM lookangle program MSC-13179	B69-10370	06	Improved wire memory matrix uses very little power JPL-SC-167	B65-10359	01
Circuit board hole coordinate locator concept M-FS-14737	B69-10539	01	Wire bundle formed into grids with minute interstices WOO-089	B65-10372	03
COPLANARITY			Adhesive-backed terminal board eliminates mounting screws MSC-173	B65-10396	01
Measuring coplanarity of surfaces MSC-12044	B67-10371	02	Copper foil provides uniform heat sink path MSC-262	B66-10004	02
COPOLYMERIZATION			Hydrogen-atmosphere induction furnace has increased temperature range LEWIS-153	B66-10055	05
Arylenesiloxane copolymers M-FS-1812	B67-10079	03			
Heparin insolubilized with crosslinking agent NPO-10834	B69-10299	03			
COPOLYMERS					
Refractory thermal insulation for smooth					

SUBJECT INDEX

COPPER CONT

Auxiliary coil controls temperature of RF induction heater GSFC-428	B66-10067	01	Miniature capacitor functions as pressure sensor JPL-903	B67-10020	01
Argon purge gas cooled by chill box M-FS-560	B66-10153	02	Neutron activation analysis traces copper artifacts to geographical point of origin ARG-119	B67-10036	02
Simple device facilitates inert-gas welding of tubes M-FS-558	B66-10155	05	Correlation established between heat transfer and ultrasonic transmission properties of copper braze bonds ARG-247	B67-10037	02
Submicron metal powders produced by ball milling with grinding aids LEWIS-188	B66-10221	03	Multipurpose instrumentation cable provides integral thermocouple circuit NU-0108	B67-10046	01
Diffusion bonding makes strong seal at flanged connector M-FS-637	B66-10250	05	Zirconium alloys with small amounts of iron and copper or nickel show improved corrosion resistance in superheated steam ARG-226	B67-10050	03
Multiple temperatures sampled using only one reference junction GSFC-485	B66-10260	01	Evaluation of high temperature stranded hookup wire M-FS-2478	B67-10122	03
Boron-deoxidized copper withstands brazing temperatures M-FS-762	B66-10273	03	Clamp provides efficient connection for high-density currents M-FS-2417	B67-10140	01
Bypass rod transfers heat developed in thermionic diode JPL-SC-136	B66-10303	05	Fast-acting calorimeter measures heat output of plasma gun accelerator LEWIS-388	B67-10192	01
Electrochemical milling removes burrs and solder from tubing ends M-FS-714	B66-10358	03	Porous mandrels provide uniform deformation in hydrostatic powder metallurgy M-FS-1972	B67-10209	03
Hollow spherical rotors fabricated by electroplating JPL-SC-117	B66-10366	05	High-strength braze joints between copper and steel M-FS-2519	B67-10211	05
Copper wire plated with nickel and silver resists corrosion M-FS-761	B66-10421	03	Water cooled anode increases life of high temperature arc lamp NPO-10180	B67-10247	02
Electrical cabling withstands severe environmental conditions M-FS-1585	B66-10427	01	Extrusion of small-diameter, thin-wall tungsten tubing LEWIS-90335	B67-10355	05
Rotating magnetic poles used to pump mercury LEWIS-276	B66-10434	05	Steel test panel helps control additives in pyrophosphate copper plating LEWIS-10101	B67-10358	05
Weldable aluminum alloy has improved mechanical properties M-FS-295	B66-10445	03	Potassium plasma cell facilitates thermionic energy conversion process ARG-10010	B67-10399	01
Copper-acrylic enamel serves as lubricant for cold drawing of refractory metals ARG-54	B66-10471	05	Metal tube reducer is inexpensive and simple to operate ARG-49	B67-10401	05
Silver-base ternary alloy proves superior for slip ring lead wires M-FS-1540	B66-10540	03	Study made of anodized aluminum circuit boards M-FS-13580	B67-10425	01
Tungsten fiber-reinforced copper composites form high strength electrical conductors LEWIS-338	B66-10572	03	Adhesives for laminating polyimide insulated flat conductor cable M-FS-12066	B67-10429	03
Nondestructive test method accurately sorts mixed bolts M-FS-1426	B66-10574	01	Corrosion of aluminum alloys by chlorinated hydrocarbon/methanol mixtures MSC-11365	B67-10442	03
Plastic tubing protects flexible copper hose M-FS-772	B66-10588	05	Warpage eliminated in copper-clad microwave circuit laminates M-FS-13892	B67-10454	03
Multilayer refractory nozzles produced by plasma-spray process WOO-318	B66-10611	05	Method for X-ray study under extreme temperature and pressure conditions MSC-11232	B67-10474	02
Improved memory word line configuration allows high storage density GSFC-559	B66-10617	01	Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area NUC-10007	B67-10538	01
Intergranular metal phase increases thermal shock resistance of ceramic coating M-FS-1862	B66-10651	03			
Glass formulation has high coefficient of thermal expansion NU-0084	B66-10705	03			

COPPER ALLOYS

SUBJECT INDEX

Study of crevice-galvanic corrosion of aluminum ARG-10013	B67-10583	03	between walls and fluidized beds ARG-10372	B69-10772	02
Multilayer plated wire shows promise as memory device MSC-11587	B68-10205	01	COPPER ALLOYS		
Astronaut space suit communication antenna MSC-12101	B68-10238	01	Coiled sheet metal strip opens into tubular configuration GSFC-425	B66-10009	03
Improved traveling wave maser amplifier NPO-10548	B68-10244	01	Compact retractor protects cabling loops M-FS-561	B66-10018	05
One hundred angstrom niobium wire LEWIS-10128	B68-10279	03	Sheet metal strip unrolls to form circular boom GSFC-423	B66-10032	05
Method for making small pointed thermocouples SAN-10014	B68-10389	01	High-pressure, low temperature electrical connector makes no-leak seal MSC-276	B66-10079	02
Temperature controlled strain gaged extensometer LEWIS-10353	B68-10543	01	Electron beam welding of copper-Monel facilitated by circular magnetic shields M-FS-569	B66-10215	05
Contact-spring forming machine for flat conductor cable receptacles M-FS-20126	B68-10550	05	Braze alloy holds bonding strength over wide temperature range LEWIS-337	B66-10519	03
Isothermal drop calorimeter provides measurements for alpha active, pyrophoric materials ARG-10186	B69-10002	02	Improved rolling element bearings provide low torque and small temperature rise in ultrahigh vacuum environment LEWIS-359	B66-10678	05
Liquid gallium rotary electric contract LEWIS-10828	B69-10138	03	Fused diode provides visual indication of fuse condition KSC-67-16	B67-10230	01
Experimental prediction of performance by superconducting cables ARG-10215	B69-10161	01	Traveling wire electrode increases productivity of Electrical Discharge Machining /EDM/ equipment ARG-136	B67-10238	05
Aggregation of metallochlorophylls - Examination by spectroscopy ARG-10273	B69-10163	04	Copper and nickel adherently electroplated on titanium alloy M-FS-13952	B67-10532	03
Plasma-heating by induction LEWIS-10528	B69-10185	02	Helical recorder GSFC-10614	B69-10340	01
Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04	Modular packaging technique for combining integrated circuits and discrete components GSFC-10369	B69-10453	01
Diffusion bond method of joining steel and a TFE-bronze composite M-FS-20482	B69-10237	03	COPPER COMPOUNDS		
Method for copper staining of germanium crystals ARG-10403	B69-10257	03	Metal strip forms 21 foot boom, rolls up for compact storage GSFC-151	B64-10011	05
Nondestructive evaluation of printed wiring boards by microhm resistance measurements SAN-10034	B69-10272	01	New method used to fabricate gallium arsenide photovoltaic device WOO-062	B64-10019	01
Parameters for good welding of copper to nickel M-FS-20353	B69-10302	05	Crack detection method is safe in presence of liquid oxygen M-FS-236	B65-10107	03
Quality-weld parameters for microwelding techniques and equipment M-FS-20484	B69-10303	05	Cuprous selenide and sulfide form improved photovoltaic barriers WOO-212	B66-10025	01
Self-shielding printed circuit boards for high frequency amplifiers and transmitters HQ-10433	B69-10314	01	New class of compounds have very low vapor pressures ARG-115	B67-10184	03
Analysis of problems related to slingshot shock machine high-velocity shock testing NPO-11193	B69-10506	05	Microprobe investigation of brittle segregates in aluminum MIG and TIG welds M-FS-14720	B68-10334	03
Improved method of producing oxide-dispersion-strengthened alloys HQ-10461	B69-10536	03	Coolants with selective optical filtering characteristics for ruby laser applications M-FS-20188	B68-10508	02
Sprayed shielding of plastic-encapsulated electronic modules M-FS-13570	B69-10607	01	COPPER FLUORIDES		
Surface-renewal models for heat-transfer			High-energy, high-power, long-life battery LEWIS-10724	B69-10131	01
			Preparation of high purity copper fluoride by fluorinating copper hydroxyfluoride LEWIS-10794	B69-10136	03

SUBJECT INDEX

CORROSION

COPPER OXIDES

Device removes hydrogen gas from enclosed spaces
GSFC-495 B66-10340 03

COPPER SELENIDES

Cuprous selenide and sulfide form improved photovoltaic barriers
WOO-212 B66-10025 01

COPPER SULFIDES

Crack detection method is safe in presence of liquid oxygen
M-FS-236 B65-10107 03

Cuprous selenide and sulfide form improved photovoltaic barriers
WOO-212 B66-10025 01

Production of metals and compounds by radiation chemistry
LEWIS-10231 B69-10123 03

CORDAGE

Explosive force of primacord grid forms large sheet metal parts
M-FS-316 B66-10014 05

Nylon shock absorber prevents injury to parachute jumpers
MSC-226 B66-10080 05

Tool pre-tensions covers prior to lacing
MSC-631 B66-10301 05

CORE FLOW

Plasma-heating by induction
LEWIS-10528 B69-10185 02

CORE SAMPLING

Development of lunar drill to take core samples to 100-foot depths
M-FS-13015 B67-10529 05

Iris-leaf core retainer for a surface drill
MSC-11402 B69-10496 05

CORE STORAGE

Multiplexing control device enables handling of wide variations in sampling rates
M-FS-1871 B67-10150 01

CINDA - Chrysler Improved Numerical Differencing Analyzer computer program
M-FS-2298 B67-10278 06

Circuitry selectively limits data storage in general purpose computer
GSFC-10605 B69-10121 01

CORES

Molded elastomer provides compact ferrite-core holder, simplifies assembly
JPL-584 B64-10084 05

Reinforcement core facilitates O-ring installation
WOO-228 B65-10378 05

Improved carbon electrode reduces arc sputtering
MSC-219 B66-10026 01

Mill profiler machines soft materials accurately
M-FS-692 B66-10254 05

Rectilinear accelerometer possesses self-calibration feature
M-FS-1480 B66-10452 01

Current steering commutator offers versatility
JPL-812 B67-10410 01

Development of lunar drill to take core samples to 100-foot depths
M-FS-13015 B67-10529 05

Ferromagnetic core valve gives rapid action on minimum energy
LEWIS-10135 B67-10623 05

Miniaturization of magnetic logic circuitry
LANGLEY-10037 B69-10148 06

Adding calcium improves lithium ferrite core
ERC-10036 B69-10686 06

CORRECTION

Electrometer preamplifier has drift correction feedback
JPL-SC-074 B65-10267 01

Calorimeter accurately measures thermal radiation energy
LANGLEY-173 B66-10058 02

Elementary review of electron microprobe techniques and correction requirements
ARG-10062 B68-10195 03

Variable-mesh method of solving differential equations
NPO-10515 B69-10017 02

Numerical integration of ordinary differential equations of various orders
ARG-10247 B69-10089 02

Wind tower influence study
M-FS-20239 B69-10653 01

CORRELATION

Study of random process theory aids digital data processing
M-FS-1475 B67-10309 06

CORRELATION COEFFICIENTS

Multiple correlation computer program determines relationships between several independent and dependent variables
M-FS-13024 B67-10327 06

The X square statistic and goodness of fit test
GSFC-10547 B68-10136 02

Prediction of friction coefficients for gases
LEWIS-10774 B69-10112 02

CORRELATORS

Phase detector circuit synthesizes own reference signal
M-FS-247 B65-10080 01

Linear signal noise summer accurately determines and controls S/N ratio
JPL-SC-152 B66-10433 01

CORROSION

Self-contained clothing system provides protection against hazardous environments
M-FS-536 B66-10201 05

Apparatus enables accurate determination of alkali oxides in alkali metals
LEWIS-256 B66-10296 03

Diaphragm valve for corrosive and high temperature fluid flow control has unique features
LEWIS-304 B66-10365 05

Trace levels of metallic corrosion in water determined by emission spectrography
MSC-1193 B66-10701 03

Evaluation of high temperature stranded hookup wire
M-FS-2478 B67-10122 03

Xenon fluoride solutions effective as fluorinating agents
ARG-217 B67-10133 03

New class of compounds have very low vapor

CORROSION PREVENTION

SUBJECT INDEX

pressures ARG-115	B67-10184	03	Filler device for handling hot corrosive materials MSC-85	B64-10166	03
Solubility data are compiled for metals in liquid zinc ARG-149	B67-10191	03	Solder flux leaves corrosion-resistant coating on metal JPL-611	B64-10206	03
Corrosion of aluminum alloys by chlorinated hydrocarbon/methanol mixtures MSC-11365	B67-10442	03	Improved technique for localizing electropolishing features novel nozzles WOO-101	B64-10271	01
High-emittance coatings on metal substrates LEWIS-10325	B68-10381	03	Wide-angle sensor measures radiant heat energy in corrosive atmospheres M-FS-228	B65-10019	05
Electrochemical study of aluminum corrosion in boiling high purity water ARG-10306	B69-10033	03	Inexpensive electrical connector is moisture and corrosion-proof MSC-164	B65-10196	01
Development of structural test articles from magnesium-lithium and beryllium M-FS-14959	B69-10417	03	New brazing alloy eliminates metal-stress cracking WOO-249	B65-10397	03
CORROSION PREVENTION			Nickel/tin coating protects threaded fasteners in corrosive environment MSC-253	B65-10398	03
Carbon-arc rod holder has long life, reduces arc splatter MSC-144	B65-10095	03	Epoxy blanket protects milled part during explosive forming M-FS-307	B66-10029	03
Galvanic corrosion reduced in aluminum fabrications M-FS-272	B65-10140	03	White primer permits a corrosion-resistant coating of minimum weight M-FS-304	B66-10207	03
Gallium alloy films investigated for use as boundary lubricants LEWIS-245	B66-10165	03	System locates randomly placed remote objects LANGLEY-209	B66-10315	01
Soft-seal valve holds hazardous fluids safely LEWIS-275	B66-10216	05	Valve seat pores sealed with thermosetting monomer M-FS-900	B66-10322	03
Critical parts are stored and shipped in environmentally controlled reusable container M-FS-703	B66-10258	05	Brazing process provides high-strength bond between aluminum and stainless steel M-FS-803	B66-10352	05
Beryllium fluoride film protects beryllium against corrosion LEWIS-363	B67-10026	03	Copper wire plated with nickel and silver resists corrosion M-FS-761	B66-10421	03
Variable reluctance switch avoids contact corrosion and contact bounce MSC-1178	B67-10137	01	Modified thermocouple is effective from minus 250 deg to 5000 deg F MSC-420	B66-10461	01
Coating protects magnesium-lithium alloys against corrosion M-FS-2446	B67-10149	03	Electroless nickel plating on stainless steels and aluminum GSFC-533	B66-10479	03
Materials data handbook, Inconel alloy 718 M-FS-2348	B67-10282	03	Silver-base ternary alloy proves superior for slip ring lead wires M-FS-1540	B66-10540	03
Tube-to-header joint for bimetallic construction LEWIS-10282	B67-10464	05	Tantalum alloys resist creep deformation at elevated temperatures LEWIS-350	B66-10558	03
Copper and nickel adherently electroplated on titanium alloy M-FS-13952	B67-10532	03	Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys ARG-199	B66-10594	03
Structural thermal-control coatings NPO-10785	B68-10553	03	Treatment increases stress-corrosion resistance of aluminum alloys M-FS-1840	B66-10595	05
Simple switch actuated by force applied over wide solid angle XNP-09808	B69-10032	01	Zirconium alloys with small amounts of iron and copper or nickel show improved corrosion resistance in superheated steam ARG-226	B67-10050	03
Renewal of corrosion protection of coated aluminum after welding M-FS-20361	B69-10150	05	Study made of corrosion resistance of stainless steel and nickel alloys in nuclear reactor superheaters ARG-230	B67-10051	03
Literature review on pickling inhibitors and cadmium electroplating processes M-FS-14421	B69-10606	03	Controlled ferrite content improves weldability of corrosion-resistant steel M-FS-568	B67-10069	03
CORROSION RESISTANCE					
Removable preheater elements improve oxide induction furnace JPL-288	B63-10193	01			
Lightweight magnesium-lithium alloys show promise M-FS-17	B63-10389	03			

SUBJECT INDEX

COULOMETERS

Study to minimize hydrogen embrittlement of ultrahigh-strength steels M-FS-2455	B67-10141	03	NU-0042	B66-10120	03
Heat treatment study of aluminum casting alloy M-45 M-FS-2397	B67-10159	03	Corrosion of metal samples rapidly measured NU-0041	B66-10140	03
Iron serves as diffusion barrier in thermally regenerative galvanic cell ARG-29	B67-10189	03	Study made of procedures for externally loading and corrosion testing stress corrosion specimens M-FS-12064	B67-10451	03
Materials data handbook, aluminum alloy 7075 M-FS-2349	B67-10301	03	Study of corrosion of 1100 aluminum ARG-10045	B67-10578	03
Flowmeter determines mix ratio for viscous adhesives M-FS-2308	B67-10378	01	Study of crevice-galvanic corrosion of aluminum ARG-10013	B67-10583	03
Fuel cell life improved by metallic sinter activation after electrode assembly welding MSC-10965	B67-10436	03	Effects of high frequency current in welding aluminum alloy 6061 M-FS-18337	B68-10383	05
Aluminum and stainless steel tubes joined by simple ring and welding process M-FS-13120	B67-10472	05	Instrumentation for potentiostatic corrosion studies with distilled water ARG-10409	B69-10413	03
Study made of resistance of stainless steels to zinc-vapor corrosion ARG-10055	B67-10582	03	CORRUGATED PLATES		
Stress-corrosion characteristics of aluminum casting alloy M-45 M-FS-14817	B68-10184	03	Improved circularly polarized planar-array antenna NPO-10301	B69-10382	01
Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/ ARG-10148	B68-10368	03	COSINE SERIES		
Precise doping of metals by small gas flows LEWIS-10444	B68-10526	03	Improved VHF direction finding system M-FS-20439	B69-10378	01
Improved thermal treatment of aluminum alloy 7075 M-FS-20083	B68-10534	05	COSMIC DUST		
Semitoroidal-diaphragm cavitating valve designed for bipropellant flow control XNP-09704	B69-10016	05	Technique for pinpointing submicron particles in the electron microprobe HQ-10043	B69-10465	01
Corrosion reduction of aluminum alloys in flowing high-temperature water ARG-10244	B69-10029	03	COSMIC RAYS		
Study of fluoride corrosion of nickel alloys ARG-10224	B69-10048	03	New shield for gamma-ray spectrometry ARG-10388	B69-10344	02
Materials data handbook, aluminum alloy 6061 M-FS-20381	B69-10065	03	COST ANALYSIS		
Improved pH buffering agent for sodium hypochlorite MSC-15443	B69-10084	03	Computer/PERT technique monitors actual versus allocated costs LEWIS-260	B67-10025	01
Corrosion protection of aluminum alloys in contact with other metals M-FS-18526	B69-10098	03	COST ESTIMATES		
Advances in aluminum anodizing M-FS-14600	B69-10144	05	Connector for vacuum-jacketed lines cuts tubing system cost LEWIS-66	B63-10367	05
Design and testing of liquid hydrogen-cooled, ultrahigh-speed ball bearings M-FS-18453	B69-10178	05	Speed-sensing device aids crane operators WS-4	B64-10006	05
Improved method of producing oxide-dispersion-strengthened alloys HQ-10461	B69-10536	03	Monte Carlo simulation by computer for life-cycle costing M-FS-14754	B69-10590	05
Development of improved potting and conformal coating compounds M-FS-20219	B69-10559	03	COST REDUCTION		
CORROSION TESTS			Square tubing reduces cost of telescoping bridge crane hoist ARG-13	B67-10293	05
Oxygen-hydrogen torch is a small-scale steam generator			COSTS		
			Gallium useful bearing lubricant in high-vacuum environment LEWIS-12	B63-10337	03
			Vis-A-Plan /visualize a plan/ management technique provides performance-time scale KSC-10073	B67-10240	06
			Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133	B67-10437	03
			SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield NUC-10142	B67-10537	06
			COUCHES		
			Land landing couch dynamics computer program MSC-1210	B67-10233	06
			COULOMETERS		
			Battery charge regulator is coulometer		

COUNTDOWN

SUBJECT INDEX

controlled GSFC-561	B67-10446	01	Method accurately measures mean particle diameters of monodisperse polystyrene latexes ARG-207	B67-10054	02
Charge control of nickel-cadmium batteries by coulometer and third electrode method GSFC-10487	B68-10431	01	Cleanroom air sampler counts, categorizes, and records particle data M-FS-2221	B67-10076	01
COUNTDOWN System automatically provides dynamic launch decision criteria M-FS-13063	B67-10363	01	Strain gage circuitry provides fatigue testing machine with accurate cycle count NU-0114	B67-10093	01
Programmed schedule holds for improving launch vehicle holds M-FS-14502	B69-10602	03	A conceptual, parallel operating data compression processor NPO-10068	B67-10204	01
COUNTERBALANCES Self-balancing beam permits safe, easy load handling under overhang M-FS-84	B63-10571	05	Quartz crystals detect gas contaminants during vacuum chamber evacuation NPO-10144	B67-10205	01
COUNTERFLOW Large volume continuous counterflow dialyzer has high efficiency HQ-10055	B67-10395	04	FM carrier deviation measured by differential probability method M-FS-2166	B67-10213	01
COUNTERS Computer circuit will fit on single silicon chip JPL-513	B63-10514	01	Simple first order data compression processor concept NPO-10338	B67-10553	01
Monostable circuit with tunnel diode has fast recovery GSFC-132	B63-10603	01	Self-correcting, synchronizing ring counter using integrated circuit devices M-FS-13901	B68-10067	01
Novel circuit combines pulse stretcher with NOR gate GSFC-187	B64-10150	01	Recharge unit provides for optimum recharging of battery cells GSFC-10688	B68-10273	01
Raster linearity of video cameras calibrated with precision tester GSFC-200	B64-10209	01	Closed circuit TV system automatically guides welding arc M-FS-20084	B68-10357	01
Digital cardiometer computes and displays heartbeat rate MSC-93	B64-10258	01	Tape reading fixture M-FS-14146	B69-10008	05
Pneumotachometer counts respiration rate of human subject MSC-92	B64-10259	01	Remote balance weighs accurately amid high radiation ARG-10387	B69-10242	05
Simple BCD circuit accurately counts to 24 GSFC-317	B65-10225	01	Reducing quantizer deadband with a **range switching** digital filter M-FS-20419	B69-10259	01
Frequency divider is free of spurious outputs GSFC-308	B65-10334	05	Circuit counts pulses and indicates time of occurrence of slow pulses XNP-06234	B69-10313	01
Binary counter uses fluid logic elements M-FS-323	B65-10377	01	A method for reducing sampling jitter in digital control systems NPO-11088	B69-10338	01
Binary counter accumulates time by complementary preset MSC-242	B65-10399	01	Foot-operated cell-counter ARG-10315	B69-10351	01
Control system maintains selected liquid level M-FS-470	B66-10039	01	Simple quasi-exponential slope generator NPO-11130	B69-10439	01
Queuing register uses fluid logic elements M-FS-317	B66-10100	05	Laser interferometer micrometer system M-FS-14747	B69-10633	02
Ring counter circuit switches multiphase motor direction of rotation JPL-SC-166	B66-10101	01	COUNTERSINKING Countersunk headscrew retainer M-FS-16481	B69-10282	05
Low-power ring counter drives high-level loads GSFC-431	B66-10106	01	COUNTING Run numbering system for use with data recorders M-FS-2557	B67-10215	01
Detection system ensures positive alarm activation in digital message loss WOO-208	B66-10287	01	Detection sensitivities in 3-8 MeV neutron activation ARG-10210	B68-10298	02
One-count memory circuit prevents machine mode interaction ARG-90	B66-10559	01	Live-timer method of automatic dead-time correction for precision counting ARG-10478	B69-10612	01
Instrument sequentially samples ac signals from several accelerometers JPL-884	B67-10029	01	Highly stable high-rate discriminator for nuclear counting ARG-10483	B69-10614	01

SUBJECT INDEX

COUPLINGS

COUNTING CIRCUITS

Improved sensor counts micrometeoroid penetrations
LEWIS-76 B63-10443 01

Digital cardiometer computes and displays heartbeat rate
MSC-93 B64-10258 01

Simple pulse counting circuit computes sum of squares
GSFC-391 B65-10260 01

Delayed ripple counter simplifies square-root computation
GSFC-398 B65-10343 01

Ring counter circuit switches multiphase motor direction of rotation
JPL-SC-166 B66-10101 01

Low-power ring counter drives high-level loads
GSFC-431 B66-10106 01

Digital system provides superregulation of nanosecond amplifier-discriminator circuit
ARG-61 B66-10500 01

Digital frequency counter permits readout without disturbing counting process
JPL-906 B66-10658 01

Mechanical properties of wire insulation automatically determined
MSC-10983 B67-10370 01

Circuit automatically calibrates flowmeter against liquid-level gage reference
M-FS-2194 B67-10376 01

Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor
ARG-10158 B69-10191 01

Simple quasi-exponential slope generator
NPO-11130 B69-10439 01

COUPLERS

Frequency offset in linear FM/CW transponder eliminates clutter
M-FS-249 B65-10146 01

Dielectric prisms would improve performance of quasi-optical microwave components
ERC-10011 B67-10416 01

COUPLES

Segmented SiGe-PbTe couples
GSFC-10746 B69-10233 01

COUPLING

Two-part valve acts as quick coupling
JPL-478 B64-10223 05

Device disconnects several couplings simultaneously
JPL-226 B65-10163 05

Diaphragm spring gives clutch over-center toggle effect
GSFC-499 B66-10297 05

Latching mechanism operates in limited access area
MSC-230 B66-10338 05

Rotational fluid coupling eliminates hose entanglements
MSC-312 B66-10585 05

Ultrasonic wrench produces leaktight connections
M-FS-12561 B67-10353 05

Study of crevice-galvanic corrosion of aluminum
ARG-10013 B67-10583 03

Magnetically coupled emission regulator
GSFC-10056 B69-10213 01

A thirty-six element array antenna system
M-FS-20435 B69-10390 01

COUPLING CIRCUITS

Digital-output cardiometer measures rapid changes in heartbeat rate
MSC-133 B65-10143 01

Strain gage network distinguishes between thermal and mechanical deformations
GSFC-478 B66-10280 01

Minimum permissible leakage resistance established for instrumentation systems
M-FS-848 B66-10397 01

Multichannel analyzers at high rates of input
ARG-10355 B69-10214 02

Automatic frequency control of voltage-controlled oscillators
NPO-11064 B69-10569 01

Cryogenic flux-concentrator
ARG-10494 B69-10654 02

COUPLING COEFFICIENTS

High frequency wide-band transformer uses coax to achieve high turn ratio and flat response
ARG-107 B66-10600 01

High transients suppressed in electromagnetic devices
KSC-66-13 B67-10031 01

COUPLINGS

Stringent cleaning technique assures reliable epoxy bond
GSFC-161 B64-10142 03

Compressed gas system operates semitrailer brakes during winching operation
JPL-0036 B64-10306 05

New coupling compensates for shaft misalignment
NU-0013 B65-10077 05

Quick-disconnect coupling safe transfer of hazardous fluids
LEWIS-125 B65-10202 01

Diaphragm eliminates leakage in cryogenic fluid duct coupling
WOO-142 B65-10227 05

O-ring tube fittings form leakproof seal in hydraulic systems
M-FS-481 B66-10020 05

Single connector provides safety fuses for multiple lines
MSC-199 B66-10050 01

Plugged hollow shaft makes fatigue-resistant shear pin
LANGLEY-195 B66-10077 05

Remotely controlled system couples and decouples large diameter pipes
NU-0062 B66-10276 05

High pressure tube coupling requires no threads or flares
MSC-600 B66-10285 05

Vacuum test fixture improves leakage rate measurements
MSC-271 B66-10286 01

Pneumatic separator gives quick release to heavy loads
KSC-66-10 B66-10294 05

COVALENT BONDS

SUBJECT INDEX

Union would facilitate joining of tubing, minimize braze contamination MSC-777	B66-10311	05	Simple test indicates degree of cure of polyimide coatings MSC-15487	B69-10330	03
Modified pliers facilitate coupling of bayonet-type connectors M-FS-1344	B66-10417	05	CRACK PROPAGATION		
Connector acts as quick coupling in coaxial cable application JPL-803	B66-10621	01	Cracks in glass electrical connector headers removed by dry blasting with fine abrasive LEWIS-381	B67-10148	03
Quick attach and release fluid coupling assembly is self-aligning, self-sealing KSC-66-8	B66-10627	05	Crack growth measured on flat and curved surfaces at cryogenic temperatures LEWIS-389	B67-10384	01
Device enables calibration of microphones at high sound pressure levels M-FS-11980	B67-10336	01	Study made of mechanics of deformation and fracture of fibrous composites HQ-10035	B67-10660	03
Tube joint leak repair coupling MSC-15022	B68-10540	05	Automatic system nondestructively monitors and records fatigue crack growth LANGLEY-10091	B68-10379	01
Separation simulator KSC-67-15	B69-10315	01	Effects of high frequency current in welding aluminum alloy 6061 M-FS-18337	B68-10383	05
Connect-disconnect coupling for preadjusted rigid shafts MSC-15470	B69-10375	05	CRACKING (FRACTURING)		
Modular packaging technique for combining integrated circuits and discrete components GSFC-10369	B69-10453	01	New brazing alloy eliminates metal-stress cracking WOO-249	B65-10397	03
A sterilizable high-impact antenna NPO-10231	B69-10697	01	Fatigue cracks detected and measured without test interruption LEWIS-266	B66-10178	02
Shaker slip-plate adapter M-FS-14063	B69-10785	05	Low power heating element provides thermal control during swaging operations M-FS-457	B66-10206	05
COVALENT BONDS			Silver plating technique seals leaks in thin wall tubing joints NU-0090	B66-10703	05
Aggregation of metallochlorophylls - Examination by spectroscopy ARG-10273	B69-10163	04	Glass formulation has high coefficient of thermal expansion NU-0084	B66-10705	03
COVERINGS			Beryllium fluoride film protects beryllium against corrosion LEWIS-363	B67-10026	03
Spray-on technique simplifies fabrication of complex thermal insulation blanket M-FS-497	B66-10053	03	Composite weld rod corrects individual filler weaknesses M-FS-1923	B67-10107	05
Tool pre-tensions covers prior to lacing MSC-631	B66-10301	05	Study to minimize hydrogen embrittlement of ultrahigh-strength steels M-FS-2455	B67-10141	03
Large diameter metal ring seal prevents gas leakage at 5000 psi M-FS-1064	B66-10422	05	Cracks in glass electrical connector headers removed by dry blasting with fine abrasive LEWIS-381	B67-10148	03
Gas leak detector is simple and inexpensive M-FS-1206	B66-10669	01	Weld procedure produces quality welds for thick sections of Hastelloy-X NUC-10048	B67-10195	05
Coaxial cable stripping device facilitates RF cabling fabrication NPO-10315	B67-10419	05	Study of stress corrosion in aluminum alloys M-FS-13906	B67-10533	03
Cover protects critical electrical connectors against damage during handling MSC-15662	B69-10526	01	Honeycomb seal backing ring increases turbopump disk life M-FS-13303	B67-10607	05
Glass fabric fire barrier for silicone rubber parts MSC-15555	B69-10629	03	Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03
Improved cure method for single component silicone rubber MSC-12230	B69-10749	03	Pre-weld heat treatment improves welds in Rene 41 M-FS-18174	B68-10285	03
CRACK INITIATION			Effects of high frequency current in welding aluminum alloy 6061 M-FS-18337	B68-10383	05
Study of crack initiation phenomena associated with stress corrosion of aluminum alloys M-FS-14283	B68-10153	03	Fiber glass prevents cracking of		
Experiments with ceramic coatings M-FS-18150	B68-10355	03			
Weld joint strength and mechanical properties in 2219-T81 aluminum alloy LEWIS-10479	B68-10561	03			

SUBJECT INDEX

CRITICAL LOADING

polyurethane foam insulation on cryogenic vessels M-FS-20058	B68-10406	02	Automatic leveling and equalizing hoist device M-FS-16549	B69-10514	05
Hot-cracking studies of Inconel 718 weld-heat-affected zones M-FS-18211	B69-10052	05	CRANIUM Miniature piezoelectric triaxial accelerometer measures cranial accelerations ARC-71	B66-10534	01
Strain-age cracking in Rene 41 alloy M-FS-18650	B69-10605	03	CREATINE Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry NFO-10149	B67-10245	04
Literature review on pickling inhibitors and cadmium electroplating processes M-FS-14421	B69-10606	03	CREATININE Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry NFO-10149	B67-10245	04
CRACKS Crack detection method is safe in presence of liquid oxygen M-FS-236	B65-10107	03	CREEP ANALYSIS Torsion system for creep testing with multiple stress reversals HQ-10039	B69-10147	03
Shoulder adapter steadies spot welding gun M-FS-321	B66-10076	05	CREEP PROPERTIES Stabilizing stainless steel components for cryogenic service M-FS-13127	B67-10377	05
Post-stressed concrete foundation may reduce machinery vibration ARG-130	B67-10237	05	Nickel base alloy with improved stress rupture properties LEWIS-10283	B68-10344	03
Eddy current probe measures size of cracks in nonmetallic materials M-FS-14059	B67-10645	03	Precise doping of metals by small gas flows LEWIS-10444	B68-10526	03
Damages in rolling element bearings may be detected early HQ-10031	B67-10658	01	CREEP RUPTURE STRENGTH Apparatus facilitates pressure-testing of metal tubing LEWIS-174	B65-10131	05
Predicting fatigue life of metal bellows M-FS-14096	B68-10026	05	Nickel-base superalloys developed for high-temperature applications LEWIS-226	B66-10222	03
Experiments with ceramic coatings M-FS-18150	B68-10355	03	Nickel base alloy with improved stress rupture properties LEWIS-10283	B68-10344	03
Coatings decrease metal fatigue failure ARC-10015	B69-10176	03	Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03
Restricted-flow junction between liquids NFO-10682	B69-10332	02	Strain-age cracking in Rene 41 alloy M-FS-18650	B69-10605	03
Investigation of the development of cracks in solder joints M-FS-20444	B69-10807	01	CREEP STRENGTH Torus elements used in effective shock absorber WOO-114	B66-10318	05
CRANES Speed-sensing device aids crane operators WS-4	B64-10006	05	Tantalum alloys resist creep deformation at elevated temperatures LEWIS-350	B66-10558	03
Safety switch permits emergency bridge crane shutdown M-FS-549	B66-10168	05	CRITICAL FLOW Computer program for high pressure real gas effects LEWIS-10820	B69-10222	06
Lifting clamp positively grips structural shapes M-FS-593	B66-10176	05	High pressure real gas effects for helium and nitrogen LEWIS-10819	B69-10669	06
Self-actuating grapple automatically engages and releases loads from overhead cranes ARG-81	B66-10522	05	Natural gas flow through critical nozzles LEWIS-11031	B69-10712	02
Swing-out rail system separates overhead crane rails NU-0094	B66-10713	05	CRITICAL LOADING Analysis of stability-critical orthotropic cylinders subjected to axial compression M-FS-12869	B67-10375	03
Square tubing reduces cost of telescoping bridge crane hoist ARG-13	B67-10293	05	Calibrated water tank facilitates proof-loading of cranes and derricks M-FS-15059	B69-10109	05
Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates NFO-10316	B67-10418	05			
Hoisting frame facilitates handling of large objects M-FS-16166	B68-10575	05			
Calibrated water tank facilitates proof-loading of cranes and derricks M-FS-15059	B69-10109	05			

CRITICAL PATH METHOD

SUBJECT INDEX

CRITICAL PATH METHOD

KOPE /Kalendar Oriented Program
Efforts/ provides data for management
decisions
M-FS-12331 B67-10478 06

CRITICAL PRESSURE

Cryogenic fluid flow instabilities in heat
exchangers
M-FS-20438 B69-10541 02

CRITICAL TEMPERATURE

PTC thermistor protects multiloaded power
supplies
GSFC-236 B64-10281 01

CRITICAL VELOCITY

Computer program analyzes whirl critical
speeds and bearing loads for shafts coupled
by nonlinear springs to machine housing
NUC-10308 B69-10034 06

CROSS CORRELATION

PM acquisition demodulator achieves automatic
synchronization of a telemetry channel
JPL-612 B66-10271 01

Study of hot wire techniques in low density
flows with high turbulence levels
M-FS-1269 B66-10687 01

Local measurements in turbulent flows
through cross correlation of optical signals
M-FS-1268 B67-10030 01

Acquisition of pseudonoise signals by
sequential estimation
M-FS-13898 B68-10258 01

Improvement in recording and reading
holograms
ERC-10151 B68-10347 02

CROSS COUPLING

Multichip packaging with thermal insulation
M-FS-14076 B68-10119 02

CROSS SECTIONS

Instrument calculates moments of inertia of
complex plane figures
MSC-628 B66-10306 01

Vibrator improves spark erosion cutting
process
NU-0071 B66-10333 01

Preformed stiffeners used to fabricate
structural components for pressurized
tanks
M-FS-1796 B66-10688 05

Machining technique prevents undercutting
in tensile specimens
LANGLEY-10281 B68-10352 05

Rating of electrical wires in vacuum
environments
MSC-15108 B68-10362 01

Design of fluid-duct bends with low
pressure loss
M-FS-20176 B68-10395 05

CROSSED FIELDS

Improved design provides faster response
time in photomultiplier
GSFC-451 B66-10526 01

CROSSLINKING

Irradiation improves properties of an
aromatic polyester
LANGLEY-115 B65-10164 03

Synthesis of pure aromatic glycidyl esters
for use as adhesives
M-FS-12705 B67-10647 03

Heparin insolubilized with crosslinking
agent

NPO-10834 B69-10299 03

CRUCIBLES

Ceramic-coated boat is chemically inert,
provides good heat transfer
LANGLEY-90 B65-10063 05

Fabrication method produces high-grade
alumina crucibles
M-FS-216 B65-10078 05

Crucible cast from beryllium oxide and
refractory cement is impervious to flux
and molten metal
ARG-22 B66-10527 03

Preparation of thorium magnesium-zinc
reduction
ARG-10245 B69-10079 03

Niobium-uranium alloys with voids of
predetermined size and total volume
ARG-10490 B69-10641 03

CRUDE OIL

Measurement of gas flow at extremely low
pressures
MSC-13261 B69-10522 03

CRUSHING

Materials physically tested in variable-
environment chamber
JPL-789 B66-10130 01

Effects of sterilization on the
energy-dissipating properties of balsa
wood
NPO-11207 B69-10592 03

CRYOGENIC EQUIPMENT

Cryogenic filter method produces super-pure
helium and helium isotopes
JPL-374 B63-10235 03

Supercold technique duplicates magnetic field
in second superconductor
JPL-376 B63-10237 05

Automatic thermal switch accelerates
cooling-down of cryogenic system
JPL-655 B65-10068 01

Inert gas spraying device aids in repair of
hazardous systems
LEWIS-8B B65-10115 05

Apparatus permits flexure testing of specimens
at cryogenic temperatures
M-FS-257 B65-10129 02

Insulation accelerates rate of cooling with
cryogenic fluid
MSC-161 B65-10240 02

Superconductor shields test chamber from
ambient magnetic fields
JPL-627 B65-10297 02

Automatic fluid separator supplies own driving
power
WOO-085 B66-10008 02

O-ring tube fittings form leakproof seal in
hydraulic systems
M-FS-481 B66-10020 05

Aluminized fiberglass insulation conforms
to curved surfaces
M-FS-477 B66-10024 03

Cryostat modified to aid rotating beam fatigue
test
M-FS-435 B66-10083 03

Mount makes liquid nitrogen-cooled gamma ray
detector portable
LEWIS-259 B66-10103 01

Cryogenic trap valve has no moving parts

SUBJECT INDEX

CRYOGENIC FLUID STORAGE

M-FS-487	B66-10136	05	and sliding wear problem	M-FS-14075	B67-10667	05
Bismuth alloy potting seals aluminum connector in cryogenic application	W00-260	B66-10138	03	Cryogenic seal concept for static and dynamic conditions	M-FS-12986	B67-10673 05
Cryogenic liquid transfer system reduces residual boiloff	LEWIS-274	B66-10157	02	Simple test for physical stability of cryogenic tank insulation	M-FS-12547	B68-10048 03
Freon provides heat transfer for solid CO2 calibration standard	M-FS-644	B66-10257	02	Study of cryogenic container thermodynamics during propellant transfer	M-FS-14310	B68-10108 02
Special treatment reduces helium permeation of glass in vacuum systems	HQ-25	B66-10372	02	Silicon strain sensors enable pressure measurement at cryogenic temperatures	M-FS-14703	B68-10262 01
Densitometer system for liquid hydrogen has high accuracy, fast response	M-FS-909	B66-10438	01	Viscosity and density of methanol/water mixtures at low temperatures	M-FS-14991	B68-10274 03
Resistor monitors transfer of liquid helium	LANGLEY-229	B66-10580	01	Superconductive thin film makes convenient liquid helium level sensor	LANGLEY-10289	B68-10341 01
Cryogenic fluid sampling device permits testing under hazardous conditions	M-FS-1927	B66-10654	02	Fiber glass reinforced structural materials for aerospace application	M-FS-14806	B68-10360 03
Preformed stiffeners used to fabricate structural components for pressurized tanks	M-FS-1796	B66-10688	05	Fiber glass prevents cracking of polyurethane foam insulation on cryogenic vessels	M-FS-20058	B68-10406 02
Teflon sheet permits valve and valve operator to move as a single unit in a cryogenic pipe line	NU-0077	B66-10702	05	Hand-tightened, high-pressure seal	M-FS-18416	B68-10417 05
Technique for stripping Teflon insulated wire	M-FS-1774	B67-10048	05	Dual-purpose chamber-cooling system	NPO-10467	B68-10506 02
Improved cryogenic refrigeration system	JPL-731	B67-10128	02	Evaluation of a fluorocarbon plastic used in cryogenic valve seals	M-FS-18185	B68-10523 03
Neutron diffractometer allows both magnetic and crystallographic analyses	ARG-191	B67-10131	02	Millivolt signal limiter	LEWIS-90297	B69-10015 01
Cryogenic seal remains leaktight during thermal displacement	ARG-96	B67-10134	02	Teflon-packed flexible joint	LEWIS-90252	B69-10049 03
Inexpensive cryogenic insulation replaces vacuum jacketed line	NUC-10061	B67-10264	02	Improved liquid-level sensor for cryogenics	ARG-10162	B69-10210 02
Jacketed cryogenic piping is stress relieved	M-FS-985	B67-10308	05	Abrasion and fracture testing in a high-pressure hydrogen environment	M-FS-18480	B69-10457 03
Study made of dielectric properties of promising materials for cryogenic capacitors	M-FS-13620	B67-10366	03	High-pressure seals for rotary shafts	M-FS-18548	B69-10649 05
Temperature-sensed cryogenic bleed maintains liquid state in transfer line	M-FS-12681	B67-10424	01	Cryogenic flux-concentrator	ARG-10494	B69-10654 02
Performance of turbine-type flowmeters in liquid hydrogen	LEWIS-10137	B67-10506	01	Technique for predicting the thermal expansion coefficients of cryogenic metallic alloys	NUC-10554	B69-10707 02
Dynamic valve seal is reliable at cryogenic temperatures	M-FS-12987	B67-10526	05	CRYOGENIC FLUID STORAGE		
Lead plated aluminum ring provides static high pressure seal for large diameter pressure vessel	NUC-10008	B67-10539	05	Control system maintains selected liquid level	M-FS-470	B66-10039 01
Development of dual solid cryogenics for high reliability refrigeration system	GSPC-10188	B67-10644	02	Insulation for cryogenic tanks has reduced thickness and weight	M-FS-326	B66-10183 02
Solenoid valve design minimizes vibration				Special tool seals conductors with combination of plastic sleeves	M-FS-579	B66-10209 05
				Modified cryogenic storage tank subsystem	KSC-10380	B69-10556 02
				Control for maintaining constant level of a cryogenic liquid	NPO-11177	B69-10573 05

CRYOGENIC FLUIDS

SUBJECT INDEX

CRYOGENIC FLUIDS

Level of super-cold liquids automatically maintained by levelometer
JPL-397 B63-10250 01

Inert gas spraying device aids in repair of hazardous systems
LEWIS-88 B65-10115 05

Quick-disconnect coupling safe transfer of hazardous fluids
LEWIS-125 B65-10202 01

Diaphragm eliminates leakage in cryogenic fluid duct coupling
WOO-142 B65-10227 05

Insulation accelerates rate of cooling with cryogenic fluid
MSC-161 B65-10240 02

Coaxial capacitor used to determine fluid density
LEWIS-232 B65-10296 02

Vacuum chamber provides improved insulation and support for cryostat
M-FS-415 B65-10368 02

High-pressure, low temperature electrical connector makes no-leak seal
MSC-276 B66-10079 02

Portable power tool machines weld joints in field
M-FS-258 B66-10145 05

Cryogenic liquid transfer system reduces residual boiloff
LEWIS-274 B66-10157 02

Fluid damping reduces bellows seal fatigue failures
M-FS-565 B66-10249 05

Gas diffuser facilitates withdrawal of cryogenic liquids from tanks
M-FS-915 B66-10342 05

Inexpensive insulation is effective for cryogenic transfer lines
MSC-618 B66-10348 02

High pressure cryogenic liquid flow sight assembly provides streamlined flow for easy observation
LEWIS-310 B66-10394 01

Leak locator for vacuum jacketed pipelines eliminates need for removal of outer jacket
M-FS-888 B66-10412 01

Densitometer system for liquid hydrogen has high accuracy, fast response
M-FS-909 B66-10438 01

Automatic cryogenic liquid level controller is safe for use near combustible substances
LEWIS-195 B66-10482 01

In-tank shutoff valve is provided with maximum blast protection
M-FS-1529 B66-10514 05

Quick attach and release fluid coupling assembly is self-aligning, self-sealing
KSC-66-8 B66-10627 05

Instrument continuously measures density of flowing fluids
LEWIS-309 B67-10080 01

Nonwoven glass fiber mat reinforces polyurethane adhesive
M-FS-2309 B67-10113 03

Soft metal plating enables hard metal seal to operate successfully in low temperature, high pressure environment

NUC-10083 B67-10350 03

Concept for cryogenic liquid reclamation system
NPO-10322 B67-10420 02

Feed-thru conduit minimizes heat pickup
JPL-847 B67-10619 05

Highly stable microwave delay line
NPO-09828 B67-10642 01

Cryogenic liquid level measuring probe
ARG-10138 B68-10291 01

Temperature controlled strain gaged extensometer
LEWIS-10353 B68-10543 01

Teflon-packed flexible joint
LEWIS-90252 B69-10049 03

Fatigue failure in metal bellows due to flow-induced vibrations
M-FS-18383 B69-10071 05

Adhesive for cryogenic temperature applications
LEWIS-10264 B69-10074 03

Techniques for controlling warpage and residual stresses in welded structures
M-FS-20307 B69-10086 05

Improved liquid-level sensor for cryogenics
ARG-10162 B69-10210 02

Cryogenic fluid flow instabilities in heat exchangers
M-FS-20438 B69-10541 02

CRYOGENIC GYROSCOPES
Optical gyro pickoff operates at cryogenic temperatures
M-FS-407 B66-10128 01

Report on a cryogenic gyroscope
NPO-11200 B69-10504 02

CRYOGENIC MAGNETS
Rectangular configuration improves superconducting cable
ARG-90088 B68-10098 02

CRYOGENIC ROCKET PROPELLANTS
Combustion chamber inlet manifold separates vapor from liquid
M-FS-531 B66-10052 05

Cryogenic fluid sampling device permits testing under hazardous conditions
M-FS-1927 B66-10654 02

CRYOGENIC STORAGE
Lightweight door seals cryogenic container against diaphragm type loading
M-FS-476 B65-10402 05

Liquid oxygen-compatible insulation system
M-FS-16113 B69-10599 03

CRYOGENICS
Connector for vacuum-jacketed lines cuts tubing system cost
LEWIS-66 B63-10367 05

Composite, vacuum-jacketed tubing replaces bellows in cryogenic systems
LEWIS-67 B63-10368 05

Liquid-level meter has no moving parts
M-FS-3 B63-10378 03

Test device prevents molecular bounce-back
GSFC-82 B63-10546 03

Cryogenic waveguide window is sealed with plastic foam
JPL-559 B63-10613 01

SUBJECT INDEX

CRYOSTATS

Sensitive low-pressure relief valve has positive seating against leakage WOO-041	B64-10278	05	Thermal short improves sensitivity of cryogenically cooled maser NPO-09975	B68-10059	01
Connector seals fluid lines at cryogenic temperatures and high vacuums GSFC-253	B64-10327	05	Development of biaxial test fixture includes cryogenic application M-FS-14185	B68-10070	01
Lightweight aluminum casting alloy is useful at cryogenic temperatures M-FS-267	B65-10092	03	Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03
Cold cathode ionization gage has rigid metal housing GSFC-445	B66-10041	01	One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06
Reflective insulator layers separated by bonded silica beads MSC-215	B66-10070	03	Axisymmetric reacting gas nonequilibrium performance program MSC-11781	B68-10377	06
Compound improves thermal interface between thermocouple and sensed surface NU-0028	B66-10121	02	Superconductivity in zirconium-rhodium alloys ARG-10223	B69-10010	03
O-rings with mylar back-up provide high-pressure cryogenic seal M-FS-603	B66-10278	05	Thermal expansion properties of aerospace materials M-FS-18335	B69-10055	03
Bimetallic devices help maintain constant sealing forces down to cryogenic temperatures M-FS-800	B66-10325	02	Materials data handbook, aluminum alloy 6061 M-FS-20381	B69-10065	03
Cryogenic cooling reduces high voltage arcing between electrodes operating in a vacuum ARG-109	B66-10499	02	Electromechanical rotary actuator operates over wide temperature range M-FS-18402	B69-10100	05
New weldable high strength aluminum alloy developed for cryogenic service M-FS-737	B66-10613	05	Automated measurement of thermal conductivity M-FS-20454	B69-10283	03
Feed-thru flange is useful in vacuum applications to cryogenic temperatures JPL-846	B66-10615	02	A method for predicting interfacial freezing of a liquid flowing over a cold surface LEWIS-10813	B69-10321	02
Study of fast response thermocouple measurement of temperatures in cryogenic gases M-FS-1659	B66-10661	01	A new method for fabrication of flexible vacuum purge jackets M-FS-12646	B69-10564	03
Materials data handbook, aluminum alloy 7075 M-FS-2349	B67-10301	03	Cryogenic pressure transducer M-FS-14909	B69-10601	01
Excellent spring properties developed in two nickel alloys for use at cryogenic temperatures NUC-10084	B67-10349	03	CRYOPUMPING		
Magnesium-lithium alloys developed for low temperature use M-FS-1541	B67-10365	03	Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen LEWIS-15	B63-10340	05
Stabilizing stainless steel components for cryogenic service M-FS-13127	B67-10377	05	Closed loop operation eliminates need for auxiliary gas in high pressure pumping station M-FS-893	B66-10408	05
Single-source mechanical loading system produces biaxial stresses in cylinders M-FS-12530	B67-10380	05	Combination double door high-vacuum valve provides access to vacuum chamber JPL-849	B66-10697	05
Crack growth measured on flat and curved surfaces at cryogenic temperatures LEWIS-389	B67-10384	01	Method for X-ray study under extreme temperature and pressure conditions MSC-11232	B67-10474	02
Warping eliminated in copper-clad microwave circuit laminates M-FS-13892	B67-10454	03	Feed-thru conduit minimizes heat pickup JPL-847	B67-10619	05
Fluid behavioral patterns found in subscale geysering study M-FS-13582	B67-10462	02	CRYOSTATS		
Handbook of cryogenic data in graphic form KSC-10009	B67-10610	02	Low-cost insulation system for cryostats eliminates need for a vacuum LEWIS-64	B63-10365	03
Panelized high performance multilayer insulation M-FS-14023	B68-10031	03	Apparatus permits flexure testing of specimens at cryogenic temperatures M-FS-257	B65-10129	02
			Vacuum chamber provides improved insulation and support for cryostat M-FS-415	B65-10368	02
			Cryostat modified to aid rotating beam fatigue test M-FS-435	B66-10083	03

CRYOTRAPPING

SUBJECT INDEX

Mount makes liquid nitrogen-cooled gamma ray detector portable LEWIS-259	B66-10103	01	crystal-diffraction spectrometer permits high-resolution gamma ray spectroscopy ARG-10190	B69-10005	02
Simple pump maintains liquid helium level in cryostat M-FS-1763	B67-10039	05	CRYSTAL OSCILLATORS FM oscillator uses tetrode transistor JPL-82	B65-10055	01
Mechanisms of superconductivity investigated by nuclear radiation M-FS-1944	B67-10057	02	Voltage controlled oscillator is easily aligned, has low phase noise JPL-510	B65-10223	01
Self-aligning rod prevents eccentric loading of tensile specimens NUC-10525	B67-10594	05	Quartz crystals detect gas contaminants during vacuum chamber evacuation NPO-10144	B67-10205	01
Polystyrene cryostat facilitates testing tensile specimens under liquid nitrogen NUC-10522	B67-10613	02	Ultraminiature manometer-tipped cardiac catheter ARC-10054	B67-10669	01
Test system accurately determines tensile properties of irradiated metals at cryogenic temperatures NUC-10521	B67-10617	02	Simple, accurate automatic frequency control circuit KSC-10393	B69-10323	01
Environmental control system for cryogenic testing of tensile specimens NUC-10523	B67-10618	02	Laser interferometer micrometer system M-FS-14747	B69-10633	02
Superconducting switch permits measurement of small voltages at cryogenic temperatures ARG-90260	B68-10087	01	CRYSTAL RECTIFIERS Substituting transistor for diode improves rectifying means GSFC-474	B66-10295	01
Calibration of a resistance thermometer down to 0.04 degrees K ARG-10318	B69-10149	01	Movable RF probe eliminates need for calibration in plasma accelerators LEWIS-10127	B67-10362	01
CRYOTRAPPING Heater decomposes oil backstreaming from high-vacuum pumps GSFC-356	B65-10224	02	Development of reliability prediction technique for semiconductor diodes GSFC-10231	B67-10651	06
Cryogenic trap valve has no moving parts M-FS-487	B66-10136	05	An electronic circuit for sensing malfunctions in test instrumentation KSC-10209	B69-10392	01
Xenon fluorides show potential as fluorinating agents ARG-113	B67-10185	03	CRYSTAL STRUCTURE Neutron diffractometer allows both magnetic and crystallographic analyses ARG-191	B67-10131	02
CRYSTAL DEFECTS Apparatus presents visual display of semiconductor surface characteristics JPL-665	B66-10200	01	Crystal structure analysis of intermetallic compounds ARG-10092	B68-10198	03
Study of lattice defect vibration ARG-10221	B69-10078	02	Sintering characteristics and properties of PuS and PuP are determined ARG-10228	B69-10058	03
CRYSTAL FILTERS Noise figure measurement concept for acoustic amplifiers GSFC-10066	B68-10272	01	CRYSTAL SURFACES Process facilitates photoresist mask alignment on SiC crystals M-FS-2394	B67-10144	01
CRYSTAL GROWTH Process facilitates photoresist mask alignment on SiC crystals M-FS-2394	B67-10144	01	CRYSTALLINITY Evaluation of a fluorocarbon plastic used in cryogenic valve seals M-FS-18189	B68-10523	03
Grain-boundary migration in KCl bicrystals ARG-10181	B68-10455	03	Electron beam recrystallization of amorphous semiconductor materials LEWIS-10443	B68-10556	02
Electron beam recrystallization of amorphous semiconductor materials LEWIS-10443	B68-10556	02	Production of crystalline polymers via liquid crystal monomers HQ-10235	B69-10744	03
CRYSTAL LATTICES Spherical model provides visual aid for cubic crystal study LEWIS-108	B65-10065	03	CRYSTALLITES Preferred-orientation analysis of polycrystalline materials NPO-10604	B69-10336	02
Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics LEWIS-320	B66-10373	03	Epitaxial crystalline growth upon cold substrates MSC-11196	B69-10494	01
Study of lattice defect vibration ARG-10221	B69-10078	02	CRYSTALLIZATION Balloon batteries, charged and heated by solar energy GSFC-10769	B69-10585	01
CRYSTAL OPTICS Ge-diode detector combined with					

CRYSTALLOGRAPHY

Spherical model provides visual aid for
cubic crystal study
LEWIS-108 B65-10065 03

Rotating filters permit wide range of optical
pyrometry
LANGLEY-33 B65-10100 02

Neutron diffractometer allows both magnetic
and crystallographic analyses
ARG-191 B67-10131 02

Grain-boundary migration in KCl bicrystals
ARG-10181 B68-10455 03

Preferred-orientation analysis of
polycrystalline materials
NPO-10604 B69-10336 02

CRYSTALS

Increased performance reliability obtained
with dual /redundant/ oscillator system
GSFC-36 B63-10027 01

Cesium iodide crystals fused to vacuum tube
faceplates
GSFC-67 B63-10476 03

Superconductor magnets used for stagger-tuning
traveling-wave maser
GSFC-292 B65-10165 01

Refractory oxides evaluated for
high-temperature use
LANGLEY-121 B65-10167 03

Thin film process forms effective electrical
contacts on semiconductor crystals
M-PS-2343 B67-10142 01

Ultrasonics used to measure residual stress
M-PS-12449 B67-10428 02

Nonreciprocal gain control for ring laser
M-PS-14041 B67-10653 02

Liquid crystal calibrator
M-PS-14151 B68-10221 03

Technique developed for measuring
transmittance of optical birefringent
networks
M-PS-14267 B68-10260 02

Correction for losses in optical
birefringent networks, a concept
M-PS-20088 B68-10571 02

Computer program calculates the effective
temperature for a crystalline solid /DETS/
NUC-10161 B69-10036 06

One hundred MHz voltage-controlled
oscillator
NPO-11004 B69-10133 01

Method for copper staining of germanium
crystals
ARG-10403 B69-10257 03

Multilayer infrared beamsplitter film
system
XGS-11036 B69-10260 02

New shield for gamma-ray spectrometry
ARG-10388 B69-10344 02

Improved camera for better X-ray powder
photographs
HQ-10424 B69-10537 01

Electrolytic separation of crystals of
transition-metal oxides
ARG-10506 B69-10642 03

Deposition monitor and control
NPO-10706 B69-10722 01

Pocket-sized tone-modulated FM
transmitter
NPO-11180 B69-10725 01

CUBES (MATHEMATICS)

Root-cubing and general root-powering
methods for finding the zeros of polynomials
ARG-10444 B69-10424 02

CUBIC LATTICES

Spherical model provides visual aid for
cubic crystal study
LEWIS-108 B65-10065 03

CULTIVATION

Mass culture of photobacteria to obtain
luciferase
GSFC-10563 B69-10294 04

CULTURE TECHNIQUES

Continuous microbial cultures maintained
by electronically-controlled device
ARG-177 B67-10556 04

A microlagoon technique for the culture of
mammalian cells
LANGLEY-10407 B68-10554 04

Imprinting of confining sites for cell
cultures on thermoplastic substrates
LANGLEY-10495 B69-10236 04

Mass culture of photobacteria to obtain
luciferase
GSFC-10563 B69-10294 04

Life detection
NPO-10510 B69-10475 04

CURIE TEMPERATURE

Process yield Co-Fe alloys with superior
high temperature magnetic properties
LEWIS-333 B66-10535 03

Development of Curie point switching for
thin film, random access, memory device
NPO-10402 B67-10633 02

Adding calcium improves lithium ferrite core
ERC-10036 B69-10686 06

CURING

Plastic molds reduce cost of encapsulating
electric cable connectors
M-PS-69 B63-10568 05

Encapsulation process sterilizes and preserves
surgical instruments
JPL-484 B64-10066 05

Refractory thermal insulation for smooth
metal surfaces
M-PS-160 B64-10099 03

Plastic films for reflective surfaces
reproduced from masters
GSFC-188 B64-10151 03

Flexible curtain shields equipment from
intense heat fluxes
M-PS-48 B65-10044 03

Fiber glass parts cured during filament
winding eliminates oven, saves time
M-PS-14 B65-10088 03

Refractory coating protects intricate graphite
elements from high-temperature hydrogen
NU-0027 B66-10084 01

Improved adhesive for cryogenic applications
cures at room temperature
WOO-132 B66-10185 03

Improved method facilitates debulking and
curing of phenolic impregnated asbestos
MSC-949 B66-10459 05

Sprayable birefringent coating enables

CURIUM

SUBJECT INDEX

strain measurements on large surfaces M-FS-1484	B66-10578	03	PCM magnetic tape system efficiently records and reproduces data GSFC-375	B65-10311	01
Composite bulkhead fabrication development M-FS-1264	B66-10582	05	Circuit exhibits power efficiency greater than 75 percent MSC-254	B66-10034	01
Study made to control depth of potting compound for honeycomb sandwich fasteners LEWIS-370	B66-10677	05	Tester periodically registers dc amplifier characteristics MSC-190	B66-10148	01
Nonwoven glass fiber mat reinforces polyurethane adhesive M-FS-2309	B67-10113	03	Transistor circuit increases range of logarithmic current amplifier NU-0018	B66-10350	01
Photosensitive filler minimizes internal stresses in epoxy resins M-FS-1880	B67-10227	03	Control circuit maintains unity power factor of reactive load MSC-192	B66-10431	01
Substituting gold for silver improves electrical connections M-FS-2390	B67-10228	03	Bipolar current driver for memory circuits GSFC-213	B66-10469	01
Multi-feed cone for Cassegrainian antenna ARG-10025	B67-10484	03	Logarithmic current simulator generates electrical currents accurately between 10 to the minus 11 ampere to 10 to the minus 3 ampere NU-0087	B66-10706	01
Solvent permits solid curing agents to be used at room temperatures M-FS-13434	B67-10593	03	Integrator can easily be set and reset with an electronic switch ARC-10002	B67-10135	01
Epoxy resins produce improved plastic scintillators ARG-241	B67-10596	03	Amplifier provides dual outputs from a single source with complete isolation NUC-10056	B67-10221	01
Bacteriostatic conformal coating for electronic components GSFC-10007	B67-10599	03	Laboratory pulse modulator uses minority carrier storage diodes M-FS-2442	B67-10226	01
Synthesis of pure aromatic glycidyl esters for use as adhesives M-FS-12705	B67-10647	03	System precisely controls oscillation of vibrating mass M-FS-1875	B67-10276	01
Cure of epoxy resins determined by simple tests M-FS-13131	B68-10043	03	Current pulse amplifier transmits detector signals with minimum distortion and attenuation NUC-10055	B67-10347	01
Tools made of ice facilitate forming of soft, sticky materials KSC-10262	B69-10199	05	Analog buffer isolates high impedance source from low impedance load M-FS-13481	B67-10544	01
Simple test indicates degree of cure of polyimide coatings MSC-15487	B69-10330	03	Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01
A method for observing gas evolution during plastic laminate cure MSC-15592	B69-10530	03	Load current sensor for a pulse width modulator power regulator GSFC-10656	B69-10578	01
Improved cure method for single component silicone rubber MSC-12230	B69-10749	03			
CURIUM			CURRENT DENSITY		
Portable, high intensity isotopic neutron source provides increased experimental accuracy ARG-90250	B68-10243	02	High purity electroforming yields superior metal models ARC-6	B63-10007	05
CURIUM 242			Simple technique determines ac properties of hard superconductive materials M-FS-1818	B66-10657	02
Alpha particle backscattering measurements used for chemical analysis of surfaces ARG-116	B67-10186	03	Mechanisms of superconductivity investigated by nuclear radiation M-FS-1944	B67-10057	02
Neutron irradiation of Am-241 effectively produces curium ARG-10030	B67-10501	03	Clamp provides efficient connection for high-density currents M-FS-2417	B67-10140	01
Detection sensitivities in 3-8 MeV neutron activation ARG-10210	B68-10298	02	Thermionic diode switching has high temperature application NPO-10404	B67-10672	01
Transplutonium elements processed from rock debris of underground detonations ARG-10222	B69-10054	03	Mass transport mechanism in porous fuel cell electrodes HQ-10343	B69-10135	01
CURRENT AMPLIFIERS			Electrochemical sintering process for		
Transfluxor circuit amplifies sensing current for computer memories JPL-406	B63-10255	01			

SUBJECT INDEX

CUTTERS

producing electrodes from cadmium felt and a nickel or silver grid GSFC-10764	B69-10227	05	storage transformers LEWIS-10375	B69-10140	01
Improved inorganic ion exchange membranes LEWIS-10737	B69-10451	03	Magnetically coupled emission regulator GSFC-10056	B69-10213	01
Magnetic field mapper LEWIS-10782	B69-10476	01	Conversion of continuous-direct-current TIG welder to pulse-arc operation M-FS-16411	B69-10393	05
Analysis of cell performance and thermal regeneration of a lithium-tin cell having an immobilized fused-salt electrolyte ARG-10453	B69-10627	03	Instrumentation for potentiostatic corrosion studies with distilled water ARG-10409	B69-10413	03
CURRENT DISTRIBUTION			Radiometric temperature reference MSC-13276	B69-10507	01
Simple circuit functions as frequency discriminator for PFM signals GSFC-267	B65-10102	01	Battery charge-discharge controller MSC-11836	B69-10747	01
Increased junction lead inductance ballasts high-frequency transistors GSFC-387	B65-10259	01	CURRENTS		
Standard arc welders provide high amperage direct current source LANGLEY-267	B66-10441	01	Accurate nine-decade temperature-compensated logarithmic amplifier ARG-10480	B69-10429	01
Transient sensor development M-FS-13370	B67-10471	01	CURTAINS		
Rating of electrical wires in vacuum environments MSC-15108	B68-10362	01	Flexible curtain shields equipment from intense heat fluxes M-FS-48	B65-10044	03
Experimental prediction of performance by superconducting cables ARG-10215	B69-10161	01	CURVATURE		
Use of medical and dental X-ray equipment for nondestructive testing MSC-13389	B69-10553	01	Aerial-image enables diagrams and animation to be inserted in motion pictures ARG-165	B67-10398	02
CURRENT REGULATORS			CURVE FITTING		
Constant-current regulator improves tunnel diode threshold-detector performance GSFC-239	B65-10282	01	Maximum RMS error comparison of several redundancy techniques M-FS-15075	B69-10297	01
Electropneumatic rheostat regulates high current ARC-44	B65-10299	01	CURVED PANELS		
Electropneumatic transducer automatically limits motor current LEWIS-253	B66-10160	01	Flexible honeycomb structure can bend to fit compound curves M-FS-13	B63-10385	05
Circuit protects regulated power supply against overload current GSFC-453	B66-10292	01	CURVES (GEOMETRY)		
Electrically controlled optical latch and switch requires less current JPL-SC-111	B66-10414	01	Studies reveal effects of pipe bends on fluid flow cavitation M-FS-516	B66-10228	05
Current steering commutator offers versatility JPL-812	B67-10410	01	Evaporant feed device facilitates flash vapor deposition process in vacuum NPO-10232	B67-10320	03
Broadband choke suppresses spurious currents in antenna structure MSC-10013	B67-10675	01	Algebraic Monte Carlo procedure reduces statistical analysis time and cost factors M-FS-1887	B67-10434	01
Nondestructive test determines overload destruction characteristics of current limiter fuses XGS-08566	B68-10364	01	Study made of large amplitude fuel sloshing M-FS-12381	B67-10439	03
Improved limiter for turn-on current transient GSFC-10413	B68-10384	01	Analytical drafting curves provide exact equations for plotted data LANGLEY-285	B67-10601	02
Bootstrap unloader XNP-09768	B69-10120	01	Magnetic field mapper LEWIS-10782	B69-10476	01
Self-starting circuit for switching regulators LEWIS-10686	B69-10128	05	CUSHIONS		
Full wave dc-to-dc converter using energy			Fixed vacuum plate clamps styrofoam for machining M-FS-683	B66-10283	05
			CUT-OFF		
			Safety switch permits emergency bridge crane shutdown M-FS-549	B66-10168	05
			CUTTERS		
			Sleeve and cutter simplify disconnecting welded joint in tubing JPL-384	B63-10240	05
			Cutter and stripper reduces coaxial cable connection time ARC-40	B65-10094	05
			Threaded pilot insures cutting tool alignment		

CUTTING

SUBJECT INDEX

M-FS-527	B66-10074	05	JPL-129	B67-10004	05
Portable power tool machines weld joints in field			Traveling wire electrode increases productivity of Electrical Discharge Machining /EDM/ equipment		
M-FS-258	B66-10145	05	ARG-136	B67-10238	05
Device spot-laps spheres to very close tolerances			Coaxial cable stripping device facilitates RF cabling fabrication		
JPL-SC-119	B66-10175	05	NPO-10315	B67-10419	05
Tool post modification allows easy turret lathe cutting-tool alignment			Tool samples subsurface soil free of surface contaminants		
M-FS-581	B66-10191	05	MSC-10988	B67-10473	05
Special tool seals conductors with combination of plastic sleeves			Precision trimmer aids in preparing biomedical specimen blocks for ultrathin sectioning		
M-FS-579	B66-10209	05	ARG-242	B67-10541	05
Hollow needle used to cut metal honeycomb structures			Manual of industrial diamonds plus dressing and grinding criteria for machining superalloys		
MSC-486	B66-10244	05	M-FS-14582	B68-10239	05
Thread cutting with 3-axis N/C milling machine			Machining technique prevents undercutting in tensile specimens		
LANGLEY-10017	B68-10055	06	LANGLEY-10281	B68-10352	05
Coaxial cable stripper for confined areas			Battery case shear		
KSC-10167	B68-10444	05	GSFC-10783	B69-10127	05
Microwave interferometer controls cutting depth of plastics			Multiple-mask chemical etching		
M-FS-14673	B69-10012	01	MSC-13114	B69-10221	01
J-beveling of pipe ends with a hand-held tool			Technique for abrasive cutting of thick-film conductors for hybrid circuits		
KSC-10356	B69-10229	05	MSC-13242	B69-10235	03
Technique for anchoring fasteners to honeycomb panels			Improved table for cutting and welding		
LEWIS-10888	B69-10265	03	MSC-15537	B69-10346	05
Freon, T-B1 cutting fluid			Vibration dampener for Niles vertical boring mill ram		
MSC-11486	B69-10485	05	MSC-15529	B69-10348	05
CUTTING			CYANATES		
Miniature oxygen-hydrogen cutting torch constructed from hypodermic needle			Development of low temperature battery		
JPL-545	B63-10517	05	LEWIS-10326	B67-10546	01
Rotating mandrel speeds assembly of plastic inflatables			CYCLES		
LANGLEY-155	B66-10137	05	Multidimensional Reaction Kinetic Ablation Program /REKAP/		
Depth indicator and stop aid machining to precise tolerances			MSC-143	B66-10495	05
M-FS-553	B66-10149	05	Jacketed cryogenic piping is stress relieved		
Nylon bit removes cork insulation without damage to substrate			M-FS-985	B67-10308	05
MSC-381	B66-10152	05	Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates		
Modified drill permits one-step drilling operation			NPO-10316	B67-10418	05
M-FS-559	B66-10169	05	System measures arc energy dissipated in relay contact cycling		
Adjustable cutting guide aligns and positions stacks of material			M-FS-14541	B68-10312	01
MSC-321	B66-10210	05	Studies of cycles for liquid-metal magnetohydrodynamic generation of power		
Modified soldering iron speeds cutting of synthetic materials			ARG-10250	B69-10194	02
M-FS-725	B66-10246	05	Cobalt improves nickel hydroxide electrodes for batteries		
Tool separates sleeve-type unions without heat			LEWIS-10760	B69-10228	01
MSC-497	B66-10253	05	Balloon batteries, charged and heated by solar energy		
Mill profiler machines soft materials accurately			GSFC-10769	B69-10585	01
M-FS-692	B66-10254	05	CYCLIC LOADS		
Versatile machine mills, saws light materials			Mechanical properties of a lap joint under uniform clamping pressure		
M-FS-827	B66-10364	05	M-FS-14538	B69-10141	05
Study made of destructive sectioning of complex structures for examination			Coatings decrease metal fatigue failure		
LEWIS-341	B66-10676	05	ARC-10015	B69-10176	03
Micromanipulation tool is easily adapted to many uses					

SUBJECT INDEX

CYLINDRICAL SHELLS

CYCLOTRON RADIATION

An economical method for the continuous
production of iodine-123
LEWIS-10518 B68-10433 03

CYLINDERS

Supercold technique duplicates magnetic field
in second superconductor
JPL-376 B63-10237 05

Shaped superconductor cylinder retains intense
magnetic field
JPL-381 B63-10238 01

Simple mechanism combines positive locking and
quick-release features
WOO-4 B63-10420 05

Device induces lungs to maintain known
constant pressure
MSC-50 B64-10108 04

Miniature stress transducer has directional
capability
JPL-591 B65-10023 01

Ionization vacuum gage starts quickly, is
unaffected by spurious currents
JPL-304 B65-10036 02

Seal allows blind assembly and thermal
expansion of components
NU-0005 B65-10053 05

Low-cost tool minimizes damage to O-rings
during installation
MSC-140 B65-10116 05

Vacuum chamber provides improved insulation
and support for cryostat
M-FS-415 B65-10368 02

Light-intensity modulator withstands high
heat fluxes
MSC-246 B66-10532 02

Positive displacement cylinder measures
corrosive liquid volume
MSC-1038 B66-10589 05

Semitoroidal-diaphragm cavitating valve
designed for bipropellant flow control
XNP-09704 B69-10016 05

Analysis of transient thermal stress in
heat-generating plates and hollow cylinders
caused by sudden environmental temperature
changes
ARG-10274 B69-10047 02

CYLINDRICAL BODIES

Device disconnects several couplings
simultaneously
JPL-226 B65-10163 05

Sheet metal strip unrolls to form circular
boom
GSFC-423 B66-10032 05

Flexible coiled spline securely joins mating
cylinders
WOO-270 B66-10172 05

Cylindrical claw clamp has quick release
feature
M-FS-513 B66-10213 05

Torus elements used in effective shock
absorber
WOO-114 B66-10318 05

Pressure levels and pulsation frequencies
can be varied on high pressure/frequency
testing device
LEWIS-10205 B67-10360 05

Single-source mechanical loading system
produces biaxial stresses in cylinders
M-FS-12530 B67-10380 05

Crack growth measured on flat and curved
surfaces at cryogenic temperatures
LEWIS-389 B67-10384 01

Compressible sleeve provides automatic
centering for grinding or turning of
cylinders
SAN-10021 B68-10318 05

Modified sine bar device measures small
angles with high accuracy
GSFC-438 B68-10322 02

Electron beam selectively seals porous metal
filters
LEWIS-10162 B68-10331 05

Automated measurement of thermal
conductivity
M-FS-20454 B69-10283 03

Automatic leveling and equalizing hoist
device
M-FS-16549 B69-10514 05

Balloon batteries, charged and heated by
solar energy
GSFC-10769 B69-10585 01

Aerodynamic forces of fluttering cylindrical
and/or planar structures
M-FS-20497 B69-10781 02

CYLINDRICAL CHAMBERS

Vacuum test fixture improves leakage rate
measurements
MSC-271 B66-10286 01

Friction brake cushions acceleration and
vibration loads
MSC-715 B66-10608 05

Low-energy gamma ray inspection of brazed
aluminum joints
MSC-1189 B67-10337 02

Liquid laser cavities
GSFC-10592 B69-10234 02

Improved vacuum deposition apparatus
NPO-11009 B69-10365 02

CYLINDRICAL SHELLS

System locates randomly placed remote objects
LANGLEY-209 B66-10315 01

Mechanism facilitates coating of inner
surfaces of metal cylinders
GSFC-515 B66-10698 05

An improved nuclear magnetic resonance
spectrometer
JPL-762 B67-10234 01

Computer program for determination of
natural frequencies of closed spherical
sandwich shells
MSC-1246 B67-10279 06

Liquid oxygen dicting cleaned by falling
film method
M-FS-11816 B67-10299 03

Analysis of stability-critical orthotropic
cylinders subjected to axial compression
M-FS-12869 B67-10375 03

Concept for cryogenic liquid reclamation
system
NPO-10322 B67-10420 02

Buckling strength of filament-wound
cylinders under axial compression is
investigated
HQ-10032 B67-10659 03

Magnetic forming of resistive materials
M-FS-20417 B69-10397 03

CYLINDRICAL TANKS

SUBJECT INDEX

Improved retort for cleaning metal powders with hydrogen LEWIS-10718	B69-10468	03	Adapter assembly prevents damage to tubing during high pressure tests MSC-563	B66-10330	02
A rotating, noncapillary heat pipe LEWIS-10298	B69-10684	05	Portable lightweight cell provides controlled environment MSC-648	B66-10370	05
CYLINDRICAL TANKS			Impact and puncture resistant material protects parts from damage MSC-747	B66-10375	05
Rotary valve controls multiple hydraulic leveling cylinders M-FS-361	B66-10402	05	Hermetically sealed cells protected from internal gas pressure GSFC-555	B66-10692	01
Study made of large amplitude fuel sloshing M-FS-12381	B67-10439	03	Design concept to decrease relative speed of ball bearings M-FS-2003	B67-10212	05
CYSTEINE			Study of stress corrosion in aluminum alloys M-FS-13906	B67-10533	03
Inhibition of browning in foodstuffs HQ-10177	B69-10493	04	Prediction of radiation damage effects in transistors GSFC-10021	B67-10606	01
CYTOLOGY			Damages in rolling element bearings may be detected early HQ-10031	B67-10658	01
Cytology is advanced by studying effects of deuterium environment ARG-205	B67-10304	04	Inflatable bladder to facilitate handling of heavy objects - A concept M-FS-14272	B69-10069	05
Effect of preparation procedures on intensity of radioautographic labeling is studied ARG-10032	B67-10500	04	Four-bar linkage for thermal compensation in test mounts for structures NPO-11059	B69-10298	05
Precision trimmer aids in preparing biomedical specimen blocks for ultrathin sectioning ARG-242	B67-10541	05	Improved method of dicing integrated circuit wafers into chips ERC-10138	B69-10441	01
Ultraviolet microscopy aids in cytological and biomedical research ARG-178	B67-10590	04	Cover protects critical electrical connectors against damage during handling MSC-15662	B69-10526	01
A microlagoon technique for the culture of mammalian cells LANGLEY-10407	B68-10554	04	An electrical connector pin protector MSC-15660	B69-10742	01
Microscopes and computers combined for analysis of chromosomes ARG-10256	B69-10088	04	D		
Substitution of stable isotopes in Chlorella ARG-10258	B69-10197	04	D LINES		
D			Self-balancing line-reversal pyrometer automatically measures gas temperatures LEWIS-348	B67-10268	01
D LINES			DAMPERS		
DAMAGE			Diaphragm spring gives clutch over-center toggle effect GSFC-499	B66-10297	05
V-slotted screw head and matching driving tool facilitate insertion and removal of screw fasteners ERC-16	B63-10023	05	Concept for design of variable stiffness damper ARC-11225	B67-10483	05
Low-cost tool minimizes damage to O-rings during installation MSC-140	B65-10116	05	DAMPING		
Improved poppet valve provides positive damageproof seal M-FS-293	B65-10346	05	Frictional wedge shock mount is inexpensive, has good damping characteristics JPL-IT-1001	B63-10289	05
Nylon bit removes cork insulation without damage to substrate MSC-381	B66-10152	05	Seismic transducer measures small horizontal displacements M-FS-81	B65-10029	05
Special tool seals conductors with combination of plastic sleeves M-FS-579	B66-10209	05	Shock absorber operates over wide range MSC-168	B65-10241	05
Tool permits damage-free removal of solar cell GSFC-467	B66-10219	05	Friction device damps linear motion of rotating shaft WOO-214	B66-10030	05
High pressure tube coupling requires no threads or flares MSC-600	B66-10285	05	Rectilinear accelerometer possesses self-calibration feature M-FS-1480	B66-10452	01
Circuit protects regulated power supply against overload current GSFC-453	B66-10292	01	Method permits mechanical and electrical checkout of piezoelectric transducers while installed in a system ARC-73	B66-10533	01
			Friction brake cushions acceleration and vibration loads MSC-715	B66-10608	05

SUBJECT INDEX

DATA PROCESSING

Wire material reduces compressor blade vibration LEWIS-357	B66-10666	03	Materials data handbook, aluminum alloy 7075 M-FS-2349	B67-10301	03
Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01	Automatic testing device facilitates noise checks and electronic calibrations LEWIS-10173	B67-10467	01
Vibration damping composition has flush-away feature M-FS-597	B67-10432	03	Silicon surface barrier detectors used for liquid hydrogen density measurement M-FS-14115	B68-10166	01
Honeycomb seal backing ring increases turbopump disk life M-FS-13303	B67-10607	05	High-speed camera synchronization M-FS-18062	B68-10282	02
Flexible ring baffles for damping liquid slosh LANGLEY-90194	B68-10064	05	Mossbauer-effect data-collection system ARG-10282	B69-10027	01
Sleeved damper limits spring surging MSC-12071	B68-10111	05	Microscopes and computers combined for analysis of chromosomes ARG-10256	B69-10088	04
Vibration testing and dynamic studies of relays M-FS-14542	B68-10268	01	DATA CONVERTERS		
Indium adhesion provides quantitative measure of surface cleanliness SAN-10024	B68-10342	01	Assembly processor program converts symbolic programming language to machine language M-FS-13262	B67-10493	06
One-dimensional Coulomb-damped wave motion in prismatic bars M-FS-14815	B68-10548	02	Computer programs for antenna feed system design and analysis NPO-10359	B67-10504	06
Improved gyro-flotation /damping/ fluids MSC-13217	B69-10360	03	Scan rate converter for tape recording and playback of TV pictures NPO-10166	B67-10676	01
Instrumentation for nondestructive testing of composite honeycomb materials M-FS-20405	B69-10366	03	Concept for simplified serial digital decoder NPO-10150	B68-10045	06
Punch-magnet delay eliminated by modification of circuit ARG-10333	B69-10416	01	Parallel-to-serial biphasic-data converter MSC-11600	B68-10241	01
Damping of thermoelastic structures M-FS-20002	B69-10467	02	The compatible conversion system M-FS-15010	B69-10031	06
Report on a cryogenic gyroscope NPO-11200	B69-10504	02	Reducing quantizer deadband with a **range switching** digital filter M-FS-20419	B69-10259	01
Radiometric temperature reference MSC-13276	B69-10507	01	DATA CORRELATION		
Shaker slip-plate adapter M-FS-14063	B69-10785	05	Multiple correlation computer program determines relationships between several independent and dependent variables M-FS-13024	B67-10327	06
DAMPING TESTS			Computer program performs aerothermodynamic flight test data correlation MSC-10075	B67-10494	06
Diaphragm spring gives clutch over-center toggle effect GSFC-499	B66-10297	05	Analysis of annular combustors LEWIS-10399	B68-10356	06
Identification and evaluation of linear damping models in beam vibrations ARG-10275	B69-10196	03	DATA LINKS		
DARKROOMS			Detection system ensures positive alarm activation in digital message loss WOO-208	B66-10287	01
Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01	Solid state phase detector replaces bulky transformer circuit MSC-11007	B67-10253	01
DATA ACQUISITION			Concept for automatic Doppler compensation in two-way communication systems GSFC-10213	B67-10643	01
Hybrid computer technique yields random signal probability distributions ARC-34	B65-10208	01	Simple demodulator for telemetry phase-shift keyed subcarriers NPO-11000	B69-10095	01
PN acquisition demodulator achieves automatic synchronization of a telemetry channel JPL-612	B66-10271	01	Design for a rapid automatic sync acquisition system NPO-10214	B69-10538	01
Direction indicator system does not require complicated optics WOO-305	B66-10407	01	DATA PROCESSING		
Indicator system provides complete data of engine cylinder pressure variation LEWIS-291	B66-10470	05	Superconductor magnets used for stagger-tuning traveling-wave maser GSFC-292	B65-10165	01

DATA PROCESSING EQUIPMENT

SUBJECT INDEX

Computer program determines performance efficiency of remote measuring systems M-FS-1137	B66-10503	01	GSFC-10568	B69-10011	02
Digital computer processing of X-ray photos JPL-792	B67-10005	04	Mossbauer-effect data-collection system ARG-10282	B69-10027	01
Recording and time expansion technique for high-speed, single-shot transient video signal ARC-10003	B67-10139	01	Structural Analysis and Matrix Interpretive System /SANIS/ NPO-10839	B69-10093	01
Multiplexing control device enables handling of wide variations in sampling rates M-FS-1871	B67-10150	01	On-line computer system for use with low-energy nuclear physics experiments is reported ARG-10257	B69-10094	01
A power-spectral-density computer program NPO-10126	B67-10160	01	VICAR-DIGITAL image processing system NPO-10770	B69-10139	06
Linear circuit analysis program for IBM 1620 Monitor 2, 1311/1443 data processing system /CIRCS/ NPO-10131	B67-10173	06	Computer grading of examinations ARG-10269	B69-10159	06
Stress calculator speedily converts strain data M-FS-2021	B67-10182	03	Combination ranging system and mapping radar NPO-11001	B69-10325	01
Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter NUC-10044	B67-10222	06	Exact minimal-state system reliability analysis M-FS-16551	B69-10409	06
A simplified PERT system M-FS-2267	B67-10241	05	Fast Fourier Transform Spectral Analysis Program M-FS-15062	B69-10434	06
Master control data handling program uses automatic data input M-FS-2259	B67-10280	06	Method reduces computer time for smoothing functions and derivatives through ninth order polynomials NUC-10334	B69-10524	06
Study of random process theory aids digital data processing M-FS-1475	B67-10309	06	Automatic computation of data-set definitions ARG-10475	B69-10608	06
Computerized parts list system coordinates engineering releases, parts control, and manufacturing planning NUC-10073	B67-10348	06	Experimental program to investigate transonic flow around protuberances M-FS-20037	B69-10609	05
Automatic telemetry checkout system M-FS-12580	B67-10402	01	Data processing method for a weak, moving telemetry signal NPO-11003	B69-10639	01
Saturn S-2 Automatic Software System /SASS/ M-FS-1741	B67-10405	06	Biomedical bulk data processing program FRC-10015	B69-10720	06
Video synchronization processor overcomes poor signal-to-noise ratio KSC-10002	B67-10515	01	DATA PROCESSING EQUIPMENT A conceptual, parallel operating data compression processor NPO-10068	B67-10204	01
DYANA - An advanced programming system for large classes of dynamic and equivalent systems M-FS-12084	B67-10524	06	Conceptual nonorthogonal gyro configuration for guidance and navigation MSC-11363	B67-10433	01
Computer program for Video Data Processing System /VDPS/ NPO-10042	B67-10630	06	Simple first order data compression processor concept NPO-10338	B67-10553	01
Review of biological mechanisms for application to instrument design HQ-33	B67-10663	04	PCM synchronization by word stuffing NPO-10688	B69-10695	01
Principles of optical-data processing techniques GSFC-10271	B68-10069	01	DATA PROCESSING TERMINALS New computer system simplifies programming of mathematical equations M-FS-441	B66-10361	01
Silicon surface barrier detectors used for liquid hydrogen density measurement M-FS-14115	B68-10166	01	DATA RECORDERS PCM magnetic tape system efficiently records and reproduces data GSFC-375	B65-10311	01
Development of Electronic Data Processing /EDP/ augmented management system M-FS-14715	B68-10287	06	Expandable takeup reel facilitates paper tape removal WOO-271	B66-10399	05
Fully automatic telemetry data processor GSFC-10576	B68-10336	01	Electronic circuitry used to automate paper chromatography JPL-840	B67-10201	01
Nondispersive X-ray emission analysis for geochemical exploration			Quartz crystals detect gas contaminants during vacuum chamber evacuation NPO-10144	B67-10205	01

SUBJECT INDEX

DATA SAMPLING

Run numbering system for use with data recorders M-FS-2557	B67-10215	01	GSFC-10568	B69-10011	02
Ultraminiature manometer-tipped cardiac catheter ABC-10054	B67-10669	01	Computer program developed for flowsheet calculations and process data reduction ARG-10134	B69-10023	06
Recharge unit provides for optimum recharging of battery cells GSFC-10688	B68-10273	01	On-line computer system for use with low-energy nuclear physics experiments is reported ARG-10257	B69-10094	01
Determination of the absolute contours of optical flats ARG-10352	B69-10209	05	Mass spectrophotograph analysis MSC-13239	B69-10134	06
DATA RECORDING			Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01
Digital cardiometer computes and displays heartbeats rate MSC-93	B64-10258	01	Improved first order interpolator MSC-11085	B69-10291	02
Fatigue cracks detected and measured without test interruption LEWIS-266	B66-10178	02	Maximum RMS error comparison of several redundancy techniques M-FS-15075	B69-10297	01
Extensometer automatically measures elongation in elastomers M-FS-517	B66-10284	05	Improved system for documenting measurement data M-FS-18269	B69-10513	01
Closed circuit TV system monitors welding operations MSC-11002	B67-10162	01	Experimental program to investigate transonic flow around protuberances M-FS-20037	B69-10609	05
Technique for strip chart recorder time notation GSFC-473	B67-10196	01	DATA RETRIEVAL		
Fast framing cameras provide high-speed multi-channel data recording ARG-10252	B69-10102	02	Gapped toroid provides infinite resolution of delay-line pickup GSFC-370	B65-10258	01
DATA REDUCTION			Data retrieval system provides unlimited hardware design information MSC-1144	B67-10170	01
Multiple port pressure scanner valve features greater accuracy, quicker data JPL-555	B64-10031	05	Scan rate converter for tape recording and playback of TV pictures NPO-10166	B67-10676	01
Polychart contour plotter enables data extrapolation from multiple plotting charts M-FS-37	B64-10406	05	JPKWIC - General key word in context and subject index report generator NPO-10589	B68-10208	06
A conceptual, parallel operating data compression processor NPO-10068	B67-10204	01	A request-oriented information selection program LEWIS-10255	B68-10451	06
Computer program samples digital data for CRT display MSC-999	B67-10249	01	Long-term data storage and retrieval system, a concept M-FS-14789	B68-10505	01
Master control data handling program uses automatic data input M-FS-2259	B67-10280	06	Operational integrator NPO-10230	B68-10547	01
Study of random process theory aids digital data processing M-FS-1475	B67-10309	06	The compatible conversion system M-FS-15010	B69-10031	06
Video synchronization processor overcomes poor signal-to-noise ratio KSC-10002	B67-10515	01	DATA SAMPLING		
SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield NUC-10142	B67-10537	06	Design reliability goal developed from small sample M-FS-403	B66-10405	05
Versatile analog pulse height computer performs real-time arithmetic operations ARG-10052	B67-10626	06	Multiplexing control device enables handling of wide variations in sampling rates M-FS-1871	B67-10150	01
New method for critical failure prediction of complex systems M-FS-14133	B68-10252	02	A conceptual, parallel operating data compression processor NPO-10068	B67-10204	01
Electronic component reliability analysis by data reduction system NPO-10243	B68-10507	05	Computer program samples digital data for CRT display MSC-999	B67-10249	01
Nondispersive X-ray emission analysis for geochemical exploration			Computer program provides linear sampled-data analysis for high order systems M-FS-12821	B67-10287	06
			Design techniques - Stochastic controllers MSC-11554	B68-10234	02

DATA SMOOTHING

SUBJECT INDEX

Maximum RMS error comparison of several redundancy techniques M-FS-15075	B69-10297	01	records M-FS-20240	B69-10301	02
A method for reducing sampling jitter in digital control systems NPO-11088	B69-10338	01	Helical recorder GSFC-10614	B69-10340	01
Special purpose computer provides programmable digital filter for sampled-data control systems M-FS-20290	B69-10454	06	Programmed schedule holds for improving launch vehicle holds M-FS-14502	B69-10602	03
DATA SMOOTHING			DATA SYSTEMS		
Solubility data are compiled for metals in liquid zinc ARG-149	B67-10191	03	Computer modification reduces time of performing iterative division M-FS-166	B65-10005	01
New technique for optimal smoothing of data MSC-11354	B68-10060	02	Nonlinear feedback reduces analog-to-digital converter error ARC-46	B65-10277	01
Computer graphics data conditioning M-FS-14695	B68-10296	06	Thermocouples electrically checked while connected to data system LANGLEY-182	B66-10623	01
Method reduces computer time for smoothing functions and derivatives through ninth order polynomials NUC-10334	B69-10524	06	Numerical data frame readout system used in testing telemetry systems GSFC-551	B67-10175	01
DATA STORAGE			DATA TRANSMISSION		
Library of documents compressed into lap-held display kit MSC-125	B65-10030	01	Transfluxor circuit amplifies sensing current for computer memories JPL-406	B63-10255	01
System monitors discrete computer inputs M-FS-1021	B66-10389	01	Tiny sensor-transmitter can withstand extreme acceleration, gives digital output ARC-22	B63-10561	01
Computer program searches characteristic data of diodes and transistors GSFC-493	B66-10529	01	Logic redundancy improves digital system reliability JPL-SC-069	B65-10025	01
Data retrieval system provides unlimited hardware design information MSC-1144	B67-10170	01	Instrument performs nondestructive chemical analysis, data can be telemetered JPL-SC-078	B65-10317	01
Improved television signal processing system NPO-10140	B67-10246	01	Detection system ensures positive alarm activation in digital message loss WOO-208	B66-10287	01
Technique for measuring magnetic tape interlayer adhesion NPO-10011	B67-10417	03	System monitors discrete computer inputs M-FS-1021	B66-10389	01
Scan rate converter for tape recording and playback of TV pictures NPO-10166	B67-10676	01	A conceptual, parallel operating data compression processor NPO-10068	B67-10204	01
Hydra 1 data display system MSC-11594	B68-10155	01	Blood pressure reprogramming adapter assists signal recording MSC-265	B67-10475	01
Improvement in recording and reading holograms ERC-10151	B68-10347	02	Unique frequency-shift-keyed demodulation system GSFC-217	B67-10668	01
A request-oriented information selection program LEWIS-10255	B68-10451	06	Accumulator for shaft encoder M-FS-13599	B68-10093	01
Long-term data storage and retrieval system, a concept M-FS-14789	B68-10505	01	Deep space FM system, a concept MSC-11825	B68-10289	01
Use of both linear and logarithmic transfer functions to increase dynamic range of visual channel GSFC-10675	B69-10037	01	Simultaneous message framing and error detection MSC-12001	B68-10330	01
Circuitry selectively limits data storage in general purpose computer GSFC-10605	B69-10121	01	Two-way digital driver/receiver uses one set of lines ERC-10055	B68-10437	01
Highly linear, sensitive analog-to-digital converter MSC-13110	B69-10230	01	Use of both linear and logarithmic transfer functions to increase dynamic range of visual channel GSFC-10675	B69-10037	01
Maximum RMS error comparison of several redundancy techniques M-FS-15075	B69-10297	01	Versatile telemonitoring system ARG-10339	B69-10655	01
Semiautomatic inspection of microfilm			DEATH		
			Investigation of temperature dependence of development and aging ARG-10145	B69-10022	04

SUBJECT INDEX

DEEP SPACE INSTRUMENTATION FACILITY

DEBRIS				MSC-12001	B68-10330	01
A piezo-bar pressure probe						
LEWIS-393	B67-10259	01		Fluidic-thermochromic display device	B68-10350	01
				ERC-10031		
DECAY				Encode/Decode facility for FORTRAN 4	B69-10169	06
Quality-weld parameters for microwelding				ARG-10335		
techniques and equipment	B69-10303	05				
M-FS-20484				DECODING		
				Literal readout of identification signals		
GAMMA RADIATION CHARACTERISTICS OF				in Morse code		
plutonium dioxide fuel	B69-10733	02		LANGLEY-10222	B69-10479	01
NPO-11220						
DECAY RATES				DECOMMUTATORS		
Precision capacitor has improved temperature				Security warning system monitors up to		
and operational stability	B67-10313	01		fifteen remote areas simultaneously	B66-10548	01
ARG-189				KSC-66-39		
				Computer program generates averaged value		
Computer program FPIP-REV calculates				data tapes		
fission product inventory for U-235				M-FS-12728	B67-10411	06
fission	B67-10450	06				
NUC-10089				DECOMPOSITION		
				Metabolic and toxicological effects of		
Propagation of density disturbances in				water-soluble xenon compounds are studied	B68-10076	04
air-water flow	B69-10043	02		ARG-90239		
ARG-10260				Decomposition vessel		
				GSFC-10343	B68-10104	03
Hydrogen flash lamps studied	B69-10411	02				
ARG-10419				Fire retardant foams developed to suppress		
				fuel fires		
DECELERATION				ARC-10098	B68-10358	03
Kinetic-energy absorber employs frictional						
force between mating cylinders	B63-10442	05		Improved process for epitaxial deposition		
LEWIS-75				of silicon on prediffused substrates	B68-10390	03
				M-FS-14910		
Novel shock absorber features varying yield				Production of metals and compounds by		
strengths	B64-10138	03		radiation chemistry	B69-10123	03
MSC-63A				LEWIS-10231		
				Preparation of high purity copper fluoride		
Calculations enable optimum design of				by fluorinating copper hydroxyfluoride	B69-10136	03
magnetic brake	B66-10073	05		LEWIS-10794		
LEWIS-251				Technical report on galvanic cells with		
				fused-salt electrolytes	B69-10155	01
Modified hydraulic braking system limits				ARG-10297		
angular deceleration to safe values	B66-10310	05				
GSFC-476				DECOMPRESSION SICKNESS		
				Portable lightweight cell provides controlled		
Hoist is automatically stopped at low				environment		
deceleration rate	B66-10545	05		MSC-648	B66-10370	05
M-FS-1639						
				DECONTAMINATION		
Electromechanical rotary actuator				Bacteriostatic conformal coating for		
operates over wide temperature range	B69-10100	05		electronic components	B67-10599	03
M-FS-18402				GSFC-10007		
				Transplutonium elements processed from		
DECIMAL TO BINARY CONVERTERS				rock debris of underground detonations	B69-10054	03
Run numbering system for use with data				ARG-10222		
recorders	B67-10215	01		Sterilization training manual	B69-10277	04
M-FS-2557				M-FS-20437		
DECISION MAKING				DECOUPLING		
System automatically provides dynamic				Quick-acting clutch disengages idle drive		
launch decision criteria	B67-10363	01		motor	B64-10028	05
M-FS-13063				GSFC-143		
				Single-sideband modulator accurately		
Probabilistic approach to long range				reproduces phase information in 2-Mc signals	B66-10437	01
planning of manpower	B67-10510	06		M-FS-664		
MSC-11524						
				DEEP SPACE		
Development of Electronic Data Processing				Deep space FM system, a concept	B68-10289	01
/EDE/ augmented management system	B68-10287	06		MSC-11825		
M-FS-14715				DSN seven day/twelve week schedule program	B68-10410	06
				NPO-10752		
DECLINATION				Gamma radiation characteristics of		
Analog solar system model relates celestial				plutonium dioxide fuel	B69-10733	02
bodies spatially	B66-10413	01		NPO-11220		
JPL-195						
				DEEP SPACE INSTRUMENTATION FACILITY		
DECODERS				Hydraulic system provides smooth control of		
Concept for simplified serial digital						
decoder	B68-10045	06				
NPO-10150						
Simplified, high-speed binary data						
decoder	B68-10058	01				
NPO-10118						
Simultaneous message framing and error						
detection						

DEEP SPACE NETWORK

SUBJECT INDEX

large tracking and antenna drive systems at very low tracking rates NPO-10316	B67-10418	05	Pulse-height defect due to electron interaction in dead layers of Ge/Li/ gamma-ray detectors ARG-10362	B69-10767	02
Computer program for machine design of Cassegrain feed systems NPO-10588	B68-10421	06	DEFINITION Integrated mobility measurement and notation system MSC-726	B67-10114	04
Combination ranging system and mapping radar NPO-11001	B69-10325	01	DEFLECTION Multiple test chamber exposes materials to various environments MSC-179	B65-10268	01
DEEP SPACE NETWORK Highly stable microwave delay line NPO-09828	B67-10642	01	Simple device produces accelerometer calibration pulse M-FS-363	B65-10269	01
DSN seven day/twelve week schedule program NPO-10752	B68-10410	06	Electron-beam deflection controlled by digital signals GSFC-385	B65-10283	02
ABTRAJ on-site tracking prediction program NPO-10836	B69-10103	06	Vibration tests on vidicons made by improved method JPL-SC-115	B66-10042	01
The effect of mismatched components on microwave noise-temperature calibrations NPO-11163	B69-10333	01	Noncontacting transducer measures shaft torque M-FS-474	B66-10048	01
Data processing method for a weak, moving telemetry signal NPO-11003	B69-10639	01	Angular acceleration measured by deflection in sensing ring MSC-250	B66-10105	01
DEFECTS Use of photographs speeds inspection of printed-circuit boards MSC-72	B64-10118	01	Colloidal suspension simulates linear dynamic pressure profile WOO-266	B66-10214	05
Portable self-powered device detects internal flaws in tubular structures NU-0019	B66-10028	01	Electron beam welding of copper-Monel facilitated by circular magnetic shields M-FS-569	B66-10215	05
Shoulder adapter steadies spot welding gun M-FS-321	B66-10076	05	Fluid damping reduces bellows seal fatigue failures M-FS-565	B66-10249	05
New backup-bar groove configuration improves helium welding of 2014-T6 aluminum MSC-806	B66-10443	05	Diaphragm spring gives clutch over-center toggle effect GSFC-499	B66-10297	05
Calibrating ultrasonic test equipment for checking thin metal strip stock NUC-10009	B67-10127	01	Bellows joint absorbs torsional deflections in duct system M-FS-882	B66-10332	04
Effect of welding position on porosity formation in aluminum alloy welds M-FS-2318	B67-10177	05	Parallel line raster eliminates ambiguities in reading timing of pulses less than 500 microseconds apart JPL-805	B66-10386	01
Liquid crystals detect voids in fiber glass laminates LEWIS-10104	B67-10286	03	Thermionic scanner pinpoints work function of emitter surfaces JPL-SC-177	B66-10444	01
Improved ultrasonic TV images achieved by use of Lamb-wave orientation technique ARG-203	B67-10295	02	Rectilinear accelerometer possesses self- calibration feature M-FS-1480	B66-10452	01
Accumulator isolator prevents malfunctioning of faulty hydraulic system M-FS-1415	B67-10528	05	Spiral spring/strain gage combination accurately measures shock induced deflection MSC-789	B66-10488	01
Plastic shoe facilitates ultrasonic inspection of thin wall metal tubing NUC-10010	B67-10542	02	Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates ARG-151	B66-10601	05
Damages in rolling element bearings may be detected early HQ-10031	B67-10658	01	Selective tube roughening increases heat transfer capability M-FS-599	B66-10610	05
Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03	Subminiature deflection circuit operates integrated sweep circuits in TV camera MSC-1263	B67-10155	01
Effects of surface preparation on quality of aluminum alloy weldments M-FS-13152	B68-10302	03	Static seal concept to accommodate seat tolerances M-FS-1854	B67-10285	05
Camera mount for close-up stereo photographs LANGLEY-10442	B69-10226	02	Computer program uses Monte Carlo		
Magnetic field mapper LEWIS-10782	B69-10476	01			

SUBJECT INDEX

DEGRADATION

techniques for statistical system
performance analysis
M-FS-2234 B67-10306 06

Improved computer program for elastic
analysis of highly redundant structural
configurations
M-FS-13087 B67-10330 06

Circuit automatically calibrates flowmeter
against liquid-level gage reference
M-FS-2194 B67-10376 01

Aerial-image enables diagrams and animation
to be inserted in motion pictures
ARG-165 B67-10398 02

Heavy-gage bonded honeycomb sandwich as
primary load-bearing structure
M-FS-12060 B67-10427 05

Series transistors isolate amplifier
from flyback voltage
MSC-11023 B67-10468 01

Electron beam deflected to determine focal
point location
M-FS-14107 B67-10649 01

Telescope mount with azimuth-only primary
NPO-10468 B67-10671 02

High efficiency, high frequency magnetic
deflection driver
MSC-11597 B68-10116 01

Deflection circuit monitors force on object
under water
NUC-10147 B68-10147 01

Shock-absorbing caster wheel is simple and
compact
SAN-10019 B68-10266 05

Conceptual hermetically sealed elbow
actuator
M-FS-14710 B68-10300 05

Electron beam selectively seals porous metal
filters
LEWIS-10162 B68-10331 05

General series solution technique for
bending of irregular laterally loaded
flat plates
NUC-10170 B69-10035 06

Instrumentation for nondestructive testing
of composite honeycomb materials
M-FS-20405 B69-10366 03

Monopole mass spectrometer with improved
sensitivity and reduced background
HQ-10476 B69-10666 01

DEFLECTORS

Grit blasting nozzle fabricated from mild
tool steel proves satisfactory
M-FS-1420 B66-10597 05

Electron beam standby absorber system
M-FS-14108 B67-10650 01

Improved electro-optical tracking system
M-FS-14791 B68-10311 01

Two-fluid, impinging-sheet injector
NPO-10547 B68-10338 05

DEFORMATION

Plastic plus stainless-steel fibers make
resilient, impermeable material
WOO-246 B65-10374 03

Polymer deformation gage measures thickness
change in tensile tests
JPL-745 B66-10147 01

Low power heating element provides thermal

control during swaging operations
M-FS-457 B66-10206 05

Dry film lubricant is effective at extreme
loads
M-FS-628 B66-10256 03

Differential expansion provides pressure for
diffusion bonding of large diameter rings
M-FS-588 B66-10269 05

Strain gage network distinguishes between
thermal and mechanical deformations
GSFC-478 B66-10280 01

High pressure tube coupling requires no
threads or flares
MSC-600 B66-10285 05

Porous mandrels provide uniform
deformation in hydrostatic powder
metallurgy
M-FS-1972 B67-10209 03

Computer program performs rectangular
fitting stress analysis
M-FS-13010 B67-10520 06

Study made of mechanics of deformation and
fracture of fibrous composites
HQ-10035 B67-10660 03

Shell design computer program
LEWIS-10734 B69-10175 06

Optimum structural design based on
reliability and proof-load testing
NPO-11228 B69-10723 31

DEFORMETERS

Polymer deformation gage measures thickness
change in tensile tests
JPL-745 B66-10147 01

DEGASSING

Encapsulation process sterilizes and preserves
surgical instruments
JPL-484 B64-10066 05

Baking enables McLeod gauge to measure in
ultrahigh vacuum range
GSFC-440 B65-10329 01

Solvent permits solid curing agents to be
used at room temperatures
M-FS-13434 B67-10593 03

Elimination of dissolved gases in
hypergolic engine propellants
M-FS-16179 B69-10692 03

DEGENERATION

Conceptual techniques for reducing
parasitic current gain of lateral pnp
transistors
MSC-13199 B69-10244 01

DEGRADATION

Analog device simulates physiological
waveforms
MSC-51 B64-10109 01

Dot patterns provide reproducible flaw areas
for study of adhesive bonds
M-FS-862 B66-10367 05

Nonwoven glass fiber mat reinforces
polyurethane adhesive
M-FS-2309 B67-10113 03

Machining heavy plastic sections
M-FS-12720 B67-10381 03

Study made to establish parameters and
limitations of explosive welding
M-FS-13006 B67-10393 05

Vibration damping composition has
flush-away feature

DEGREES OF FREEDOM

SUBJECT INDEX

M-FS-597	B67-10432	03	DELAY LINES		
Conceptual nonorthogonal gyro configuration for guidance and navigation			Gapped toroid provides infinite resolution of delay-line pickup		
MSC-11363	B67-10433	01	GSFC-370	B65-10258	01
Development of reliability prediction technique for semiconductor diodes			Highly stable microwave delay line		
GSFC-10231	B67-10651	06	NPO-09828	B67-10642	01
Heat treatment procedure to increase ductility of degraded nickel alloy			DELAY LINES (COMPUTER STORAGE)		
M-FS-12410	B68-10029	03	System monitors discrete computer inputs		
New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability			M-FS-1021	B66-10389	01
LEWIS-10576	B69-10118	03	Simplified, reliable circuit sorts binary numbers in order of magnitude		
A positive taper traveling-wave tube			NPO-10112	B69-10503	01
LANGLEY-10263	B69-10407	01	DELTA MODULATION		
Pulse-height defect due to electron interaction in dead layers of Ge/Li/gamma-ray detectors			Improved digital TV encoding and decoding system		
ARG-10362	B69-10767	02	MSC-11147	B67-10562	01
DEGREES OF FREEDOM			DEMAGNETIZATION		
Visual attitude orientation and alignment system			Apparatus alters position of objects to facilitate demagnetization		
MSC-647	B67-10120	02	GSFC-234	B64-10277	05
Study of dynamic response of elastic space stations			DEMODULATION		
NPO-10124	B67-10169	06	Improved head-controlled TV system produces high-quality remote image		
DYANA - An advanced programming system for large classes of dynamic and equivalent systems			ARG-128	B67-10317	01
M-FS-12084	B67-10524	06	Automatic telemetry checkout system		
Computer program determines vibration in three-dimensional space of hydraulic lines excited by forced displacements			M-FS-12580	B67-10402	01
M-FS-12226	B68-10159	06	Infrared radiometer		
Shock and vibration response of multistage structure			M-FS-13373	B67-10422	01
M-FS-14972	B68-10353	05	Facsimile video enhancement device		
DEHYDRATION			GSFC-10185	B68-10207	01
Purification train produces ultrapure hydrogen gas			Improved relay optical element for spectroradiometer using cryogenically cooled detector		
M-FS-1913	B67-10078	03	MSC-11688	B68-10245	02
Tritiated alumina serves as reagent for self-labeling analysis			Communication system features dual mode range acquisition plus time delay measurement		
ARG-209	B67-10315	03	M-FS-14323	B68-10306	01
Zone purification of potassium chloride			Concept for a multifunctional oscilloscope probe		
ARG-10377	B69-10241	03	M-FS-16390	B69-10129	01
DEIONIZATION			DEMODULATORS		
Scribable coating for plastic films			Point-source light sensor circuit is insensitive to background light		
MSC-11194	B67-10409	03	JPL-778	B66-10502	01
Fuel cell life improved by metallic sinter activation after electrode assembly			Improved design provides faster response time in photomultiplier		
MSC-10965	B67-10436	03	GSFC-451	B66-10526	01
DELAMINATING			Polarimeter provides transient response in nanosecond range		
Drill bit design assures clean holes in laminated materials			JPL-890	B67-10021	02
WOO-098	B65-10386	05	Amplifier provides dual outputs from a single source with complete isolation		
DELAY			NUC-10056	B67-10221	01
Polarizing keys prevent mismatch of connector plugs and receptacles			Electronic skewing circuit monitors exact position of object underwater		
MSC-443	B66-10251	01	NUC-10146	B67-10629	01
Novel multipurpose timer for laboratories			Unique frequency-shift-keyed demodulation system		
ARG-10147	B69-10410	01	GSFC-217	B67-10668	01
DELAY CIRCUITS			Concept for simplified serial digital decoder		
Simple circuit functions as frequency discriminator for PFM signals			NPO-10150	B68-10045	06
GSFC-267	B65-10102	01	Deep space FM system, a concept		
			MSC-11825	B68-10289	01
			Simple demodulator for telemetry phase-shift keyed subcarriers		
			NPO-11000	B69-10095	01

SUBJECT INDEX

DEPOSITION

Torsion system for creep testing with multiple stress reversals HQ-10039	B69-10147	03	DENSITY MEASUREMENT Microwave technique measures plasma characteristics LANGLEY-134	B65-10122	02
Wide-band doubler and sine wave quadrature generator NPO-11133	B69-10383	01	Density trace made with computer printout GSFC-322	B65-10200	01
DENSITOMETERS Modified contour projector makes excellent contour densitometer LANGLEY-93	B65-10084	02	Coaxial capacitor used to determine fluid density LEWIS-232	B65-10296	02
Density trace made with computer printout GSFC-322	B65-10200	01	Vibrating diaphragm measures high electrostatic field strengths MSC-189	B65-10352	01
Instrument accurately measures extremely low air densities M-FS-193	B65-10221	01	Three-dimensional wire-mesh capacitor system measures fluid density WOO-194	B65-10379	01
Densitometer system for liquid hydrogen has high accuracy, fast response M-FS-909	B66-10438	01	Instrument continuously measures density of flowing fluids LEWIS-309	B67-10080	01
Instrument continuously measures density of flowing fluids LEWIS-309	B67-10080	01	Radiation counting technique allows density measurement of metals in high-pressure/high-temperature environment ARG-124	B67-10316	02
Liquid hydrogen densitometer utilizes open-ended microwave cavity LEWIS-390	B67-10115	01	Instrumentation for bone density measurement MSC-11388	B68-10140	01
Coded photographic proof paper could serve as convenient densitometer M-FS-13374	B67-10443	02	Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06
Surface temperature mapping with infrared photographic pyrometry LEWIS-10763	B69-10113	01	A mass flux probe for measurement in a supersonic stream LEWIS-10695	B68-10533	02
Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456	B69-10192	03	DENTISTRY Use of medical and dental X-ray equipment for nondestructive testing MSC-13389	B69-10553	01
Semiautomatic inspection of microfilm records M-FS-20240	B69-10301	02	DEOXYGENATION Purification train produces ultrapure hydrogen gas M-FS-1913	B67-10078	03
DENSITY (MASS/VOLUME) Novel shock absorber features varying yield strengths MSC-63A	B64-10138	03	DEOXYRIBONUCLEIC ACID Cytology is advanced by studying effects of deuterium environment ARG-205	B67-10304	04
Viscosity and density of methanol/water mixtures at low temperatures M-FS-14991	B68-10274	03	Study of radiation effects on mammalian cells in vitro ARG-10191	B68-10294	02
Fire retardant foams developed to suppress fuel fires ARC-10098	B68-10358	03	DEPENDENT VARIABLES Multiple correlation computer program determines relationships between several independent and dependent variables M-FS-13024	B67-10327	06
Fiber glass reinforced structural materials for aerospace application M-FS-14806	B68-10360	03	Computer optimization program finds values for several independent variables that minimize a dependent variable M-FS-13030	B67-10328	06
Propagation of density disturbances in air-water flow ARG-10260	B69-10043	02	General frequency response program calculates frequency response of system, open at any specified element M-FS-12817	B67-10521	06
Improved gyro-flotation /damping/ fluids MSC-13217	B69-10360	03	DEPLETION Ohmmeter senses depletion of lubricant in journal bearings LEWIS-37	B64-10042	01
Flow properties of suspensions rich in solids ARG-10481	B69-10622	02	DEPOSITION Integral coolant channels supply made by melt-out method M-FS-91	B63-10497	05
DENSITY (NUMBER/VOLUME) Automatic tuning of hydrogen masers GSFC-10127	B69-10452	01	Valve effectively controls amount of contaminant in flow stream M-FS-1771	B66-10683	05
DENSITY DISTRIBUTION On the bound of first excursion probability NPO-11158	B69-10334	06			
Wall-thickness changes predicted in hollow-drawn tubing ARG-10425	B69-10428	02			

DEPOSITS

SUBJECT INDEX

Complex surfaces plated by thin-film deposition in one operation LEWIS-292	B67-10006	05	M-FS-1420	B66-10597	05
Ion plating technique improves thin film deposition SAN-10006	B68-10212	03	DESCRIPTIONS		
Improved process for epitaxial deposition of silicon on prediffused substrates M-FS-14910	B68-10390	03	Integrated mobility measurement and notation system MSC-726	B67-10114	04
A new method for the determination of particulate contamination levels for surface cleanliness of fluid systems KSC-10267	B69-10520	02	DESERTS		
Modification to improve self-isolating transistor arrays M-FS-20499	B69-10678	01	Sampling and handling of desert soils NPO-11171	B69-10304	04
Deposition monitor and control NPO-10706	B69-10722	01	Desert soil collection at the JPL soil science laboratory NPO-11206	B69-10571	04
DEPOSITS			DESIGN		
Reference black body is compact, convenient to use ARC-3	B63-10004	03	Splice plate design assures structural separation by mild explosive MSC-137	B65-10166	05
Monitor senses amount of contamination deposited on surfaces GSFC-10212	B68-10089	01	Chart system simplifies identification of complex design assemblies MSC-752	B66-10460	05
Detection of effect of deposits on optical windows of pyrometer measurements LEWIS-10366	B68-10367	01	DESTRUCTION		
DEPTH			Hydrodynamics of a new concept of primary containment by energy absorption ARG-10242	B69-10046	05
Adjustable knife cuts honeycomb material to specified depth MSC-475	B66-10237	05	DESTRUCTIVE TESTS		
Mill profiler machines soft materials accurately M-FS-692	B66-10254	05	Force controlled solenoid drives microweld tester W00-125	B65-10182	01
Instrument transmits vanishing point to illustration point MSC-267A	B66-10324	01	Study made of destructive sectioning of complex structures for examination LEWIS-341	B66-10676	05
Study made to control depth of potting compound for honeycomb sandwich fasteners LEWIS-370	B66-10677	05	Composite weld rod corrects individual filler weaknesses M-FS-1923	B67-10107	05
Study made of large amplitude fuel sloshing M-FS-12381	B67-10439	03	High-temperature bearing-cage materials LEWIS-10403	B68-10176	05
Development of lunar drill to take core samples to 100-foot depths M-FS-13015	B67-10529	05	Exploding bridgwire detonator simulator M-FS-02191	B69-10782	01
Microwave interferometer controls cutting depth of plastics M-FS-14673	B69-10012	01	DETECTION		
DEPTH MEASUREMENT			Use of photographs speeds inspection of printed-circuit boards MSC-72	B64-10118	01
Sleeve and cutter simplify disconnecting welded joint in tubing JPL-384	B63-10240	05	Transistor voltage comparator performs own sensing GSFC-228	B65-10028	01
Depth indicator and stop aid machining to precise tolerances M-FS-553	B66-10149	05	Weld leaks rapidly and safely detected M-FS-362	B65-10265	01
Modified algesimeter provides accurate depth measurements MSC-616	B66-10647	04	Porous glass makes effective substrate for ozone-sensing reagent GSFC-388	B65-10364	03
Hand-held instrument should relieve hematoma pressure MSC-599	B67-10332	04	Portable self-powered device detects internal flaws in tubular structures NU-0019	B66-10028	01
Eddy current probe measures size of cracks in nonmetallic materials M-FS-14059	B67-10645	03	Microorganisms detected by enzyme-catalyzed reaction JPL-782	B66-10117	04
DESCALING			Linear signal noise summer accurately determines and controls S/N ratio JPL-SC-152	B66-10433	01
Grit blasting nozzle fabricated from mild tool steel proves satisfactory			Security warning system monitors up to fifteen remote areas simultaneously KSC-66-39	B66-10548	01
			Positive displacement cylinder measures corrosive liquid volume MSC-1038	B66-10589	05
			Welding torch and wire feed manipulator M-FS-13102	B67-10385	05
			Concept for cryogenic liquid reclamation system		

SUBJECT INDEX

DEUTERIUM

NPO-10322	B67-10420	02	M-FS-11980	B67-10336	01
Temperature-sensed cryogenic bleed maintains liquid state in transfer line			Vibration analysis utilizing Mossbauer effect		
M-FS-12681	B67-10424	01	M-FS-11974	B67-10339	01
Surface-crack detection by microwave methods			Analog voicing detector responds to pitch		
ARC-10009	B67-10482	01	GSFC-10085	B67-10571	01
Damages in rolling element bearings may be detected early			Method of maintaining activity of hydrogen-sensing platinum electrode		
HQ-10031	B67-10658	01	M-FS-1422	B68-10049	03
Detection and location of metallic objects imbedded in nonmetallic structures			Synthesis of electro-optic modulators for amplitude modulation of light		
M-FS-14790	B68-10183	01	M-FS-14268	B68-10275	02
Detection of effect of deposits on optical windows of pyrometer measurements			Optimetric system facilitates colorimetric and fluorometric measurements		
LEWIS-10366	B68-10367	01	NPO-10233	B68-10316	01
Automatic system nondestructively monitors and records fatigue crack growth			Automatic patient respiration failure detection system with wireless transmission		
LANGLEY-10091	B68-10379	01	ARC-10174	B68-10365	01
Training manuals for nondestructive testing using magnetic particles			Diffusion of trace gases for leak detection - A study		
M-FS-20187	B68-10391	03	M-FS-20254	B69-10067	03
Diffusion of trace gases for leak detection - A study			Rocket sonde measurements of ozone in the upper atmosphere		
M-FS-20254	B69-10067	03	GSFC-10580	B69-10077	02
Proposed technique for vertical alignment of a crane's cable			Simple demodulator for telemetry phase-shift keyed subcarriers		
M-FS-16496	B69-10202	05	NPO-11000	B69-10095	01
Pressure transducer			Automatic star-horizon angle measurement system		
NPO-10853	B69-10364	01	MSC-11585	B69-10597	01
Life detection			DETERGENTS		
NPO-10510	B69-10475	04	Scribble coating for plastic films		
Burst diaphragm leak detector			MSC-11194	B67-10409	03
M-FS-14500	B69-10543	03	Technique for ultrasonic cleaning with volatile solvents eliminates need for hoods or condensers		
Quantitative determination of flavin nucleotide using the bacterial bioluminescent reaction			MSC-15611	B69-10552	03
GSFC-10565	B69-10715	04	DETERIORATION		
DETECTORS			Refractory oxides evaluated for high-temperature use		
Ultra-sensitive transducer advances micro-measurement range			LANGLEY-121	B65-10167	03
ARC-26	B64-10004	01	DETERMINANTS		
Analog device simulates physiological waveforms			Linear systems of equations solved using mathematical algorithms		
MSC-51	B64-10109	01	ARG-10146	B68-10292	06
Circuit detects errors in address currents for magnetic core arrays			DETONATION		
M-FS-234	B65-10047	01	Study made to establish parameters and limitations of explosive welding		
Interferometer construction assures parallelism of critical components			M-FS-13006	B67-10393	05
JPL-704	B65-10292	02	Continuous detonation reaction engine		
Device detects unbonded areas in plastic laminates			M-FS-14019	B68-10034	03
WOO-206	B65-10380	01	DETONATION WAVES		
Mounting facilitates removal and installation of flame-detector rods			Development of detonation reaction engine		
M-FS-555	B66-10150	05	M-FS-14020	B67-10652	01
Circuit prevents overcharging of secondary cell batteries			DETONATORS		
GSFC-454	B66-10492	01	Exploding bridgwire detonator simulator		
Gas leak detector is simple and inexpensive			M-FS-02191	B69-10782	01
M-FS-1206	B66-10669	01	DEUTERIUM		
An improved soft X-ray photoionization detector			Cytology is advanced by studying effects of deuterium environment		
GSFC-540	B67-10072	02	ARG-205	B67-10304	04
Device enables calibration of microphones at high sound pressure levels			The preparation, identification and properties of chlorophyll derivatives		
			ARG-10205	B68-10409	03
			Qualitative and quantitative analysis of mixtures of compounds containing both hydrogen and deuterium		
			ARG-10312	B69-10177	04

DEUTERIUM COMPOUNDS

SUBJECT INDEX

Hydrogen flash lamps studied ARG-10419	B69-10411	02	Three-axis attitude and direction reference instrument has only one moving part M-FS-1819	B66-10644	01
DEUTERIUM COMPOUNDS					
Purification and characterization of two fully deuterated enzymes ARG-10314	B69-10207	04	Ultrasonic wrench produces leaktight connections M-FS-12561	B67-10353	05
DEUTERONS			DIALYSIS		
Status of ultrachemical analysis for semiconductors M-FS-2254	B67-10138	03	Large volume continuous counterflow dialyzer has high efficiency HQ-10055	B67-10395	04
DEVELOPMENT			DIAMINES		
Investigation of temperature dependence of development and aging ARG-10145	B69-10022	04	Organic reactants rapidly produce plastic foam LANGLEY-37	B65-10288	03
DEVIATION			Silazane polymers show promise for high- temperature application M-FS-466	B66-10194	03
Device measures reaction engine thrust vector deviations JPL-SC-163	B66-10642	05	Adhesives for laminating polyimide insulated flat conductor cable M-FS-12066	B67-10429	03
FM carrier deviation measured by differential probability method M-FS-2166	B67-10213	01	New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118	03
Performance of turbine-type flowmeters in liquid hydrogen LEWIS-10137	B67-10506	01	DIAMONDS		
FORTAN optical lens design program NPO-10603	B68-10354	06	Lathe converted for grinding aspheric surfaces GSFC-115	B63-10556	05
Substitution of stable isotopes in Chlorella ARG-10258	B69-10197	04	Device spot-laps spheres to very close tolerances JPL-SC-119	B66-10175	05
Proposed technique for vertical alignment of a crane's cable M-FS-16496	B69-10202	05	Manual of industrial diamonds plus dressing and grinding criteria for machining superalloys M-FS-14582	B68-10239	05
DIAGNOSIS			One hundred angstrom niobium wire LEWIS-10128	B68-10279	03
Electrocardiograph transmitted by RF and telephone links in emergency situations PRC-10031	B68-10233	01	Preparing rock powder specimens of controlled size distribution NPO-10007	B68-10297	05
DIAGRAMS			DIAPHRAGMS		
Veitch diagram plotter simplifies Boolean functions JPL-385	B63-10241	05	Pneumatic shutoff and time-delay valve operates at controlled rate M-FS-602	B66-10189	05
Automated drafting system uses computer techniques M-FS-788	B66-10362	01	Diaphragm spring gives clutch over-center toggle effect GSFC-499	B66-10297	05
Vis-A-Plan /visualize a plan/ management technique provides performance-time scale KSC-10073	B67-10240	06	Flexible arms provide constant force for pressure switch calibration HQ-38	B66-10317	05
Aerial-image enables diagrams and animation to be inserted in motion pictures ARG-165	B67-10398	02	Acceleration-compensated pressure transducer has fast response LANGLEY-113	B66-10353	01
Magnetic field mapper LEWIS-10782	B69-10476	01	Diaphragm valve for corrosive and high temperature fluid flow control has unique features LEWIS-304	B66-10365	05
Design and sparring techniques to meet specified performance life HQ-10200	B69-10528	02	Pneumatic wrench retains or discharges nuts or bolts as desired NU-0085	B66-10707	05
Long range holographic contour mapping concept HQ-10350	B69-10700	02	High-energy-rate magnetohydraulic metal forming system M-FS-2142	B67-10126	02
DIALYL COMPOUNDS			Iron serves as diffusion barrier in thermally regenerative galvanic cell ARG-29	B67-10189	03
Modular packaging technique for combining integrated circuits and discrete components GSFC-10369	B69-10453	01	Temperature responsive valve withstands high impact loading NPO-10186	B67-10225	05
DIALS			High impact pressure regulator withstands		
Device facilitates centering of workpieces in lathe chuck M-FS-685	B66-10277	05			
Legibility of electroluminescent instrument panels investigated MSC-494	B66-10316	02			

SUBJECT INDEX

DICHHROISM

impacts of over 15,000 g NPO-10175	B67-10274	01	Control system maintains compartment at constant temperature JPL-SC-145	B66-10188	05
Ultraminiature manometer-tipped cardiac catheter ARC-10054	B67-10669	01	Miniature capacitive accelerometer is especially applicable to telemetry ABC-72	B66-10491	01
Cryogenic seal concept for static and dynamic conditions M-FS-12986	B67-10673	05	Ultrasonic water column probe speeds up testing of welds HQ-58	B66-10577	01
Dual rate pressure relief valve MSC-11606	B68-10237	05	Gas leak detector is simple and inexpensive M-FS-1206	B66-10669	01
DIAPHRAGMS (MECHANICS) High-pressure regulating system prevents pressure surges JPL-231	B63-10170	05	Miniature capacitor functions as pressure sensor JPL-903	B67-10020	01
Level of super-cold liquids automatically maintained by levelometer JPL-397	B63-10250	01	High speed blowdown system provides rapid pressure loss LEWIS-375	B67-10043	05
Improved variable-reluctance transducer measures transient pressures LANGLEY-10	B63-10321	01	Resilient bearing supports are gas controlled LEWIS-10109	B67-10364	05
Welded pressure transducer made as small as 1/8th-inch in diameter ARC-11	B63-10429	03	Rugged switch responds to minute pressure differentials M-FS-12704	B67-10389	01
Fluid-pressure meter can be calibrated without removal from flow line M-FS-98	B63-10502	05	Vanadium diaphragm electrode serves as hydrogen diffuser in lithium hydride cell ARG-10048	B67-10499	01
Sensitive low-pressure relief valve has positive seating against leakage WOO-041	B64-10278	05	Solenoid hammer valve developed for quick-opening requirements LEWIS-10134	B67-10639	05
Screening technique makes reliable bond at room temperature M-FS-227	B65-10004	03	Miniature pressure transducer for stressed member application MSC-11869	B68-10246	01
Metal diaphragm used to calibrate miniature transducers M-FS-207	B65-10059	01	Silicon strain sensors enable pressure measurement at cryogenic temperatures M-FS-14703	B68-10262	01
Improved fluid control valve extends diaphragm life JPL-345	B65-10147	05	Semitoroidal-diaphragm cavitating valve designed for bipropellant flow control XNP-09704	B69-10016	05
Diaphragm eliminates leakage in cryogenic fluid duct coupling WOO-142	B65-10227	05	Electronic visualization of gas bearing behavior LEWIS-10711	B69-10073	01
Burst diaphragm protects vacuum vessel from internal pressure transients JPL-687	B65-10236	05	Calibratable solid-state pressure switch M-FS-20474	B69-10437	05
One-shot valve may be remotely actuated WOO-195	B65-10266	05	Burst diaphragm leak detector M-FS-14500	B69-10543	03
Electrostatically driven dynamic capacitor employs capacitive feedback JPL-771	B65-10293	01	DIATOMIC MOLECULES A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voigt line profile ARC-10221	B69-10232	06
Titanium diaphragm makes excellent amplatron cathode support GSFC-394	B65-10298	01	DIBORANE Single-element coaxial injector for rocket fuel NPO-11095	B69-10547	05
Vibrating diaphragm measures high electrostatic field strengths MSC-189	B65-10352	01	DIBUTYL COMPOUNDS Organic reactants rapidly produce plastic foam LANGLEY-37	B65-10288	03
Regenerative fuel cell combines high efficiency with low cost WOO-090	B65-10363	01	DICHHROISM Unique construction makes interferometer insensitive to mechanical stresses JPL-725	B65-10295	02
Die and telescoping punch form convolutions in thin diaphragm JPL-SC-135	B65-10393	05	Optical automatic gain channel M-FS-1550	B66-10596	02
Centrifugal device separates liquid from gas MSC-282	B65-10394	05	Color-televised medical microscopy MSC-13086	B68-10314	01
Electrically heated diaphragm eliminates use of pyrotechnics MSC-241	B65-10400	01			

DIELECTRIC PERMEABILITY

SUBJECT INDEX

Resonant microwave dichroic surface GSFC-10658	B69-10274	01	Polymer film exhibits thermal and radiation stability LANGLEY-100	B66-10043	03
DIELECTRIC PERMEABILITY					
Capacitive system detects and locates fluid leaks M-FS-478	B66-10099	01	Electrolytic etching process provides effective bonding surface on stainless steel GSFC-484	B66-10299	03
DIELECTRIC PROPERTIES					
Oscillator circuit measures liquid level in tanks M-FS-245	B65-10209	01	Dielectrometer design permits measurement in vacuum under irradiation M-FS-359	B66-10401	01
Coaxial capacitor used to determine fluid density LEWIS-232	B65-10296	02	Gage tests tube flares quickly and accurately KSC-66-19	B66-10537	05
Three-dimensional wire-mesh capacitor system measures fluid density WOO-194	B65-10379	01	Trisphere spark gap actuates overvoltage relay ARC-68	B66-10557	01
Ferroelectric bolometer measures RF absolute power at submillimeter wavelengths GSFC-422	B66-10051	01	Detector measures power in 50 to 30,000 GHz radiation band ERC-26	B66-10581	01
Dielectrometer design permits measurement in vacuum under irradiation M-FS-359	B66-10401	01	Improved memory word line configuration allows high storage density GSFC-559	B66-10617	01
Concept for using laser beams to measure electron density in plasmas M-FS-965	B66-10645	01	Traveling wire electrode increases productivity of Electrical Discharge Machining /EDM/ equipment ARG-136	B67-10238	05
Liquid hydrogen densitometer utilizes open-ended microwave cavity LEWIS-390	B67-10115	01	Precision capacitor has improved temperature and operational stability ARG-189	B67-10313	01
Study made of dielectric properties of promising materials for cryogenic capacitors M-FS-13620	B67-10366	03	Movable RF probe eliminates need for calibration in plasma accelerators LEWIS-10127	B67-10362	01
Glass coated single grid for charged particle acceleration LEWIS-10106	B68-10215	03	Standard surface grinder for precision machining of thin-wall tubing ARG-10014	B67-10400	05
Cryogenic liquid level measuring probe ARG-10138	B68-10291	01	Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01
Thermal conductivity and dielectric constant of silicate materials M-FS-14856	B68-10351	03	Technique eliminates high voltage arcing at electrode-insulator contact area LEWIS-10133	B67-10470	01
Low-loss C-band parasitic probe KSC-09348	B69-10251	01	Thin film thermal detector JPL-943	B67-10505	01
Method for determining properties of microinstabilities of a magnetized plasma HQ-10447	B69-10462	02	Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01
Development of improved potting and conformal coating compounds M-FS-20219	B69-10559	03	Broadband choke suppresses spurious currents in antenna structure MSC-10013	B67-10675	01
Optical frequency waveguide and ion transmission system HQ-10541	B69-10746	01	Improved process for making thin-film sodium niobate capacitors MSC-11231	B68-10163	01
DIELECTRICS					
Improved sensor counts micrometeoroid penetrations LEWIS-76	B63-10443	01	Moebius resistor is noninductive and nonreactive SAN-10020	B68-10267	01
High-pass RF coaxial filter rejects dc and low frequency signals GSFC-73	B64-10173	01	Nondestructive method for measuring residual stresses in metals, a concept KSC-10237	B68-10378	03
Microparticle impact sensor measures energy directly GSFC-252	B65-10048	01	High dielectric thick films for screened circuit capacitors LANGLEY-10294	B68-10542	01
Spherical electrode eliminates high-voltage breakdown LEWIS-155	B65-10139	01	Device for diode tuning in a stripline varactor harmonic multiplier M-FS-20153	B69-10013	01
Improved wire memory matrix uses very little power JPL-SC-167	B65-10359	01	Radiation tolerant silicon nitride insulated gate field effect transistors GSFC-10581	B69-10253	01
			Resonant microwave dichroic surface		

SUBJECT INDEX

DIFFERENTIAL AMPLIFIERS

GSFC-10658	B69-10274	01	Controlled release device prevents damage from dynamic stresses	KSC-66-14	B66-10628	05			
Dielectric materials for use in thin-film capacitors	M-FS-20471	B69-10387	02	Orbital tube flaring system produces tubing connectors with zero leakage	M-FS-2016	B67-10019	05		
Leads integral with the internal interconnection that penetrate the molded wall of a package	LANGLEY-10228	B69-10436	01	Development of technology for hot-drape forming of large torus sections	M-FS-12141	B67-10341	05		
A sterilizable high-impact antenna	NPO-10231	B69-10697	01	Precision metal molding	M-FS-13305	B67-10423	05		
DIES			Method of making conical fiber optical components				XNP-09745	B69-10020	02
Break-up of metal tube makes one-time shock absorber, bars rebound	LANGLEY-1A	B63-10304	05	Imprinting of confining sites for cell cultures on thermoplastic substrates	LANGLEY-10495	B69-10236	04		
Guide for extrusion dies eliminates straightening operation	LEWIS-152	B64-10014	05	Wall-thickness changes predicted in hollow-drawn tubing	ARG-10425	B69-10428	02		
Metal-bending brake facilitates lightweight, close-tolerance fabrication	ARC-29	B64-10069	05	DIETHYL ETHER					
Upsetting butt edge increases weld-joint strength	M-FS-175	B64-10164	05	Mixed ether bath for electrodeposition of aluminum	LANGLEY-10200	B69-10737	03		
Pressure molding of powdered materials improved by rubber mold insert	WOO-100	B64-10270	03	DIETS					
Screw locking cups quickly and neatly crimped	NU-0009	B65-10049	05	Food products for space applications	MSC-11697	B68-10324	04		
Fabrication method produces high-grade alumina crucibles	M-FS-216	B65-10078	05	Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna	ARG-10345	B69-10258	02		
Integral ribs formed in metal panels by cold-press extrusion	M-FS-230	B65-10141	05	DIFFERENCE EQUATIONS					
Lathe attachment used to machine elliptical cones	MSC-100	B65-10168	05	Computer simulation program is adaptable to industrial processes	LEWIS-240	B66-10426	01		
Metal parts hydrosized by explosive force	M-FS-289	B65-10170	05	Digital filter synthesis computer program	ARC-10130	B68-10164	06		
Hand tool bends component leads accurately	M-FS-308	B65-10181	05	Computer program TRACK performs transient and/or steady state thermal analysis with coupled fluid flow and heat conduction	NUC-10189	B68-10450	06		
Fiber glass dies speed forming of large metal sheets	M-FS-214	B65-10210	05	Variable-mesh method of solving differential equations	NPO-10515	B69-10017	02		
Die and telescoping punch form convolutions in thin diaphragm	JPL-SC-135	B65-10393	05	Numerical inversion of finite Toeplitz matrices and vector Toeplitz matrices	ARG-10445	B69-10415	02		
Forming tool improves quality of tubing flares	WOO-231	B66-10001	05	DIFFERENCES					
Heated die facilitates tungsten forming	LEWIS-25A	B66-10047	05	Leakage tester for flat conductor cable connector	M-FS-20427	B69-10284	05		
Hand tool permits shrink sizing of assembled tubing	MSC-504	B66-10239	05	DIFFERENTIAL AMPLIFIERS					
Pressure-welded flange assembly provides leaktight seal at reduced bolt loads	M-FS-640	B66-10247	05	New low-level a-c amplifier provides adjustable noise cancellation and automatic temperature compensation	ARC-2	B63-10003	04		
Strippable grid facilitates removal of grid-surfaced conical workpiece from die	M-FS-716	B66-10334	01	Simulator produces physiological waveforms	MSC-94	B65-10091	01		
Tool forms right angles in component leads	M-FS-722	B66-10346	05	Variable-capacitance tachometer eliminates troublesome magnetic fields	GSFC-435	B66-10126	01		
Hydraulic fluid serves as mandrel for small diameter refractory tube drawing	ARG-44	B66-10523	05	FET comparator detects analog signal levels without loading analog device	M-FS-503	B66-10224	01		
				Feedback loop compensates for rectifier nonlinearity	M-FS-384	B66-10382	01		
				Direction indicator system does not require					

DIFFERENTIAL CALCULUS

SUBJECT INDEX

complicated optics WOO-305	B66-10407	01	Self-starting procedure simplifies numerical integration ARC-50	B67-10013	01
Solid-state switch increases switching speed WOO-298	B66-10430	01	Linear circuit analysis program for IBM 1620 Monitor 2, 1311/1443 data processing system /CIRCS/ NPO-10131	B67-10173	06
Solid state circuit switches ac load JPL-798	B66-10465	01	Computer program simulates physical systems by solving the simultaneous differential equations describing the systems NPO-10019	B67-10193	06
Electronic circuit delivers pulse of high interval stability MSC-673	B66-10501	01	Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries M-FS-1910	B67-10329	06
Collector/collector guard ring balancing circuit eliminates edge effects JPL-SC-143	B66-10563	01	General frequency response program calculates frequency response of system, open at any specified element M-FS-12817	B67-10521	06
Control circuit ensures solar cell operation at maximum power GSFC-432	B67-10061	01	DYANA - An advanced programming system for large classes of dynamic and equivalent systems M-FS-12084	B67-10524	06
TV synchronization system features stability and noise immunity JPL-915	B67-10118	01	Tool reconstructs data input points corresponding to first order output graph M-FS-18003	B68-10154	02
Edge-type connectors evaluated by electrical noise measurement M-FS-2243	B67-10125	01	Computer program determines system stability /DIGSTA/ LEWIS-10395	B68-10216	06
Subminiature deflection circuit operates integrated sweep circuits in TV camera MSC-1263	B67-10155	01	HICOV - Newton-Raphson calculus of variation with automatic transversalities M-FS-14468	B68-10232	06
Hybrid solid state switch replaces motor- driven power switch JPL-931	B67-10165	01	Solution of differential equations by application of transformation groups M-FS-14802	B68-10276	02
FM carrier deviation measured by differential probability method M-FS-2166	B67-10213	01	Controllability of distributed-parameter systems M-FS-14929	B68-10346	02
Field effect transistors improve buffer amplifier M-FS-916	B67-10334	01	CIRCUS--A digital computer program for transient analysis of electronic circuits M-FS-15002	B68-10416	06
Amplifier improvement circuit LEWIS-10712	B68-10456	01	Solving nonlinear heat transfer constant area fin problems M-FS-14851	B68-10504	02
Bootstrap unloader INP-09768	B69-10120	01	Accurate digital technique simulates flight control system M-FS-14787	B68-10569	02
Low-cost voltage-level detector LEWIS-10885	B69-10217	01	Improved technique for digital simulation of bending and slosh phenomena M-FS-14788	B68-10570	02
Automatic Gaussian random-noise limiter NPO-10169	B69-10349	01	Variable-mesh method of solving differential equations NPO-10515	B69-10017	02
Automatic calorimetry system monitors RF power NPO-11033	B69-10384	01	Numerical integration of ordinary differential equations of various orders ARG-10247	B69-10089	02
Constant-frequency, variable-duty-cycle multivibrator XGS-10033	B69-10512	01	Some numerical methods for integrating systems of first-order ordinary differential equations ARG-10308	B69-10204	02
DIFFERENTIAL CALCULUS			Computer simulation of high-frequency combustion instability and its suppression HQ-10391	B69-10368	06
Method reduces computer time for smoothing functions and derivatives through ninth order polynomials NUC-10334	B69-10524	06	Control jet placement on spacecraft MSC-13365	B69-10671	01
DIFFERENTIAL EQUATIONS			Engineering thermal analyzer /BETA 2/ M-FS-15055	B69-10760	06
New computer program solves wide variety of heat flow problems M-FS-421	B66-10404	01	Numerical solutions of differential equations		
Study compares methods for the numerical solution of ordinary differential equations M-FS-830	B66-10466	01			
Study made of application of stereoscopic display system to analog computer simulation M-FS-1263	B66-10590	01			
Problem of oscillating cone in supersonic flow is solved by small perturbation techniques M-FS-869	B66-10700	02			

SUBJECT INDEX

DIFFUSION

M-FS-20537	B69-10779	02	ARG-10130	B69-10083	05
DIFFERENTIAL INTERFEROMETRY			Leakage measuring method		
Laser interferometer micrometer system			M-FS-14722	B69-10438	01
M-FS-14747	B69-10633	02	Integral valve provides automatic relief		
DIFFERENTIAL PRESSURE			and remote venting	M-FS-12134	B69-10545 05
Elastic orifice automatically regulates gas			DIFFERENTIAL THERMAL ANALYSIS		
bearings			Heat exchanger tubes supported in high		
JPL-135	B63-10123	05	vibration environment	M-FS-1401	B66-10567 05
Welded pressure transducer made as small as			Vapor deposition process provides new		
1/8th-inch in diameter			method for fabricating high temperature		
ARC-11	B63-10429	03	thermocouples	NUC-10152	B67-10616 01
Differential pressure gauge has fast response			DIFFERENTIATORS		
M-FS-358	B65-10285	05	Simple circuit functions as frequency		
Ring valve responds to differential pressure			discriminator for PFM signals	GSFC-267	B65-10102 01
changes			Gimbal angle sensor		
WOO-247	B66-10022	05	GSFC-10305	B68-10315	01
Transmission system isolates pressure			DIFFRACTION		
transducer from severe environment			Optical device enables small detector to see		
WOO-239	B66-10064	01	large field of view	WOO-253	B66-10263 02
Microorganisms detected by enzyme-catalyzed			One hundred angstrom niobium wire	LEWIS-10128	B68-10279 03
reaction			Ge-diode detector combined with		
JPL-782	B66-10117	04	crystal-diffraction spectrometer permits		
Liquid trap seals thermocouple leads			high-resolution gamma ray spectroscopy	ARG-10190	B69-10005 02
M-FS-688	B66-10212	05	Preferred-orientation analysis of		
Ultrasonic cleaning restores depth-type			polycrystalline materials	NPO-10604	B69-10336 02
filters			Proposed acousto-optic filter	HQ-10440	B69-10466 02
M-FS-540	B66-10298	03	Improved camera for better X-ray powder		
Concept for passive system to control gas flow			photographs	HQ-10424	B69-10537 01
independently of temperature			Fine-line sensitivity for holographic		
M-FS-982	B66-10343	05	interferograms	HQ-10348	B69-10663 02
Plant respirometer enables high resolution			DIFFRACTION PATTERNS		
of oxygen consumption rates			Fresnel diffraction plates are simple		
HQ-47	B66-10406	04	and inexpensive	M-FS-12731	B67-10297 02
Fluid logic control circuit operates nutator			DIFFRACTOMETERS		
actuator motor			Motion drive system is accurately controlled		
LEWIS-294	B66-10593	05	in the 1-micron range	JPL-864	B66-10695 05
Valve effectively controls amount of			Neutron diffractometer allows both magnetic		
contaminant in flow stream			and crystallographic analyses	ARG-191	B67-10131 02
M-FS-1771	B66-10683	05	Improved optical diffractometer	MSC-12055	B68-10071 02
Silver plating technique seals leaks in			DIFFUSERS		
thin wall tubing joints			Venturi meter with separable diffuser		
NU-0090	B66-10703	05	LEWIS-10483	B68-10295	05
Miniature capacitor functions as pressure			Analysis of annular combustors	LEWIS-10399	B68-10356 06
sensor			DIFFUSION		
JPL-903	B67-10020	01	Variable light source with a million-to-one		
Two techniques enable sampling of filtered			intensity ratio	JPL-WOO-008	B63-10424 03
and unfiltered molten metals			New method used to fabricate gallium arsenide		
ARG-150	B67-10034	03	photovoltaic device	WOO-062	B64-10019 01
High speed blowdown system provides rapid			Fabrication method produces high-grade		
pressure loss					
LEWIS-375	B67-10043	05			
Hydraulic system provides smooth control of					
large tracking and antenna drive systems					
at very low tracking rates					
NFO-10316	B67-10418	05			
Design for high-temperature /1800 deg F/					
liquid metal pressure transducer					
LEWIS-10144	B67-10458	01			
Automatic transducer switching provides					
accurate wide range measurement of pressure					
differential					
NUC-10001	B67-10540	01			
Quasi-static vapor pressure measurements					
on reactive systems in inert atmosphere box					
ARG-90142	B68-10236	01			
Direct indication of particle size in					
fluidized beds					

DIFFUSION COEFFICIENT

SUBJECT INDEX

alumina crucibles M-PS-216	B65-10078	05	ARG-29	B67-10189	03
Vapor grown silicon dioxide improves transistor base-collector junctions GSFC-389	B66-10091	01	Vanadium diaphragm electrode serves as hydrogen diffuser in lithium hydride cell ARG-10048	B67-10499	01
Diffusion technique stabilizes resistor values MSC-205	B66-10142	01	DIFFUSION PUMPS Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen LEWIS-15	B63-10340	05
Aluminum doping improves silicon solar cells LEWIS-206	B66-10181	02	DIFFUSION WELDING Thoriated nickel bonded by solid-state diffusion method LANGLEY-116	B65-10220	03
Apparatus presents visual display of semiconductor surface characteristics JPL-665	B66-10200	01	Thermoelectric elements diffusion-bonded to tungsten electrodes GSFC-346	B65-10309	01
Simplified method introduces drift fields into cells GSFC-572	B67-10102	03	Brazing method produces solid-solution bond between refractory metals LEWIS-212	B65-10370	05
Static electricity of polymers reduced by treatment with iodine NPO-10062	B67-10132	03	Brazing process using Al-Si filler alloy reliably bonds aluminum parts MSC-448	B66-10241	05
Process controls introduction of selected impurities into semiconductor wafers GSFC-523	B67-10303	01	Diffusion bonding makes strong seal at flanged connector M-PS-637	B66-10250	05
Test and inspection for process control of monolithic circuits M-PS-13084	B67-10507	01	Aluminum/steel wire composite plates exhibit high tensile strength M-PS-401	B66-10262	05
Improved fuel-cell-type hydrogen sensor M-PS-14656	B68-10263	01	Differential expansion provides pressure for diffusion bonding of large diameter rings M-PS-588	B66-10269	05
Dynamics of moving bubbles in single and binary component systems M-PS-14845	B68-10339	02	Preformed stiffeners used to fabricate structural components for pressurized tanks M-PS-1796	B66-10688	05
High-emittance coatings on metal substrates LEWIS-10325	B68-10381	03	Silver plating ensures reliable diffusion bonding of dissimilar metals M-PS-1975	B67-10124	03
Diffusion of trace gases for leak detection - A study M-PS-20254	B69-10067	03	Laminated sheet composites reinforced with modular filament sheet M-PS-14575	B68-10146	03
Mass transport mechanism in porous fuel cell electrodes HQ-10343	B69-10135	01	Roll diffusion bonding of titanium alloy panels M-PS-14743	B68-10161	05
PORTMAN 4 program calculates velocities and streamlines in a tandem blade turbomachine LEWIS-10743	B69-10219	06	Fluidic-thermochromic display device ERC-10031	B68-10350	01
Improved method of fabricating planar gallium arsenide diodes XNP-04235	B69-10271	01	Diffusion bond method of joining steel and a TFE-bronze composite M-PS-20482	B69-10237	03
Modification to improve self-isolating transistor arrays M-PS-20499	B69-10678	01	Boron fiber-reinforced aluminum alloy tubing /experimental/ MSC-15633	B69-10509	05
Lateral PNP bipolar transistor with aiding field diffusions MSC-13072	B69-10741	01	DIFLUORO COMPOUNDS Synthesis of various highly halogenated monomers and polymers M-PS-2143	B67-10100	03
DIFFUSION COEFFICIENT Propagation of density disturbances in air-water flow ARG-10260	B69-10043	02	DIGITAL COMMAND SYSTEMS Digitally controlled pulse-level discriminator operates over wide voltage range GSFC-324	B66-10129	01
Metallic diffusion measured by a modified Knudsen technique HQ-10145	B69-10309	03	DIGITAL COMPUTERS Frequency-shift-keyer circuit improves PCM conversion for radio transmission GSFC-80	B63-10511	01
DIFFUSION ELECTRODES Segmented electrode increases operating pressure of MHD accelerator LANGLEY-95	B65-10356	02	Computer circuit will fit on single silicon chip JPL-513	B63-10514	01
Vapor diffusion electrode improves fuel cell operation LEWIS-187	B66-10281	03	Logic redundancy improves digital system reliability		
Iron serves as diffusion barrier in thermally regenerative galvanic cell					

SUBJECT INDEX

DIGITAL DATA

JPL-SC-069	B65-10025	01	ARG-10282	B69-10027	01
Feedback oscillator functions as low-level pulse stretcher			Microscopes and computers combined for analysis of chromosomes		
GSFC-261	B65-10069	01	ARG-10256	B69-10088	04
Computer programs simplify optical system analysis			Structural Analysis and Matrix Interpretive System /SAMIS/		
GSFC-306	B65-10093	01	NPO-10839	B69-10093	01
Instrument calibrates low gas-rate flowmeters			Circuitry selectively limits data storage in general purpose computer		
MSC-134	B65-10137	01	GSFC-10605	B69-10121	01
Auxiliary circuit enables automatic monitoring of EKG's			Mass spectograph analysis		
MSC-106	B65-10142	01	MSC-13239	B69-10134	06
Hybrid computer technique yields random signal probability distributions			An integrated circuit switch		
ARC-34	B65-10208	01	NPO-11073	B69-10326	01
Computer program determines chemical composition of physical system at equilibrium			Determination of quadric equation coefficients describing three-dimensional surfaces, their constraint and skewed planes, and view point areas		
MSC-1119	B66-10670	01	M-FS-15043	B69-10435	06
Digital computer processing of X-ray photos			Special purpose computer provides programmable digital filter for sampled-data control systems		
JPL-792	B67-10005	04	M-FS-20290	B69-10454	06
Improved fluid control circuit operates on low power input			Programmed schedule holds for improving launch vehicle holds		
LEWIS-325	B67-10042	01	M-FS-14502	B69-10602	03
Study indicates fluid digital computation systems are feasible			Adding calcium improves lithium ferrite core		
M-FS-520	B67-10181	01	ERC-10036	B69-10686	06
Study of random process theory aids digital data processing					
M-FS-1475	B67-10309	06			
General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions					
M-FS-13094	B67-10331	06			
Computer subroutine ISUDS accurately solves large system of simultaneous linear algebraic equations					
NUC-10051	B67-10344	06			
Saturn S-2 Automatic Software System /SASS/					
M-FS-1741	B67-10405	06			
Heavy-gage bonded honeycomb sandwich as primary load-bearing structure					
M-FS-12060	B67-10427	05			
Automatic design of optical systems by digital computer					
NPO-10265	B67-10632	06			
Low cost SCR lamp driver indicates contents of digital computer registers					
GSFC-10221	B67-10656	01			
Instrumentation for bone density measurement					
MSC-11388	B68-10140	01			
ELAS - A general purpose computer program for the equilibrium problems of linear structures					
NPO-10598	B68-10187	06			
Linear systems of equations solved using mathematical algorithms					
ARG-10146	B68-10292	06			
Study of optimum discrete estimators in measurement analysis					
M-FS-14915	B68-10348	02			
Improved technique for digital simulation of bending and slosh phenomena					
M-FS-14788	B68-10570	02			
Mossbauer-effect data-collection system					

DIGITAL FILTERS

SUBJECT INDEX

effect transistors M-FS-13096	B67-10396	01	recovery GSFC-132	B63-10603	01
Oscillator circuit operates as digitally controlled frequency synthesizer GSFC-570	B67-10447	01	Blocking oscillator uses low triggering voltage MSC-58	B64-10017	01
Teleprinter uses thermal printing technique MSC-11327	B67-10572	01	Novel circuit combines pulse stretcher with NOR gate GSFC-187	B64-10150	01
Computer program for Video Data Processing System /VDPS/ NPO-10042	B67-10630	06	Logic redundancy improves digital system reliability JPL-SC-069	B65-10025	01
Digital data averager improves conventional measurement system performance MSC-12078	B68-10018	01	Digital system accurately controls velocity of electromechanical drive GSFC-287	B65-10096	01
Analysis of flutter in tape transport systems M-FS-11970	B68-10027	01	Transistorized circuit clamps voltage with 0.1 percent error GSFC-196	B65-10118	01
Concept for simplified serial digital decoder NPO-10150	B68-10045	06	Digital-output cardiometer measures rapid changes in heartbeat rate MSC-133	B65-10143	01
Method of reducing time base error in digital magnetic recorders GSFC-10108	B68-10317	01	Circuit maintains digital decision threshold at preset level M-FS-331	B65-10281	01
Short circuit protection for a power distribution system M-FS-14993	B68-10443	01	Multiphase clock-pulse generator uses simplified circuitry M-FS-297	B65-10353	01
VICAR-DIGITAL image processing system NPO-10770	B69-10139	06	System proportions fluid-flow in response to demand signals GSFC-457	B66-10094	01
Two devices for analysis of nystagmus HQ-10273	B69-10224	01	Low-power ring counter drives high-level loads GSFC-431	B66-10106	01
Remote balance weighs accurately amid high radiation ARG-10387	B69-10242	05	New television camera eliminates vidicon tube M-FS-472	B66-10112	01
DIGITAL FILTERS Reducing quantizer deadband with a **range switching** digital filter M-FS-20419	B69-10259	01	Highly sensitive solids mass spectrometer uses inert-gas ion source ERC-11	B66-10114	02
DIGITAL INTEGRATORS Digital logic elements provide additional functions from analog input MSC-64	B64-10064	01	Binary fluid amplifier solves stability and load problems ERC-15	B66-10177	01
Logic circuit exhibits optimum performance LANGLEY-129	B65-10193	01	Electronic phase-locked-loop speed control system is stable JPL-SC-084	B66-10232	01
Study indicates fluid digital computation systems are feasible M-FS-520	B67-10181	01	PN acquisition demodulator achieves automatic synchronization of a telemetry channel JPL-612	B66-10271	01
Operational integrator NPO-10230	B68-10547	01	Pneumatic binary encoder replaces multiple solenoid system M-FS-665	B66-10374	01
Special purpose computer provides programmable digital filter for sampled-data control systems M-FS-20290	B69-10454	06	Digital system provides superregulation of nanosecond amplifier-discriminator circuit ARG-61	B66-10500	01
DIGITAL SIMULATION Computer program simulates physical systems by solving the simultaneous differential equations describing the systems NPO-10019	B67-10193	06	Digital system detects binary code patterns containing errors GSFC-541	B66-10516	01
Accurate digital technique simulates flight control system M-FS-14787	B68-10569	02	Positive displacement cylinder measures corrosive liquid volume MSC-1038	B66-10589	05
Improved technique for digital simulation of bending and slosh phenomena M-FS-14788	B68-10570	02	Computer program detects transient malfunctions in switching circuits MSC-604	B67-10002	01
DIGITAL SPACECRAFT TELEVISION Improved television signal processing system NPO-10140	B67-10246	01	Electronic frequency discriminator M-FS-2434	B67-10151	01
DIGITAL SYSTEMS Monostable circuit with tunnel diode has fast			Structural Analysis and Matrix Interpretive System /SAMIS/ NPO-10130	B67-10171	01

SUBJECT INDEX

DIGITAL TO ANALOG CONVERTERS

Numerical data frame readout system used in testing telemetry systems GSFC-551	B67-10175	01	technique provides performance-time scale KSC-10073	B67-10240	06
Computer program uses Monte Carlo techniques for statistical system performance analysis M-FS-2234	B67-10306	06	Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry NPO-10149	B67-10245	04
Thin film thermal detector JPL-943	B67-10505	01	Digital voltage-controlled oscillator GSFC-512	B67-10449	01
Digital filter suppresses effects of nonstatistical noise bursts on multichannel scaler digital averaging systems ARG-90143	B68-10193	06	Automatic testing device facilitates noise checks and electronic calibrations LEWIS-10173	B67-10467	01
Recharge unit provides for optimum recharging of battery cells GSFC-10688	B68-10273	01	Digital servo readout system increases recording accuracy of servo-balance scales NUC-10125	B67-10496	01
Method of reducing time base error in digital magnetic recorders GSFC-10108	B68-10317	01	Damages in rolling element bearings may be detected early HQ-10031	B67-10658	01
High-speed pulse camera MSC-11353	B68-10329	02	Digital filter synthesis computer program ARC-10130	B68-10164	06
Two-way digital driver/receiver uses one set of lines ERC-10055	B68-10437	01	Acquisition of pseudonoise signals by sequential estimation M-FS-13898	B68-10258	01
A method for reducing sampling jitter in digital control systems NPO-11088	B69-10338	01	Closed circuit TV system automatically guides welding arc M-FS-20084	B68-10357	01
Phase-locked-loop phase modulator with high modulation index, low distortion MSC-12247	B69-10487	01	Computer program for parameter optimization ARC-10168	B68-10453	06
Pulse-code-modulation baseline correction for low signal-to-noise ratios MSC-13268	B69-10750	01	Operational integrator NPO-10230	B68-10547	01
DIGITAL TECHNIQUES			Accurate digital technique simulates flight control system M-FS-14787	B68-10569	02
Small digital recording head has parallel bit channels, minimizes cross talk JPL-0029	B63-10284	01	Improved technique for digital simulation of bending and slosh phenomena M-FS-14788	B68-10570	02
Binary system generates sidereal rate from standard solar rate GSFC-190	B64-10200	01	Digital computer technique for setup and checkout of an analog computer M-FS-13969	B68-10576	06
Digital cardiometer computes and displays heartbeat rate MSC-93	B64-10258	01	Ring laser angle encoder MSC-13099	B69-10115	01
Oscillator circuit measures liquid level in tanks M-FS-245	B65-10209	01	DIGITAL TO ANALOG CONVERTERS		
Simple pulse counting circuit computes sum of squares GSFC-391	B65-10260	01	Digital logic elements provide additional functions from analog input MSC-64	B64-10064	01
Electron-beam deflection controlled by digital signals GSFC-385	B65-10283	02	Pressure transducer system is force-balanced, has digital output M-FS-154	B65-10174	05
Detection system ensures positive alarm activation in digital message loss WOO-208	B66-10287	01	Variable word length encoder reduces TV bandwidth requirements LANGLEY-87	B65-10345	01
Shaft encoder presents digital output JPL-SC-191	B66-10436	01	Video signal processing system uses gated current mode switches to perform high speed multiplication and digital-to-analog conversion MSC-781	B66-10429	01
Digital system provides superregulation of nanosecond amplifier-discriminator circuit ARG-61	B66-10500	01	Shaft encoder presents digital output JPL-SC-191	B66-10436	01
Digital frequency counter permits readout without disturbing counting process JPL-906	B66-10658	01	Numerical data frame readout system used in testing telemetry systems GSFC-551	B67-10175	01
Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter NUC-10044	B67-10222	06	Study indicates fluid digital computation systems are feasible M-FS-520	B67-10181	01
Vis-A-Plan /visualize a plan/ management			Quartz crystals detect gas contaminants during vacuum chamber evacuation NPO-10144	B67-10205	01

DIGITAL TRANSDUCERS

SUBJECT INDEX

Digital-to-analog converter operates from low level inputs JPL-907	B67-10357	01	DIMENSIONAL STABILITY		
Improved digital TV encoding and decoding system MSC-11147	B67-10562	01	Collapsible truss structure is automatically expandable GSFC-265	B65-10126	05
Closed circuit TV system automatically guides welding arc M-FS-20084	B68-10357	01	Study of high temperature bearing materials LEWIS-10829	B69-10252	03
Simplified system displays complex curves corresponding to input data HQ-10073	B69-10247	01	DIMENSIONS		
Reducing quantizer deadband with a **range switching** digital filter M-FS-20419	B69-10259	01	Helical tape forming device GSFC-10830	B69-10137	05
Automatic tuning of hydrogen masers GSFC-10127	B69-10452	01	DIMPLING		
Laser interferometer micrometer system M-FS-14747	B69-10633	02	Tube dimpling tool assures accurate dip-brazed joints MSC-533	B68-10036	05
DIGITAL TRANSDUCERS			Ultra-high-flux heat exchanger M-FS-18135	B69-10201	02
Frequency correction device uses digital circuitry GSFC-268	B65-10307	01	DIODES		
DIHEDRAL ANGLE			Increased performance reliability obtained with dual /redundant/ oscillator system GSFC-36	B63-10027	01
Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds LANGLEY-10191	B67-10666	06	Double-throw microwave device switches two lines quickly JPL-410	B63-10258	01
DIISOCYANATES			Circuit switches latching relay in response to signals of different polarity WOO-055	B63-10508	01
Organic reactants rapidly produce plastic foam LANGLEY-37	B65-10288	03	Simple circuit provides adjustable voltage with linear temperature variation JPL-WOO-029	B63-10537	01
Process produces chlorinated aromatic isocyanate in high yield M-FS-1658	B66-10646	03	Transistorized trigger circuit is frequency-controllable GSFC-111	B63-10553	01
Synthesis of polyethers of hexafluorobenzene and hexafluoropentanediol M-FS-14962	B69-10636	03	Circuit controls transients in SCR inverters GSFC-120	B63-10600	01
DILUTION			Monostable circuit with tunnel diode has fast recovery GSFC-132	B63-10603	01
Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination ARG-262	B67-10421	03	Efficient circuit triggers high-current, high-voltage pulses MSC-14	B64-10024	01
Diffusion of trace gases for leak detection - A study M-FS-20254	B69-10067	03	Ring counter may be advanced or retarded by command signal GSFC-101	B64-10144	01
DIMENSIONAL ANALYSIS			Novel circuit combines pulse stretcher with NOR gate GSFC-187	B64-10150	01
Rectangular-bore, high-gain laser plasma tube HQ-10234	B69-10193	02	Mounting for diodes provides efficient heat sink M-FS-197	B64-10283	01
DIMENSIONAL MEASUREMENT			Voltage generator sweeps oscillator frequency linearly with time M-FS-219	B64-10320	01
Polymer deformation gage measures thickness change in tensile tests JPL-745	B66-10147	01	Modification increases light output of injection-luminescent diodes M-FS-192	B65-10006	01
Pressure probe compensates for dimensional tolerance variations LEWIS-302	B66-10599	01	Thermocompression bonding produces efficient surface-barrier diode JPL-SC-066	B65-10007	05
System enables dimensional inspection of very large structures M-FS-2477	B67-10214	05	Circuit improvement produces monostable multivibrator with load-carrying capability GSFC-34A	B65-10011	01
Areas of irregular, discontinuous patterns rapidly and accurately measured GSFC-10184	B67-10674	01	Optical arrangement increases useful light output of semiconductor diodes JPL-SC-064	B65-10020	05
Surface irregularities detected by flare inspection instrument M-FS-20157	B69-10152	01	Pulse height analyzer operates at high repetition rates, low power WOO-046	B65-10041	01
Laser interferometer micrometer system M-FS-14747	B69-10633	02	Pulse generator permits nondestructive		

SUBJECT INDEX

DIODES CONT

testing of component breakdown voltage MSC-122	B65-10054	01	M-FS-1258	B66-10505	01
FM oscillator uses tetrode transistor JPL-82	B65-10055	01	Pulse stretcher has improved dynamic range and linearity ARG-82	B66-10509	01
Feedback oscillator functions as low-level pulse stretcher GSFC-261	B65-10069	01	Computer program searches characteristic data of diodes and transistors GSFC-493	B66-10529	01
Logarithmic amplifier uses field effect transistors JPL-509	B65-10145	01	Preregulator feedback circuit utilizes Light Actuated Switch M-FS-1180	B66-10542	01
Solid-state switching used to speed up capacitive integrator LANGLEY-104	B65-10159	01	Collector/collector guard ring balancing circuit eliminates edge effects JPL-SC-143	B66-10563	01
Solid-state laser transmitter is amplitude modulated MSC-121	B65-10238	01	Heater control circuit provides both fast and proportional control M-FS-906	B67-10097	01
Added diodes increase output of balanced mixer circuit GSFC-354	B65-10276	01	Laboratory pulse modulator uses minority carrier storage diodes M-FS-2442	B67-10226	01
Selenium bond decreases ON resistance of light-activated switch JPL-SC-101	B65-10324	01	Fused diode provides visual indication of fuse condition KSC-67-16	B67-10230	01
Dual-voltage power supply has increased efficiency LEWIS-107A	B66-10002	01	Experimental coherent fractional frequency multiplier at S-band M-FS-2427	B67-10250	01
Improved chopper circuit uses parallel transistors M-FS-468	B66-10113	01	Circuit provides overcurrent protection to push-pull amplifier MSC-12033	B67-10300	01
Semiconductor forms biomedical radiation probe MSC-320	B66-10252	04	Transistor biased amplifier minimizes diode discriminator threshold attenuation ARG-163	B67-10311	01
Simple circuit provides reliable multiple signal average and reject capability NU-0069	B66-10282	01	SiC/Si diode trigger circuit provides automatic range switching for log amplifier M-FS-1879	B67-10314	01
Substituting transistor for diode improves rectifying means GSFC-474	B66-10295	01	Limit circuit prevents overdriving of operational amplifier NUC-10082	B67-10343	01
Function generator eliminates necessity of series summation GSFC-214	B66-10351	01	Digital-to-analog converter operates from low level inputs JPL-907	B67-10357	01
Electrically controlled optical latch and switch requires less current JPL-SC-111	B66-10414	01	High power dc/dc and dc/ac electrical power conversion techniques developed M-FS-13227	B67-10390	01
Electronic bidirectional valve circuit prevents crossover distortion and threshold effect MSC-193	B66-10420	01	Computer memory access technique NPO-10201	B67-10585	01
Solid-state switch increases switching speed WOC-298	B66-10430	01	Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01
Linear signal noise summer accurately determines and controls S/N ratio JPL-SC-152	B66-10433	01	System measures response time of photomultiplier tubes LEWIS-10437	B68-10382	01
Semiconductors can be tested without removing them from circuitry M-FS-1163	B66-10447	01	Pressure-sensitive bonded junction transducers ERC-10087	B68-10563	01
Basic suppression techniques are evaluated M-FS-867	B66-10449	01	Silicon carbide diode for increased light output M-FS-20063	B69-10096	01
Bipolar current driver for memory circuits GSFC-213	B66-10469	01	Full wave dc-to-dc converter using energy storage transformers LEWIS-10375	B69-10140	01
Solid state circuit controls direction, speed, and braking of dc motor JPL-757	B66-10486	01	Improved liquid-level sensor for cryogenics ARG-10162	B69-10210	02
Circuit prevents overcharging of secondary cell batteries GSFC-454	B66-10492	01	Magnetically coupled emission regulator GSFC-10056	B69-10213	01
Solid state annunciator facilitates complex system troubleshooting			Improved method of fabricating planar gallium arsenide diodes		

DIOXIDES

SUBJECT INDEX

XNP-04235	B69-10271	01	GSFC-183	B65-10119	01
Sweep frequency detector			Rotor position sensor switches currents in		
NPO-10669	B69-10289	01	brushless dc motors		
An integrated circuit switch			GSFC-315	B65-10151	01
NPO-11073	B69-10326	01	System measures unidirectional forces,		
Automatic Gaussian random-noise limiter			excludes extraneous forces		
NPO-10169	B69-10349	01	LEWIS-170	B65-10154	05
High-temperature, gas-filled ceramic			Dc to ac converter operates efficiently at		
rectifiers, thyratrons, and			low input voltages		
voltage-reference tubes			GSFC-130	B65-10178	01
LEWIS-90271	B69-10376	01	Device measures fluid drag on test vehicles		
Punch-magnet delay eliminated by			LANGLEY-34	B65-10195	01
modification of circuit			Brushless dc motor uses electron beam		
ARG-10333	B69-10416	01	switching tube as commutator		
Constant-frequency, variable-duty-cycle			GSFC-345	B65-10237	01
multivibrator			Inductor flyback characteristic gives voltage		
XGS-10033	B69-10512	01	regulator fast response		
Miniature backward-diode pressure sensor			GSFC-361	B65-10257	01
features stability and low power consumption			Ceramic materials purified by experimental		
ERC-10229	B69-10690	01	method		
			LEWIS-225	B65-10270	03
DIOXIDES			Differential pressure gauge has fast response		
IR-transmission glasses formed from oxides of			M-FS-358	B65-10285	05
bismuth and tellurium			Electrostatically driven dynamic capacitor		
M-FS-279	B65-10190	03	employs capacitive feedback		
Study of mechanical properties of uranium			JPL-771	B65-10293	01
compounds			Electropneumatic rheostat regulates high		
ARG-10074	B68-10197	03	current		
Gamma radiation characteristics of			ARC-44	B65-10299	01
plutonium dioxide fuel			Zener diode controls switching of large		
NPO-11220	B69-10733	02	direct currents		
DIPHENYL COMPOUNDS			MSC-188	B65-10350	01
Flexible protective coatings made from			Noncontacting vibration transducer has		
silicon-nitrogen materials			constant sensitivity		
M-FS-528	B66-10027	03	LANGLEY-99	B65-10392	01
DIPLEXERS			Dual-voltage power supply has increased		
Interference effects eliminated in random			efficiency		
oriented space station antenna system			LEWIS-107A	B66-10002	01
MSC-11004	B67-10435	01	Rod and dish cathode improves penning-type		
DIPOLE ANTENNAS			vacuum gage		
Test instrumentation evaluates electrostatic			GSFC-447	B66-10082	01
hazards in fluid system			Tester periodically registers dc amplifier		
M-FS-2277	B67-10145	01	characteristics		
Survey of man-made electrical noise			MSC-190	B66-10148	01
affecting radio broadcasting			Circuit protects regulated power supply		
HQ-10290	B69-10308	01	against overload current		
Improved VHF direction finding system			GSFC-453	B66-10292	01
M-FS-20439	B69-10378	01	Circuit provides accurate four-quadrant		
Rotary antenna attenuator			multiplication		
NPO-10648	B69-10502	01	WOO-272	B66-10331	02
DIRECT CURRENT			Phase inverter provides variable reference		
Igniting system for mercury lamps			push-pull output		
protects transistorized sustaining supply			HQ-23	B66-10344	01
JPL-421	B63-10262	01	Brushless dc motor has high efficiency, long		
Digital logic elements provide additional			life		
functions from analog input			GSFC-181	B66-10355	01
MSC-64	B64-10064	01	Efficient dc to dc converter eliminates		
Improved technique for localizing			large stray magnetic fields		
electropolishing features novel nozzles			GSFC-463	B66-10376	01
WOO-101	B64-10271	01	Nonhazardous acid etches weld samples		
Pulsed plasma accelerator operates			M-FS-975	B66-10378	05
repetitively without complex controls			Electronic bidirectional valve circuit		
LANGLEY-48	B65-10062	01	prevents crossover distortion and threshold		
Variable load automatically tests dc power			effect		
supplies			MSC-193	B66-10420	01
GSFC-291	B65-10105	01	Remote preamplifier circuit maintains		
Variable frequency transistor inverters use					
multiple core transformers					

SUBJECT INDEX

DIRECT CURRENT

stability over wide temperature range W00-278	B66-10432	01	Solid state phase detector replaces bulky transformer circuit MSC-11007	B67-10253	01
Shaft encoder presents digital output JPL-SC-191	B66-10436	01	Fast-response frequency-to-analog converter M-FS-709	B67-10257	01
Standard arc welders provide high amperage direct current source LANGLEY-267	B66-10441	01	System precisely controls oscillation of vibrating mass M-FS-1875	B67-10276	01
Thermionic scanner pinpoints work function of emitter surfaces JPL-SC-177	B66-10444	01	Vibrator elapsed time is automatically controlled M-FS-2573	B67-10284	01
Instrument automatically selects peak acceleration signal from several accelerometers JPL-816	B66-10462	01	Transistor biased amplifier minimizes diode discriminator threshold attenuation ARG-163	B67-10311	01
Solid state circuit switches ac load JPL-798	B66-10465	01	Portable spectrometer monitors inert gas shield in welding process M-FS-12144	B67-10326	02
Solid state circuit controls direction, speed, and braking of dc motor JPL-757	B66-10486	01	Signal generator converts direct current to multiphase supplies MSC-11043	B67-10368	01
Spiral spring/strain gage combination accurately measures shock induced deflection MSC-789	B66-10488	01	Multiple meter monitoring circuits served by single alarm MSC-10984	B67-10369	01
Solid state annunciator facilitates complex system troubleshooting M-FS-1258	B66-10505	01	High power dc/dc and dc/ac electrical power conversion techniques developed M-FS-13227	B67-10390	01
Experimental investigation of megawatt dc arc heating of nitrogen LEWIS-313	B66-10508	02	Standard surface grinder for precision machining of thin-wall tubing ARG-10014	B67-10400	05
Opposed arcs permit deep weld penetration with only one pass M-FS-1696	B66-10513	05	Control apparatus for spectral energy source LEWIS-391	B67-10404	01
Method permits mechanical and electrical checkout of piezoelectric transducers while installed in a system ARC-73	B66-10533	01	Solid state single-ended switching dc-to-dc converter M-FS-13598	B67-10558	01
Preregulator feedback circuit utilizes light actuated switch M-FS-1180	B66-10542	01	Linear analog dc voltage-to-pulse-width converter GSFC-556	B68-10003	01
High intensity radiation heat source is capable of sustained operation ARC-61	B66-10547	02	Regulated dc-to-dc converter features low power drain GSFC-03429	B68-10017	01
Monitoring circuit accurately measures movement of solenoid valve M-FS-1829	B66-10568	01	Improved dc voltage multiplier M-FS-14042	B68-10074	01
Electronic circuit provides accurate sensing and control of dc voltage NU-0089	B66-10591	01	Precision bclometer bridge MSC-11473	B68-10156	01
Low input voltage converter/regulator minimizes external disturbances GSFC-527	B66-10689	01	Synthesis of electro-optic modulators for amplitude modulation of light M-FS-14268	B68-10275	02
Polarimeter provides transient response in nanosecond range JPL-890	B67-10021	02	Analysis and design of a class-D amplifier M-FS-14803	B68-10313	01
Variable-pulse switching circuit accurately controls solenoid-valve actuations M-FS-1895	B67-10022	01	Concept to convert electrical power GSFC-10222	B68-10321	01
Heater control circuit provides both fast and proportional control M-FS-906	B67-10097	01	Power consumption in acoustic amplifiers under conditions of maximum stable gain GSFC-10067	B68-10327	01
Voltage regulator/amplifier is self-regulated MSC-1240	B67-10156	01	Application of the solid lubricant molybdenum disulfide by sputtering LEWIS-10544	B68-10340	03
Glow discharge density sensor probe life is extended M-FS-1707	B67-10229	01	Isolated, multiple-output voltage dc-to-dc converter M-FS-14976	B69-10014	01
Improved television signal processing system NPO-10140	B67-10246	01	Silicon carbide diode for increased light output M-FS-20063	B69-10096	01
			Plasma-heating by induction LEWIS-10528	B69-10185	02

DIRECT POWER GENERATORS

SUBJECT INDEX

Improved dc voltage regulator XKS-06467	B69-10369	01	MSC-12044	B67-10371	02
Generation of sonic power during welding M-FS-20339	B69-10404	05	Measurement technique for the determination of antenna directivity M-FS-12799	B69-10677	01
Calibratable solid-state pressure switch M-FS-20474	B69-10437	05	DIRECTORS (ANTENNA ELEMENTS) Antenna configurations provide polarization diversity GSFC-74	B66-10066	01
Automatic tuning of hydrogen masers GSFC-10127	B69-10452	01	Low-loss C-band parasitic probe KSC-09348	B69-10251	01
Pulsed high-voltage dc RF sputtering LEWIS-10920	B69-10699	01	DISCHARGE Auxiliary silver electrode eliminates two-step voltage discharge characteristic of silver- zinc cells GSFC-169	B64-10114	01
Pulse-code-modulation baseline correction for low signal-to-noise ratios MSC-13268	B69-10750	01	Segmented electrode increases operating pressure of MHD accelerator LANGLEY-95	B65-10356	02
Exploding bridgewire detonator simulator M-FS-02191	B69-10782	01	High voltage pulse generator MSC-12178	B69-10548	01
DIRECT POWER GENERATORS Isolated, multiple-output voltage dc-to-dc converter M-FS-14976	B69-10014	01	DISCHARGE COEFFICIENT Analysis of annular combustors LEWIS-10399	B68-10356	06
DIRECTIONAL ANTENNAS Hydraulic drive system prevents backlash JPL-371	B65-10351	05	DISCOLORATION Silver-base ternary alloy proves superior for slip ring lead wires M-FS-1540	B66-10540	03
Antenna configurations provide polarization diversity GSFC-74	B66-10066	01	Inhibition of browning in foodstuffs HQ-10177	B69-10493	04
Low speed, long term tracking electric drive system has zero backlash NPO-10173	B67-10220	01	DISCONNECT DEVICES Sleeve and cutter simplify disconnecting welded joint in tubing JPL-384	B63-10240	05
Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates NPO-10316	B67-10418	05	Special pliers connect hose containing liquid under pressure JPL-IT-1003	B63-10291	05
Single degree of freedom antenna pointing program /ANTENA/ NPO-10756	B68-10449	06	Circuit reliability boosted by soldering pins of disconnect plugs to sockets JPL-447	B64-10002	01
Survey of man-made electrical noise affecting radio broadcasting HQ-10290	B69-10308	01	Device disconnects several couplings simultaneously JPL-226	B65-10163	05
A thirty-six element array antenna system M-FS-20435	B69-10390	01	Improved tool easily removes brazed tube connectors MSC-263	B66-10003	05
An interferometer tracking radar system MSC-10956	B69-10523	01	Remotely controlled system couples and decouples large diameter pipes NU-0062	B66-10276	05
DIRECTIONAL CONTROL Ring counter may be advanced or retarded by command signal GSFC-101	B64-10144	01	Pneumatic separator gives quick release to heavy loads KSC-66-10	B66-10294	05
System measures unidirectional forces, excludes extraneous forces LEWIS-170	B65-10154	05	Lock-disconnect mechanism gives positive release to joined bodies M-FS-2147	B67-10123	05
Magnetic-shift-register circuit controls step motor operation GSFC-340	B65-10226	01	Line adapter provides quick disconnect under moderate side loading M-FS-2159	B67-10256	05
Ring counter circuit switches multiphase motor direction of rotation JPL-SC-166	B66-10101	01	Reconnect mechanism M-FS-12968	B67-10670	05
Solid state circuit controls direction, speed, and braking of dc motor JPL-757	B66-10486	01	Remotely operated gripper provides vertical control rod movement ARG-10160	B68-10359	05
Fluid logic control circuit operates nutator actuator motor LEWIS-294	B66-10593	05	Pyrotechnic-actuated cable release XNP-10849	B68-10535	05
Device measures reaction engine thrust vector deviations JPL-SC-163	B66-10642	05	Connect-disconnect coupling for preadjusted rigid shafts MSC-15470	B69-10375	05
DIRECTIVITY Measuring coplanarity of surfaces					

SUBJECT INDEX

DISPERSIONS

Breakaway electrical connector NPO-11140	B69-10474	01	Improved pulse shape discriminator for fast neutron-gamma ray detection system HQ-10151	B69-10481	01
Torsional tubular disconnect NPO-10704	B69-10499	05	Highly stable high-rate discriminator for nuclear counting ARG-10483	B69-10614	01
DISCONTINUITY			DISKS		
Zener diode function generator requires no external reference voltage JPL-0031	B65-10013	01	Modified interelement spacing improves Yagi antenna array LANGLEY-130	B65-10183	01
Calibrating ultrasonic test equipment for checking thin metal strip stock NUC-10009	B67-10127	01	Honeycomb seal backing ring increases turbopump disk life M-FS-13303	B67-10607	05
Computer program performs rectangular fitting stress analysis M-FS-13010	B67-10520	06	Eddy current disk valve LEWIS-10123	B67-10638	05
Method for reducing snap in magnetic amplifiers LEWIS-10388	B68-10388	01	DISKS (SHAPES)		
DISCRETE FUNCTIONS			Packless valve with all-metal seal handles wide temperature, pressure range JPL-361	B63-10228	05
Instrument calculates moments of inertia of complex plane figures MSC-628	B66-10306	01	Connector seals fluid lines at cryogenic temperatures and high vacuums GSFC-253	B64-10327	05
System monitors discrete computer inputs M-FS-1021	B66-10389	01	Leak locator for vacuum jacketed pipelines eliminates need for removal of outer jacket M-FS-888	B66-10412	01
Simple quasi-exponential slope generator NPO-11130	B69-10439	01	Sensing disks for slug-type calorimeters have higher temperature stability M-FS-1867	B67-10161	01
DISCRIMINATION			Solenoid valve design minimizes vibration and sliding wear problem M-FS-14079	B67-10667	05
Pulse-height defect due to electron interaction in dead layers of Ge/Li/ gamma-ray detectors ARG-10362	B69-10767	02	DISPENSERS		
DISCRIMINATORS			Gage measures total radiation, including vacuum UV, from ionized high-temperature gases XNP-09802	B69-10028	02
Simple circuit functions as frequency discriminator for PFM signals GSFC-267	B65-10102	01	Simple switch actuated by force applied over wide solid angle XNP-09808	B69-10032	01
Frequency discriminator with binary output eliminates tuned circuits M-FS-376	B65-10349	01	Welded repairs of punctured thin-walled aluminum pressure vessels M-FS-14836	B69-10051	05
Digitally controlled pulse-level discriminator operates over wide voltage range GSFC-324	B66-10129	01	A new solid lubricant LEWIS-10812	B69-10250	03
Digital system provides superregulation of nanosecond amplifier-discriminator circuit ARG-61	B66-10500	01	Temperature-controlled resistor NPO-10713	B69-10440	01
Electronic circuit delivers pulse of high interval stability MSC-673	B66-10501	01	IBM-1620 monitor 2-D disk-storage subroutines ARG-10376	B69-10618	01
Electronic frequency discriminator M-FS-2434	B67-10151	01	DISPENSERS		
Transistor biased amplifier minimizes diode discriminator threshold attenuation ARG-163	B67-10311	01	Dispensing graduate for butadiene NPO-10070	B68-10524	03
Automatic telemetry checkout system M-FS-12580	B67-10402	01	A laboratory method for precisely determining the micro-volume-magnitudes of liquid efflux ARC-10052	B69-10295	05
Conceptual servo technique for controlling tape drivers M-FS-12955	B67-10595	01	DISPERSING		
Dynamic linearity measurement technique KSC-10186	B68-10290	01	Miniature bearings lubricated by sonic dispersion method M-FS-202	B65-10106	03
Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02	Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons LEWIS-263	B66-10104	03
Simple tunnel diode circuit for accurate zero crossing timing ARG-10309	B69-10116	01	DISPERSION		
Simple, accurate automatic frequency control circuit KSC-10393	B69-10323	01	Accuracy of laser measurements improved by pulse autocorrelator electronic system MSC-10033	B67-10338	01
			DISPERSIONS		
			Anodization process produces opaque,		

DISPLACEMENT

SUBJECT INDEX

reflective coatings on aluminum M-FS-348	B65-10336	03	Crack growth measured on flat and curved surfaces at cryogenic temperatures LEWIS-389	B67-10384	01
Process for preparing dispersions of alkali metals JPL-734	B66-10639	03	DISPLAY DEVICES		
Dispersion of borax in plastic is excellent, fire-retardant heat insulator ARG-5	B67-10016	03	Portable display paneling has wide use, easy take down and assembly ARC-17	B63-10435	05
Improved method of producing oxide-dispersion-strengthened alloys HQ-10461	B69-10536	03	Digital cardiometer computes and displays heartbeat rate MSC-93	B64-10258	01
DISPLACEMENT			Pneumotachometer counts respiration rate of human subject MSC-92	B64-10259	01
Transducer senses displacements of panels subjected to vibration ARC-37	B65-10085	01	Illuminated display panel is easily changed MSC-108	B65-10003	05
Leaf-spring suspension provides accurate parallel displacements JPL-480	B65-10104	05	Library of documents compressed into lap-held display kit MSC-125	B65-10030	01
Bidirectional torque filter eliminates backlash GSFC-335	B65-10148	05	Spherical model provides visual aid for cubic crystal study LEWIS-108	B65-10065	03
Interferometer combines laser light source and digital counting system MSC-151	B65-10161	01	Flexible magnetic planning boards are easily transported M-FS-340	B65-10219	05
Hydraulic device provides accurate displacements to microinches MSC-112	B65-10230	05	Single projector accommodates slides of different size and format GSFC-439	B66-10016	02
Flowmeter measures low gas-flow rates M-FS-215	B66-10036	01	Control system maintains selected liquid level M-FS-470	B66-10039	01
Switching mechanism senses angular acceleration GSFC-462	B66-10158	01	Vibration tests on vidicons made by improved method JPL-SC-115	B66-10042	01
Positive displacement cylinder measures corrosive liquid volume MSC-1038	B66-10589	05	Screen of cylindrical lenses produces stereoscopic television pictures M-FS-273	B66-10086	02
Device measures reaction engine thrust vector deviations JPL-SC-163	B66-10642	05	Chart case opens to form briefing easel MSC-349	B66-10135	05
Cryogenic seal remains leaktight during thermal displacement ARG-96	B67-10134	02	Two-light circuit continuously monitors ac ground, phase, and neutral wires MSC-356	B66-10163	01
Web belt load measuring instrument has excellent stability MSC-921	B67-10242	01	Apparatus presents visual display of semiconductor surface characteristics JPL-665	B66-10200	01
Device enables calibration of microphones at high sound pressure levels M-FS-11980	B67-10336	01	Multicolor stroboscope pinpoints resonances in vibrating components JPL-0033	B66-10223	01
Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates NPO-10316	B67-10418	05	Legibility of electroluminescent instrument panels investigated MSC-494	B66-10316	02
Study made of large amplitude fuel sloshing M-FS-12381	B67-10439	03	New computer system simplifies programming of mathematical equations M-FS-441	B66-10361	01
A laboratory method for precisely determining the micro-volume-magnitudes of liquid efflux ARC-10052	B69-10295	05	Human transfer functions used to predict system performance parameters LANGLEY-203	B66-10379	01
Instrumentation for nondestructive testing of composite honeycomb materials M-FS-20405	B69-10366	03	Video signal processing system uses gated current mode switches to perform high speed multiplication and digital-to-analog conversion MSC-781	B66-10429	01
DISPLACEMENT MEASUREMENT			Nixie tube display unit employs time-shared logic ARG-117	B66-10512	01
Seismic transducer measures small horizontal displacements M-FS-81	B65-10029	05	Study made of application of stereoscopic display system to analog computer simulation M-FS-1263	B66-10590	01
Design concept for pressure switch calibrator HQ-36	B66-10598	01	Developmental instrument supplies accurate		

SUBJECT INDEX

DISTILLATION

attitude and attitude-rate data HQ-57	B66-10607	01	vacuum UV, from ionized high-temperature gases KNP-09802	B69-10028	02
Three-axis attitude and direction reference instrument has only one moving part M-FS-1819	B66-10644	01	Electronic visualization of gas bearing behavior LEWIS-10711	B69-10073	01
Absolute viscosity measured using instrumented parallel plate system JPL-874	B67-10041	01	Two devices for analysis of nystagmus HQ-10273	B69-10224	01
Visual attitude orientation and alignment system MSC-647	B67-10120	02	Time-shared Cathode Ray Tube MSC-12238	B69-10243	06
Numerical data frame readout system used in testing telemetry systems GSPC-551	B67-10175	01	Simplified system displays complex curves corresponding to input data HQ-10073	B69-10247	01
Plotter design simplifies determination of image sensor transfer characteristic NPO-10164	B67-10206	01	Integrated sequence display device KSC-10381	B69-10316	01
Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter NUC-10044	B67-10222	06	An electronic circuit for sensing malfunctions in test instrumentation KSC-10209	B69-10392	01
Vis-A-Plan /visualize a plan/ management technique provides performance-time scale KSC-10073	B67-10240	06	Versatile telemonitoring system ARG-10339	B69-10655	01
Rectilinear display gives acceleration load factor and velocity information MSC-1045	B67-10248	01	Technique for improving solid state mosaic images M-FS-20532	B69-10676	01
Computer program samples digital data for CRT display MSC-999	B67-10249	01	DISPOSAL Integral skin electrode for electrocardiography is expendable MSC-299	B66-10118	04
Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi NUC-10067	B67-10263	01	DISSIPATION Electron beam standby absorber system M-FS-14108	B67-10650	01
New electron microscope employs new video display technique ARG-158	B67-10312	03	DISSOCIATION Heater decomposes oil backstreaming from high-vacuum pumps GSPC-356	B65-10224	02
Pocket-size manual tape reader device aids computer tape checking KSC-10058	B67-10361	01	Uranium isotopes quantitatively determined by modified method of atomic absorption spectrophotometry ARG-210	B67-10236	03
System automatically provides dynamic launch decision criteria M-FS-13063	B67-10363	01	DISSOLVING Transplutonium elements processed from rock debris of underground detonations ARG-10222	B69-10054	03
Computer program reduces and provides profile plot of surface plate calibration data M-FS-13866	B67-10492	06	Direct in-vial collection for liquid-scintillation assay of carbon-14 and tritium ARG-10424	B69-10412	03
Graphic visualization of program performance aids management review NUC-10011	B67-10568	06	Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01
X-Y plotter adapter developed for SDS-930 computer NPO-10220	B67-10654	06	Device separates hydrogen from solution in water at ambient temperatures MSC-13335	B69-10635	03
Phase plane displays detect incipient failure in servo system testing HQ-10018	B67-10662	01	DISTANCE Simple scale interpolator facilitates reading of graphs LEWIS-92	B66-10302	05
Hydra 1 data display system MSC-11594	B68-10155	01	Training course for radiation safety technicians ARG-216	B67-10477	02
Computer graphics data conditioning M-FS-14695	B68-10296	06	DISTANCE MEASURING EQUIPMENT Depth indicator and stop aid machining to precise tolerances M-FS-553	B66-10149	05
Random access-random release relay switching matrix M-FS-12590	B68-10301	01	Analog solar system model relates celestial bodies spatially JPL-195	B66-10413	01
Fluidic-thermochromic display device EBC-10031	B68-10350	01	DISTILLATION Silazane elastomer remains resilient at		
Selective video blanking technique M-FS-20013	B68-10434	01			
Gage measures total radiation, including					

DISTILLATION EQUIPMENT

SUBJECT INDEX

400 deg C
M-FS-1144 B66-10667 05

Technique for highly efficient recovery
of microbiological contaminants
MSC-13250 B69-10273 04

DISTILLATION EQUIPMENT
Emergency solar still desalts seawater
MSC-135 B65-10214 03

Liquid trap seals thermocouple leads
M-FS-688 B66-10212 05

Distillation device supplies cesium vapor at
constant pressure
XNP-08124 B68-10020 03

DISTORTION
Circuit reduces distortion of FM modulator
GSFC-257 B65-10152 01

Crystal measures short-term, large-magnitude
forces
JPL-77 B65-10187 01

Cork is used to make tooling patterns and
molds
MSC-425 B66-10328 01

Universal transloader moves delicate equipment
without stress
MSC-654 B66-10384 05

Application of distorted models in
developing scaled structural models
M-FS-2540 B67-10321 05

Current pulse amplifier transmits detector
signals with minimum distortion and
attenuation
NUC-10055 B67-10347 01

Machining heavy plastic sections
M-FS-12720 B67-10381 03

Vibration damping composition has
flush-away feature
M-FS-597 B67-10432 03

Techniques for controlling warpage and
residual stresses in welded structures
M-FS-20307 B69-10086 05

Helical tape forming device
GSFC-10830 B69-10137 05

VICAR-DIGITAL image processing system
NPO-10770 B69-10139 06

Miniaturization of magnetic logic circuitry
LANGLEY-10037 B69-10148 06

Repair of honeycomb panels with welded
breakaway studs
MSC-15046 B69-10261 05

DISTRIBUTING
Controllability of distributed-parameter
systems
M-FS-14929 B68-10346 02

DISTRIBUTION
Grit blasting nozzle fabricated from mild
tool steel proves satisfactory
M-FS-1420 B66-10597 05

DISTRIBUTION (PROPERTY)
Program computes zero lift wave drag of
entire aircraft
LANGLEY-10079 B67-10530 06

Areas of irregular, discontinuous patterns
rapidly and accurately measured
GSFC-10184 B67-10674 01

Wall-thickness changes predicted in
hollow-drawn tubing
ARG-10425 B69-10428 02

DISTRIBUTION FUNCTIONS

Computer program calculates monotonic
maximum likelihood estimates using method
of reversals
M-FS-1516 B67-10136 01

Probabilistic approach to long range
planning of manpower
MSC-11524 B67-10510 06

Solution of differential equations by
application of transformation groups
M-FS-14802 B68-10276 02

DISTRIBUTORS

Gage provides audible signal to facilitate
checkout of connector pins
KSC-10335 B69-10173 01

DISTURBANCES

Accuracy of laser measurements improved by
pulse autocorrelator electronic system
MSC-10033 B67-10338 01

Propagation of density disturbances in
air-water flow
ARG-10260 B69-10043 02

DITHERS

Design concepts using ring lasers for
frequency stabilization
M-FS-2448 B67-10143 01

DIVERGENCE

Speciman holder design improves accuracy
of X-ray powder analysis
JPL-SC-165 B66-10075 02

Electron beam parallel X-ray generator
MSC-11022 B67-10372 02

Deposition monitor and control
NPO-10706 B69-10722 01

DIVERGENT NOZZLES

Nozzles for size reclassification of
microfog particles
LEWIS-10705 B69-10076 05

DIVIDING (MATHEMATICS)

Binary system generates sidereal rate from
standard solar rate
GSFC-190 B64-10200 01

Computer modification reduces time of
performing iterative division
M-FS-166 B65-10005 01

DOCUMENTATION

A request-oriented information selection
program
LEWIS-10255 B68-10451 06

Reidentifying hardware after loss of serial
number
M-FS-18133 B69-10059 05

Improved system for documenting measurement
data
M-FS-18269 B69-10513 01

DOCUMENTS

Library of documents compressed into lap-held
display kit
MSC-125 B65-10030 01

Principles of optical-data processing
techniques
GSFC-10271 B68-10069 01

DOLLIES

Compressed gas system operates semitrailer
brakes during winching operation
JPL-0036 B64-10306 05

DOMAINS

Performance statistics of the FORTRAN 4
/H/ library for the IBM system/360
ARG-10299 B69-10157 06

SUBJECT INDEX

DRAWINGS

DONNELL EQUATIONS

Buckling Of Shells Of Revolution
/BOSOR/ with various wall constructions
LANGLEY-10441 B69-10300 06

DONOR MATERIALS

Primary cells utilize halogen-organic
charge transfer complex
JPL-926 B66-10682 02

Xenon fluoride solutions effective as
fluorinating agents
ARG-217 B67-10133 03

DOORS

Lightweight door seals cryogenic container
against diaphragm type loading
M-FS-476 B65-10402 05

Concealed hinge permits flush mounting of
doors and hatches
MSC-623 B66-10336 03

Combination double door high-vacuum valve
provides access to vacuum chamber
JPL-849 B66-10697 05

Simple motor drive system operates heavy
hinged door
NU-0093 B66-10712 05

Swing-out rail system separates overhead
crane rails
NU-0094 B66-10713 05

DOPPLER EFFECT

Optical superheterodyne receiver uses laser
for local oscillator
M-FS-1605 B66-10584 01

Laser Doppler flowmeter measures gas
velocity
M-FS-1747 B66-10693 02

Design concepts using ring lasers for
frequency stabilization
M-FS-2448 B67-10143 01

Interference effects eliminated in random
oriented space station antenna system
MSC-11004 B67-10435 01

Concept for automatic Doppler compensation
in two-way communication systems
GSFC-10213 B67-10643 01

Communication system features dual mode
range acquisition plus time delay
measurement
M-FS-14323 B68-10306 01

Mossbauer vibration calibration systems
evaluated
M-FS-20014 B69-10125 01

DOPPLER RADAR

Acquisition of pseudonoise signals by
sequential estimation
M-FS-13898 B68-10258 01

Improved gas ring laser
MSC-11584 B68-10304 02

Laser-Doppler gas-velocity instrument
M-FS-20039 B68-10349 02

Combination ranging system and mapping
radar
NPO-11001 B69-10325 01

Prediction of thermal radiation from a
rocket's exhaust plume
M-FS-20414 B69-10371 02

DOSAGE

Training course for radiation safety
technicians
ARG-216 B67-10477 02

Neutron detector simultaneously measures
fluence and dose equivalent
ARG-10071 B67-10597 02

Experimental study and evaluation of
radioprotective drugs
ARG-10196 B68-10320 04

DOSIMETERS

Semiconductor forms biomedical radiation probe
MSC-320 B66-10252 04

Practical new method of measuring
thermal-neutron fluence
NUC-10086 B67-10352 02

Neutron detector simultaneously measures
fluence and dose equivalent
ARG-10071 B67-10597 02

Review of physics, instrumentation and
dosimetry of radioactive isotopes
ARG-10037 B67-10640 02

Electronic gating circuit and ultraviolet
laser excitation permit improved dosimeter
sensitivity
ARG-10109 B68-10077 02

Ceric and ferrous dosimeters show precision
for 50-5000 rad range
ARG-10173 B68-10426 02

Readout system for radiation detector
MSC-90180 B68-10501 01

Beam profiles measured with
thermoluminescent dosimeters
ARG-10229 B69-10024 02

Tungsten thermal neutron dosimeter
LEWIS-10880 B69-10249 02

A simple electrometer for measuring small
photoelectric currents
GSFC-10603 B69-10734 01

DRAFTING (DRAWING)

Concept for modifying drafting instruments
to minimize smearing
KSC-10056 B67-10283 05

Photographic and drafting techniques
simplify method of producing engineering
drawings
MSC-716 B68-10128 02

DRAFTING MACHINES

Automated drafting system uses computer
techniques
M-FS-788 B66-10362 01

DRAG

New anemometer has fast response, measures
dynamic pressure directly
LANGLEY-28 B63-10530 05

DRAG DEVICES

Friction device damps linear motion of
rotating shaft
WOO-214 B66-10030 05

DRAG MEASUREMENT

Device measures fluid drag on test vehicles
LANGLEY-34 B65-10195 01

DRAG REDUCTION

Quick-acting clutch disengages idle drive
motor
GSFC-143 B64-10028 05

DRAWINGS

Front and back printed circuit layouts
presented on single sheet
GSFC-93 B63-10596 01

Instrument transmits vanishing point to
illustration point
MSC-267A B66-10324 01

DRIFT

SUBJECT INDEX

Automated drafting system uses computer techniques M-FS-788	B66-10362	01	Circuit board hole coordinate locator concept M-FS-14737	B69-10539	01
Computerized parts list system coordinates engineering releases, parts control, and manufacturing planning NUC-10073	B67-10348	06	DRILLS Portable tool cleans pipes and tubing MSC-238	B65-10375	05
Projection transparencies from printed material M-FS-14608	B68-10112	01	Drill bit design assures clean holes in laminated materials W00-098	B65-10386	05
Microelectronic device data handbook ERC-10322	B69-10687	01	Pipe cutting tool is useful in limited space MSC-36	B66-10102	05
DRIFT Unmanned seismometer levels self, corrects drift errors GSFC-100	B63-10551	01	Hand drill adapter limits holes to desired depth MSC-346	B66-10123	05
Simplified method introduces drift fields into cells GSFC-572	B67-10102	03	Depth indicator and stop aid machining to precise tolerances M-FS-553	B66-10149	05
DRIFT (INSTRUMENTATION) Electrometer preamplifier has drift correction feedback JPL-SC-074	B65-10267	01	Nylon bit removes cork insulation without damage to substrate MSC-381	B66-10152	05
Tester periodically registers dc amplifier characteristics MSC-190	B66-10148	01	Gear drive automatically indexes rotary table M-FS-753	B66-10383	05
Analog buffer isolates high impedance source from low impedance load M-FS-13481	B67-10544	01	Hole saw drill attachment has zero force reaction MSC-543	B66-10604	05
DRIFT RATE Digital-to-analog converter operates from low level inputs JPL-907	B67-10357	01	Irradiated gases transferred without contamination or dilution LEWIS-278	B67-10044	03
DRILL BITS Rock bit requires no flushing medium to maintain drilling speed JPL-W00-031	B65-10109	05	Development of lunar drill to take core samples to 100-foot depths M-FS-13015	B67-10529	05
Drill bit design assures clean holes in laminated materials W00-098	B65-10386	05	J-beveling of pipe ends with a hand-held tool KSC-10356	B69-10229	05
Modified drill permits one-step drilling operation M-FS-559	B66-10169	05	Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04
DRILLING Threaded pilot insures cutting tool alignment M-FS-527	B66-10074	05	Multi-purpose tool mitten HQ-10047	B69-10483	05
Modified drill permits one-step drilling operation M-FS-559	B66-10169	05	Iris-leaf core retainer for a surface drill MSC-11402	B69-10496	05
Process sequence produces strong, lightweight reflectors of excellent quality LEWIS-331	B67-10010	05	A rotating, noncapillary heat pipe LEWIS-10298	B69-10684	05
Polarized light reveals stress in machined laminated plastics LEWIS-10018	B67-10383	03	DROP SIZE Nozzles for size reclassification of microfog particles LEWIS-10705	B69-10076	05
Transplutonium elements processed from rock debris of underground detonations ARG-10222	B69-10054	03	DROP TESTS Calculations enable optimum design of magnetic brake LEWIS-251	B66-10073	05
Cold machining of high density tungsten and other materials ARG-10289	B69-10110	05	Spiral spring/strain gage combination accurately measures shock induced deflection MSC-789	B66-10488	01
Repair of honeycomb panels with welded breakaway studs MSC-15046	B69-10261	05	DROPOUTS Phase-lock loop frequency control and the dropout problem M-FS-13948	B68-10130	01
Technique for anchoring fasteners to honeycomb panels LEWIS-10888	B69-10265	03	DROPS (LIQUIDS) Apparatus measures concentration of suspended droplets in gas streams LANGLEY-31	B64-10237	01
			System for measuring spatial distribution of ejected droplets, a concept NPO-10185	B68-10402	01
			Improved vacuum deposition apparatus NPO-11009	B69-10365	02

SUBJECT INDEX

DUCTS

DRUMS (CONTAINERS)

Extendible column can be stowed on drum
JPL-686 B65-10191 05

DRY CELLS

Camera lens adapter magnifies image
M-FS-11955 B67-10431 02

DRY HEAT

Technique for highly efficient recovery
of microbiological contaminants
MSC-13250 B69-10273 04

DRYING

Stringent cleaning technique assures reliable
epoxy bond
GSCF-161 B64-10142 03

Minimum permissible leakage resistance
established for instrumentation systems
M-FS-848 B66-10397 01

A method for precision anodize stripping
MSC-15040 B69-10581 03

DRYING APPARATUS

Apparatus automatically measures soluble
residue content of volatile solvents
SAN-10032 B69-10292 03

DUCTED FLOW

Lightweight hinged bellows restraint has
high load capacity
WOO-151 B65-10341 03

DUCTILITY

Lightweight magnesium-lithium alloys show
promise
M-FS-17 B63-10389 03

Low power heating element provides thermal
control during swaging operations
M-FS-457 B66-10206 05

Nickel-base superalloys developed for high-
temperature applications
LEWIS-226 B66-10222 03

Pressure-welded flange assembly provides
leaktight seal at reduced bolt loads
M-FS-640 B66-10247 05

Boron-deoxidized copper withstands brazing
temperatures
M-FS-762 B66-10273 03

Thermal stress-relief treatments for 2219
aluminum alloy are evaluated
M-FS-1213 B66-10448 03

Braze alloy holds bonding strength over wide
temperature range
LEWIS-337 B66-10519 03

Lower-cost tungsten-rhenium alloys
LEWIS-332 B66-10528 03

Silver-base ternary alloy proves superior
for slip ring lead wires
M-FS-1540 B66-10540 03

Tantalum alloys resist creep deformation at
elevated temperatures
LEWIS-350 B66-10558 03

Ductile mandrel and parting compound
facilitate tube drawing
ARG-43 B66-10571 05

Tests show that aluminum welds are improved
by bead removal
M-FS-1817 B67-10023 05

Aluminum-titanium hydride-boron carbide
composite provides lightweight neutron
shield material
NUC-10069 B67-10265 03

High-strength tungsten alloy with improved

ductility
LEWIS-10257 B67-10340 03

Excellent spring properties developed in two
nickel alloys for use at cryogenic
temperatures
NUC-10084 B67-10349 03

Steel test panel helps control additives in
pyrophosphate copper plating
LEWIS-10101 B67-10358 05

Magnesium-lithium alloys developed for low
temperature use
M-FS-1541 B67-10365 03

Study made of ductility limitations of
aluminum-silicon alloys
M-FS-12524 B67-10392 03

Heat treatment procedure to increase
ductility of degraded nickel alloy
M-FS-12410 B68-10029 03

Weld microfissuring in Inconel 718
minimized by minor elements
M-FS-18185 B68-10251 03

High temperature alloy
LEWIS-10377 B68-10253 03

Fabrication techniques developed for small-
diameter, thin-wall tungsten and tungsten
alloy tubing
ARG-10100 B68-10284 05

Pre-weld heat treatment improves welds in
Rene 41
M-FS-18174 B68-10285 03

Nickel base alloy with improved stress
rupture properties
LEWIS-10283 B68-10344 03

Nickel-base superalloy's excellent
properties promote its service to 2200
degrees F
LEWIS-10355 B68-10380 03

Hot-cracking studies of Inconel 718 weld-
heat-affected zones
M-FS-18211 B69-10052 05

Two-step rocket engine bipropellant valve
concept
MSC-10951 B69-10280 05

Effects of hydrogen on metals
M-FS-20364 B69-10372 03

Strain-age cracking in Rene 41 alloy
M-FS-18650 B69-10605 03

Retention of ductility in high-strength
steels
ARG-10497 B69-10616 03

Effects of high-pressure hydrogen on
storage vessel materials
M-FS-18605 B69-10730 03

DUCTS

External linkage tie permits reduction in
ducting system flange thickness
M-FS-823 B66-10326 05

Bellows joint absorbs torsional deflections in
duct system
M-FS-882 B66-10332 04

Brazing retort manifold design concept may
minimize air contamination and enhance
uniform gas flow
M-FS-707 B66-10371 05

Spherical pipe joint delivers loads equally
to mating flange
M-FS-807 B66-10665 05

DUMMIES

SUBJECT INDEX

Spherical joint connects axially misaligned flanges M-FS-2238	B67-10273	05	insensitive to liquid oxygen M-FS-475	B66-10131	03
Liquid oxygen dicting cleaned by falling film method M-FS-11816	B67-10299	03	Sea dye marker provides visibility for 20 hours MSC-714	B66-10313	03
Flow liner extends operating life of high-angulation bellows M-FS-12023	B67-10512	05	Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03
Design of fluid-duct bends with low pressure loss M-FS-20176	B68-10395	05	Neutron therapy of cancer ARG-10310	B69-10203	04
Two-axis winch installer for heavy ducts in confined space M-FS-14254	B69-10062	05	Airborne Fraunhofer Line Discriminator MSC-13146	B69-10594	02
Fatigue failure in metal bellows due to flow-induced vibrations M-FS-18383	B69-10071	05	DYNAMIC CHARACTERISTICS Precision CW laser automatic tracking system investigated M-FS-1606	B66-10629	01
Quick-acting backup tool for welding ducts M-FS-18404	B69-10396	05	Materials data handbook, Inconel alloy 718 M-FS-2348	B67-10282	03
Hydraulic calipers M-FS-18052	B69-10399	05	System automatically provides dynamic launch decision criteria M-FS-13063	B67-10363	01
Multichannel spectroscopy guide HQ-10441	B69-10550	01	Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01
DUMMIES Strain gage network distinguishes between thermal and mechanical deformations GSFC-478	B66-10280	01	Dynamic-reservoir lubricating device M-FS-14652	B68-10261	05
Electronic dummy for acoustical testing MSC-206	B67-10298	01	Dynamic linearity measurement technique KSC-10186	B68-10290	01
DUOPLASHATONS A continuously operating source of vacuum ultraviolet below 500 angstrom GSFC-545	B66-10576	01	Dynamics of moving bubbles in single and binary component systems M-FS-14845	B68-10339	02
DURABILITY Machine tests crease durability of sheet materials JPL-604	B64-10178	05	Analysis of space vehicle structures using the transfer-function concept NPO-11162	B69-10337	06
Spiral-grooved shaft seals substantially reduce leakage and wear LEWIS-10397	B68-10270	05	Study of high-speed angular-contact ball bearings under dynamic load M-FS-20562	B69-10367	05
Compact rotating cup anemometer NPO-10563	B68-10436	01	Dynamic calibration of turbine flowmeters LEWIS-11014	B69-10764	01
DUST Improved atmospheric particle analyzer ERC-33	B67-10231	01	DYNAMIC LOADS New anemometer has fast response, measures dynamic pressure directly LANGLEY-28	B63-10530	05
Vacuum probe sampler removes micron-sized particles from surfaces SAN-10003	B68-10231	04	Apparatus permits flexure testing of specimens at cryogenic temperatures M-FS-257	B65-10129	02
Health hazards of ultrafine metal and metal oxide powders LEWIS-10878	B69-10268	04	Pressure responsive seal handles static and dynamic loads GSFC-441	B65-10327	05
DUST COLLECTORS Air sampler collects and protects minute particles HQ-10037	B67-10661	01	Mechanism continuously measures static and dynamic cable loads MSC-217	B66-10107	05
DWELL Transient sensor development M-FS-13370	B67-10471	01	Transducer measures force in vacuum environment LEWIS-218	B66-10161	01
DYES Porous glass makes effective substrate for ozone-sensing reagent GSFC-388	B65-10364	03	Controlled release device prevents damage from dynamic stresses KSC-66-14	B66-10628	05
Test strips detect different CO2 concentrations in closed compartments MSC-210	B65-10390	03	Aspirator increases relief valve poppet stroke HQ-77	B67-10154	05
Surfactant for dye-penetrant inspection is			Improved control system power unit for large parachutes MSC-12052	B67-10677	05
			Nondestructive testing of brazed rocket engine components		

SUBJECT INDEX

EARPHONES

M-FS-18191	B68-10394	03	M-FS-12084	B67-10524	06
Fatigue of reinforced concrete beams under dynamic loading			Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles		
M-FS-14980	B68-10515	05	LANGLEY-10093	B67-10531	06
DYNAMIC MODELS			Digital computer program predicts effects of local pressure transients on deformation and stresses in cylindrical ducts		
Application of distorted models in developing scaled structural models			M-FS-13058	B67-10631	06
M-FS-2540	B67-10321	05	Cryogenic liquid level measuring probe		
Self-sustained hydrodynamic oscillations in a natural-circulation two-phase-flow boiling loop			ARG-10138	B68-10291	01
ARG-10461	B69-10620	02	DYNAMIC STABILITY		
DYNAMIC PRESSURE			Pump simulator provides variable pressure-flow characteristics		
Colloidal suspension simulates linear dynamic pressure profile			LEWIS-10122	B67-10453	05
WOO-266	B66-10214	05	DYNAMIC STRUCTURAL ANALYSIS		
Studies reveal effects of pipe bends on fluid flow cavitation			A modal combination computer program for dynamic analysis of structures		
M-FS-516	B66-10228	05	NPO-10129	B67-10217	06
Acceleration-compensated pressure transducer has fast response			Land landing couch dynamics computer program		
LANGLEY-113	B66-10353	01	MSC-1210	B67-10233	06
New type pressure transducer for severe thermal environments			Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles		
M-FS-20208	B69-10652	01	LANGLEY-10093	B67-10531	06
Optimum structural design based on reliability and proof-load testing			Computer program determines vibration in three-dimensional space of hydraulic lines excited by forced displacements		
NPO-11228	B69-10723	31	M-FS-12226	B68-10159	06
DYNAMIC PROGRAMMING			DYNAMIC TESTS		
DIANA - An advanced programming system for large classes of dynamic and equivalent systems			Pressure transducers dynamically tested with sinusoidal pressure generator		
M-FS-12084	B67-10524	06	LEWIS-268	B66-10031	01
Computer program offers new method for constructing periodic orbits in nonlinear dynamical systems			A modal combination computer program for dynamic analysis of structures		
M-FS-14654	B68-10217	06	NPO-10129	B67-10217	06
Study of optimum discrete estimators in measurement analysis			Calibration standard for dynamic evaluation of a profile-plotter		
M-FS-14915	B68-10348	02	M-FS-16476	B69-10458	05
DYNAMIC RESPONSE			DYNAMOMETERS		
Edge-type connectors evaluated by electrical noise measurement			Air brake-dynamometer accurately measures torque		
M-FS-2243	B67-10125	01	LEWIS-163	B65-10312	05
Study of dynamic response of elastic space stations			Instrument continuously measures density of flowing fluids		
NPO-10124	B67-10169	06	LEWIS-309	B67-10080	01
Electrometer amplifier operates over dynamic range of five orders of magnitude			DYNODES		
ARC-75	B67-10199	01	Precision gage measures ultrahigh vacuum levels		
Computer program provides linear sampled-data analysis for high order systems			GSFC-114	B63-10597	01
M-FS-12821	B67-10287	06	Electron multiplier has improved performance and stability		
Study made of thin-walled pipe response to turbulent fluids			GSFC-546	B67-10060	01
M-FS-1321	B67-10518	05	DYSPROSIUM		
Circuit measures hysteresis loop areas at 30 Hz			Neutron detector simultaneously measures fluence and dose equivalent		
M-FS-13069	B67-10519	01	ARG-10071	B67-10597	02
General frequency response program calculates frequency response of system, open at any specified element			Optically exciting a magnetic memory - A feasibility study		
M-FS-12817	B67-10521	06	M-FS-14854	B69-10060	02
Analysis of dynamic systems with DAP4H computer program			E		
M-FS-13999	B67-10523	06	EAR		
DIANA - An advanced programming system for large classes of dynamic and equivalent systems			Electronic dummy for acoustical testing		
			MSC-206	B67-10298	01
			EARPHONES		
			Comfortable, lightweight safety helmet holds radio transmitter, receiver		
			MSC-53	B64-10015	05

EARTH (PLANET)

SUBJECT INDEX

Personal communication system combines high performance with miniaturization MSC-720	B67-10119	01	ARG-10342	B69-10286	02
EARTH (PLANET)			ECONOMY		
Space trajectories program for IBM 7090 NPO-10125	B67-10172	06	Economical and maintenance-free gas system operates railroad switches NU-0045	B66-10124	05
Theory of a refined earth model M-FS-14679	B68-10228	02	Compound taper milling machine MSC-15174	B69-10018	05
Trajectory optimization using regularized variables MSC-13370	B69-10810	02	Fifth-wheel fork truck adapter M-FS-14460	B69-10021	05
EARTH ATMOSPHERE			EDDY CURRENTS		
Sonic boom propagation in stratified atmosphere LANGLEY-10480	B69-10391	06	Portable self-powered device detects internal flaws in tubular structures NU-0019	B66-10028	01
EARTH HYDROSPHERE			Diaphragm spring gives clutch over-center toggle effect GSFC-499	B66-10297	05
Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna ARG-10345	B69-10258	02	Low speed, long term tracking electric drive system has zero backlash NPO-10173	B67-10220	01
EARTH-MOON TRAJECTORIES			Handbooks describe eddy current techniques used in nondestructive testing of metal parts and components M-FS-13172	B67-10374	03
Space trajectories program for IBM 7090 NPO-10125	B67-10172	06	Study of stress corrosion in aluminum alloys M-FS-13906	B67-10533	03
EARTH ORBITS			Eddy current disk valve LEWIS-10123	B67-10638	05
Earth orbit rendezvous evaluation program M-FS-13016	B67-10407	06	Solenoid hammer valve developed for quick-opening requirements LEWIS-10134	B67-10639	05
HICOV - Newton-Raphson calculus of variation with automatic transversalities M-FS-14468	B68-10232	06	Eddy current probe measures size of cracks in nonmetallic materials M-FS-14059	B67-10645	03
EARTH SURFACE			Detection and location of metallic objects imbedded in nonmetallic structures M-FS-14790	B68-10183	01
Theory of a refined earth model M-FS-14679	B68-10228	02	Stress-corrosion-induced property changes in aluminum alloys M-FS-20209	B68-10568	03
EARTHQUAKES			Induction probe determines levels of liquid metals ARG-10348	B69-10256	03
Shock-operated valve would automatically protect fluid systems M-FS-801	B66-10335	03	Instrumentation for nondestructive testing of composite honeycomb materials M-FS-20405	B69-10366	03
ECCENTRICITY			EDGES		
Eccentric drive mechanism is adjustable during operation M-FS-2576	B67-10373	05	Apparatus of small size can be extended into long, rigid boom JPL-305	B63-10200	05
Test system accurately determines tensile properties of irradiated metals at cryogenic temperatures NUC-10521	B67-10617	02	Improved method of edge coating flat ribbon wire M-FS-902	B66-10684	03
A magnifying scratch-gage force transducer LANGLEY-10496	B69-10212	01	Edge-type connectors evaluated by electrical noise measurement M-FS-2243	B67-10125	01
ECCENTRICS			EDUCATION		
High-temperature, high-pressure spherical segment valve provides quick opening ARC-13	B63-10431	05	GREMEX-A new management training concept GSFC-574	B67-10092	01
Machine tests crease durability of sheet materials JPL-604	B64-10178	05	A simplified PERT system M-FS-2267	B67-10241	05
Improved cryogenic refrigeration system JPL-731	B67-10128	02	Training course for radiation safety technicians ARG-216	B67-10477	02
ECHOES			Product identification techniques used as training aids for analytical chemists SAN-10025	B68-10373	03
Study of yttrium iron garnet rods reveals new magnetostatic echo mode ERC-37	B67-10153	01			
Thick transducers used for generating short-duration stress pulses in thin specimens ARG-10232	B69-10045	01			
ECOLOGY					
Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna ARG-10345	B69-10258	02			
Automatic bird watcher					

SUBJECT INDEX

ELASTIC DEFORMATION

Training manuals for nondestructive testing using magnetic particles M-FS-20187	B68-10391	03	GSFC-181	B66-10355	01
Contamination control handbook M-FS-20185	B68-10392	03	Suppressor plate eliminates undesired arcing during electron beam welding M-FS-1126	B66-10357	05
Training manual on optical alignment instruments M-FS-20292	B68-10574	02	Special tool kit aids heavily garmented workers MSC-163	B66-10403	05
Handbooks for nondestructive testing using ultrasonics M-FS-20409	B69-10108	03	Chemical regeneration of emitter surface increases thermionic diode life LEWIS-17	B66-10435	02
Sterilization training manual M-FS-20437	B69-10277	04	Aspirator increases relief valve poppet stroke HQ-77	B67-10154	05
Instruction manuals for liquid penetrant nondestructive testing M-FS-14010	B69-10278	05	Wideband, high efficiency optical modulator requires less than 10 watts drive power M-FS-12733	B67-10289	01
Handbook for design of containers of fluids and gases for spacecraft M-FS-20502	B69-10279	05	Large volume continuous counterflow dialyzer has high efficiency HQ-10055	B67-10395	04
EDUCATIONAL TELEVISION			Computer programs for antenna feed system design and analysis NPO-10359	B67-10504	06
Color-televised medical microscopy MSC-13086	B68-10314	01	Full wave dc-to-dc converter using energy storage transformers LEWIS-10375	B69-10140	01
EFFECTIVENESS			A positive taper traveling-wave tube LANGLEY-10263	B69-10407	01
Computerized Schedule Effectiveness Technique /SET/ determines present and future schedule position M-FS-13012	B67-10522	06	Fluid sample collection and storage device MSC-10962	B69-10816	05
EFFECTS			EIGENVALUES		
Resilient clamp holds fuel cell stack through resilient clamp holds fuel cell stack through thermal cycle MSC-313	B66-10035	05	Controllability of distributed-parameter systems M-FS-14929	B68-10346	02
EFFERVESCENCE			Buckling Of Shells Of Revolution /BOSOR/ with various wall constructions LANGLEY-10441	B69-10300	06
Effects of helium and nitrogen as pressurants in nitrogen tetroxide transfer MSC-924	B67-10083	03	EIGENVECTORS		
EFFICIENCY			Controllability of distributed-parameter systems M-FS-14929	B68-10346	02
Flange on microwave antenna subreflector cuts ground noise JPL-362	B63-10229	01	Structure of the isotropic transport operators in three independent space variables ARG-10448	B69-10432	06
Electron bombardment improves vacuum chamber efficiency LEWIS-160	B65-10280	02	EJECTION		
Regenerative fuel cell combines high efficiency with low cost WOO-090	B65-10363	01	Lathe chuck key incorporates safety feature MSC-506	B66-10243	05
Centrifugal device separates liquid from gas MSC-282	B65-10394	05	EJECTORS		
Complementary system vaporizes subcooled liquid, improves transformer efficiency M-FS-550	B66-10045	02	Air sampler collects and protects minute particles HQ-10037	B67-10661	01
Modified power tool rapidly drives series torque bolts MSC-221	B66-10054	05	ELASTIC BENDING		
Instrument quickly transposes ground reference target to eye level MSC-275	B66-10061	05	Tool forms right angles in component leads M-FS-722	B66-10346	05
FORTAN program flow chart is automatically produced M-FS-369	B66-10062	01	ELASTIC BODIES		
Modified soldering iron speeds cutting of synthetic materials M-FS-725	B66-10246	05	Elastic guides reduce hysteresis effect in Belleville spring package JPL-910	B67-10011	05
Vibrator improves spark erosion cutting process NU-0071	B66-10333	01	ELASTIC CYLINDERS		
Brushless dc motor has high efficiency, long life			Damping of thermoelastic structures M-FS-20002	B69-10467	02
			ELASTIC DEFORMATION		
			Testing device subjects elastic materials to biaxial deformations JPL-616	B65-10189	03
			Study of dynamic response of elastic space stations NPO-10124	B67-10169	06

ELASTIC PROPERTIES

SUBJECT INDEX

Computer program for determination of natural frequencies of closed spherical sandwich shells MSC-1246	B67-10279	06	
Two-functional seal for hose connection M-FS-14062	B69-10588	05	
ELASTIC PROPERTIES			
Pressure transducer 3/8-inch in size can be faired into surface W00-065	B64-10021	05	
Valve designed with elastic seat JPL-442	B65-10040	05	
Metal tube can be folded for compact storage, is self-erecting LEWIS-288	B66-10450	05	
Tungsten fiber-reinforced copper composites form high strength electrical conductors LEWIS-338	B66-10572	03	
Lateral ring metal elastic wheel absorbs shock loading M-FS-1312	B66-10663	05	
Improved computer program for elastic analysis of highly redundant structural configurations M-FS-13087	B67-10330	06	
Vibration testing and dynamic studies of relays M-FS-14542	B68-10268	01	
Conceptual hermetically sealed elbow actuator M-FS-14710	B68-10300	05	
Torsion system for creep testing with multiple stress reversals HQ-10039	B69-10147	03	
Optimum structural design based on reliability and proof-load testing NFO-11228	B69-10723	31	
ELASTIC SCATTERING			
Computer program ETC improves computation of elastic transfer matrices of Legendre polynomials P/0/ and P/1/ NUC-10070	B67-10566	06	
Computer program /P1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas NUC-10141	B67-10678	06	
GAMBIT program NUC-10243	B69-10433	06	
ELASTIC SHEETS			
Impact and puncture resistant material protects parts from damage MSC-747	B66-10375	05	
Thin plastic sheet eliminates need for expensive plating M-FS-1896	B66-10681	03	
ELASTIC SYSTEMS			
Rigid-body motion extracted from total motion of a flexible body ARC-63	B67-10081	05	
ELASTIC WAVES			
Unmanned seismometer levels self, corrects drift errors GSFC-100	B63-10551	01	
Pneumatic pressure wave generator provides economical, simple testing of pressure transducers NUC-10024	B67-10664	05	
ELASTOHYDRODYNAMICS			
Tester for study of rolling element bearings LEWIS-305	B67-10009	01	
High-temperature bearing lubricants LEWIS-10408	B68-10249	05	
Study of high-speed angular-contact ball bearings under dynamic load M-FS-20562	B69-10367	05	
ELASTOMERS			
Chain friction system gives positive, reversible drive ARC-8	B63-10009	05	
Elastic orifice automatically regulates gas bearings JPL-135	B63-10123	05	
Plastic molds reduce cost of encapsulating electric cable connectors M-FS-69	B63-10568	05	
Molded elastomer provides compact ferrite-core holder, simplifies assembly JPL-584	B64-10084	05	
Elastomers bonded to metal surfaces seal electrochemical cells GSFC-168	B64-10113	03	
Gas diffusion cell removes carbon dioxide from occupied airtight enclosures MSC-118	B64-10319	03	
Flexible curtain shields equipment from intense heat fluxes M-FS-48	B65-10044	03	
Compact assembly generates plastic foam, inflates flotation bag LANGLEY-96	B65-10090	05	
Shock mount isolates pressure transducers from vibration JPL-631	B65-10113	05	
Testing device subjects elastic materials to biaxial deformations JPL-616	B65-10189	03	
Silazane polymers show promise for high-temperature application M-FS-466	B66-10194	03	
Extensometer automatically measures elongation in elastomers M-FS-517	B66-10284	05	
Large diameter metal ring seal prevents gas leakage at 5000 psi M-FS-1064	B66-10422	05	
Silazane elastomer remains resilient at 400 deg C M-FS-1144	B66-10667	05	
Self-sealing closure enables access to several fluid containers NFO-10123	B67-10207	04	
Compressible sleeve provides automatic centering for grinding or turning of cylinders SAN-10021	B68-10318	05	
Simple switch actuated by force applied over wide solid angle XNP-09808	B69-10032	01	
Flared-tube fittings with replaceable seat inserts MSC-15372	B69-10519	05	
Development of improved potting and conformal coating compounds M-FS-20219	B69-10559	03	

SUBJECT INDEX

ELECTRIC BRIDGES

Silphenylene elastomers have high thermal stability and tensile strength M-FS-20250	B69-10580	03	M-FS-14661	B68-10218	01
Glass fabric fire barrier for silicone rubber parts MSC-15555	B69-10629	03	Recharge unit provides for optimum recharging of battery cells GSFC-10688	B68-10273	01
Synthesis of polyethers of hexafluorobenzene and hexafluoropentanediol M-FS-14962	B69-10636	03	Superconductive thin film makes convenient liquid helium level sensor LANGLEY-10289	B68-10341	01
ELECTRIC ARCS			Battery-package design provides for cell cooling and constraint MSC-11839	B68-10398	05
Electropneumatic rheostat regulates high current ARC-44	B65-10299	01	Remotely-actuated biomedical switch ARC-10105	B69-10117	01
Ring counter circuit switches multiphase motor direction of rotation JPL-SC-166	B66-10101	01	High-energy, high-power, long-life battery LEWIS-10724	B69-10131	01
Electric arc heater is self starting LANGLEY-208	B66-10230	03	Preparation of high purity copper fluoride by fluorinating copper hydroxyfluoride LEWIS-10754	B69-10136	03
Magnetically operated limit switch has improved reliability, minimizes arcing MSC-422	B66-10270	01	Cobalt improves nickel hydroxide electrodes for batteries LEWIS-10760	B69-10228	01
Suppressor plate eliminates undesired arcing during electron beam welding M-FS-1126	B66-10357	05	Tracer of electrical conduit or pipes MSC-15223	B69-10347	01
Cryogenic cooling reduces high voltage arcing between electrodes operating in a vacuum ARG-109	B66-10499	02	Ionene membrane battery separator NPO-11091	B69-10501	03
Control apparatus for spectral energy source LEWIS-391	B67-10404	01	Load current sensor for a pulse width modulator power regulator GSFC-10656	B69-10578	01
Technique eliminates high voltage arcing at electrode-insulator contact area LEWIS-10133	B67-10470	01	Flexible high-voltage supply for experimental electron microscope ARG-10482	B69-10603	01
Design concept for nonarcing electrical connector M-FS-14937	B68-10404	01	Pocket-sized tone-modulated FM transmitter NPO-11180	B69-10725	01
Testing the flammability of materials exposed to arcs MSC-15225	B69-10531	03	A simple electrometer for measuring small photoelectric currents GSFC-10603	B69-10734	01
ELECTRIC BATTERIES			ELECTRIC BRIDGES		
Pressure sensor responds only to shock wave M-FS-238	B65-10184	01	Simple circuit provides adjustable voltage with linear temperature variation JPL-W00-029	B63-10537	01
Electronic ampere-hour integrator is accurate to one percent GSFC-203	B65-10308	01	Electronic modules easily separated from heat sink MSC-142	B65-10186	02
New energy storage concept uses tapes LEWIS-239	B66-10098	02	Thermocouple-to-instrumentation connector features quick assembly NU-0022	B65-10246	05
Modular Porous Plate Sublimator /MPFS/ requires only water supply for coolant M-FS-1374	B66-10409	01	Coaxial capacitor used to determine fluid density LEWIS-232	B65-10296	02
Circuit prevents overcharging of secondary cell batteries GSFC-454	B66-10492	01	Ferroelectric bolometer measures RF absolute power at submillimeter wavelengths GSFC-422	B66-10051	01
Thermocouples electrically checked while connected to data system LANGLEY-182	B66-10623	01	Strain gage network distinguishes between thermal and mechanical deformations GSFC-478	B66-10280	01
Low input voltage converter/regulator minimizes external disturbances GSFC-527	B66-10689	01	Inductive system detects level of conducting fluids LEWIS-322	B66-10392	01
Converter provides constant electrical power at various output voltages GSFC-519	B67-10481	01	Minimum permissible leakage resistance established for instrumentation systems M-FS-848	B66-10397	01
Improved calorimeter provides accurate thermal measurements of space batteries GSFC-10003A	B67-10615	01	High voltage potential divider calibrated by simple device ARG-83	B66-10497	01
Zinc-oxygen primary cell yields high energy density			Magnetoresistor monitors relay performance M-FS-1754	B66-10650	01

ELECTRIC CHARGE

SUBJECT INDEX

Blackbody cavity radiometer has rapid response JPL-521	B66-10679	01	Vibrator elapsed time is automatically controlled M-FS-2573	B67-10284	01
Double emitter suppressed carrier modulator uses commercially available components M-FS-2494	B67-10101	01	Thermionic diode switching has high temperature application NPO-10404	B67-10672	01
Sensitive bridge circuit measures conductance of low-conductivity electrolyte solutions ARG-147	B67-10294	01	Improved relay optical element for spectroradiometer using cryogenically cooled detector MSC-11688	B68-10245	02
Ultraminiature manometer-tipped cardiac catheter ARC-10054	B67-10669	01	High-efficiency step-up regulator M-FS-20049	B68-10432	01
Precision bolometer bridge MSC-11473	B68-10156	01	ELECTRIC COILS Device measures fluid drag on test vehicles LANGLEY-34	B65-10195	01
Ratio matching of half-bridge weldable strain gages, computer program FRC-10032	B69-10040	06	Improved tool easily removes brazed tube connectors MSC-263	B66-10003	05
Exploding Bridgewire detonator simulator M-FS-02191	B69-10782	01	Noncontacting transducer measures shaft torque M-FS-474	B66-10048	01
ELECTRIC CHARGE Efficient circuit triggers high-current, high-voltage pulses MSC-14	B64-10024	01	Ferroelectric bolometer measures RF absolute power at submillimeter wavelengths GSFC-422	B66-10051	01
Large capacitor performs as a distributed parameter pulse line LEWIS-176	B66-10291	01	Hydrogen-atmosphere induction furnace has increased temperature range LEWIS-153	B66-10055	05
Hermetically sealed cells protected from internal gas pressure GSFC-555	B66-10692	01	Auxiliary coil controls temperature of RF induction heater GSFC-428	B66-10067	01
Recharge unit provides for optimum recharging of battery cells GSFC-10688	B68-10273	01	Thermal motor positions magnetometer sensors ARC-51	B66-10078	05
Charge control of nickel-cadmium batteries by coulometer and third electrode method GSFC-10487	B68-10431	01	Soldering tool heats workpieces and applies solder in one operation LEWIS-247	B66-10115	05
Gage measures total radiation, including vacuum UV, from ionized high-temperature gases KNP-09802	B69-10028	02	Gas-injection valve operates at high speed HQ-49	B66-10381	05
Electrochemical sintering process for producing electrodes from cadmium felt and a nickel or silver grid GSFC-10764	B69-10227	05	Inductive system detects level of conducting fluids LEWIS-322	B66-10392	01
Cobalt improves nickel hydroxide electrodes for batteries LEWIS-10760	B69-10228	01	RF inductor has high Q, is stable at higher temperatures JPL-1019	B67-10106	01
Improved anode design for metal-oxygen cells LEWIS-10871	B69-10318	01	High-energy-rate magnetohydraulic metal forming system M-FS-2142	B67-10126	02
Battery charge-discharge controller MSC-11836	B69-10747	01	Solenoid valve design has one moving part NPO-10039	B67-10219	05
ELECTRIC CHOPPERS Improved chopper circuit uses parallel transistors M-FS-468	B66-10113	01	Low speed, long term tracking electric drive system has zero backlash NPO-10173	B67-10220	01
Blackbody cavity radiometer has rapid response JPL-521	B66-10679	01	An improved nuclear magnetic resonance spectrometer JPL-762	B67-10234	01
Double emitter suppressed carrier modulator uses commercially available components M-FS-2494	B67-10101	01	System precisely controls oscillation of vibrating mass M-FS-1875	B67-10276	01
Modified univibrator compensates for output timing errors ARG-85	B67-10130	01	Electron beam deflected to determine focal point location M-FS-14107	B67-10649	01
Improved television signal processing system NPO-10140	B67-10246	01	Nonreciprocal gain control for ring laser M-FS-14041	B67-10653	02
			ELECTRIC CONDUCTORS Removable preheater elements improve oxide induction furnace JPL-288	B63-10193	01
			Cooling method prolongs life of hot-wire		

SUBJECT INDEX

ELECTRIC CONNECTORS

transducer LEWIS-41	B63-10344	02	Inspection criteria ensure quality control of parallel gap soldering M-FS-14530	B68-10257	05
Metals plated on fluorocarbon polymers JPL-544	B63-10612	03	Moebius resistor is noninductive and nonreactive SAN-10020	B68-10267	01
Improved electrode gives high-quality biological recordings MSC-17	B64-10025	04	Concept to convert electrical power GSPC-10222	B68-10321	01
Mounting for diodes provides efficient heat sink M-FS-197	B64-10283	01	Rating of electrical wires in vacuum environments MSC-15108	B68-10362	01
Coating method enables low-temperature brazing of stainless steel NU-0030	B65-10250	03	Contact-spring forming machine for flat conductor cable receptacles M-FS-20126	B68-10550	05
Direct force-measuring transducer used in blood pressure research ARC-53	B65-10325	01	Simple switch actuated by force applied over wide solid angle XNP-09808	B69-10032	01
Vacuum chamber provides improved insulation and support for cryostat M-FS-415	B65-10368	02	Corrosion protection of aluminum alloys in contact with other metals M-FS-18526	B69-10098	03
Three-dimensional wire-mesh capacitor system measures fluid density WOO-194	B65-10379	01	ELECTRIC CONNECTORS		
Special tool seals conductors with combination of plastic sleeves M-FS-579	B66-10209	05	Modular chassis simplifies packaging and interconnecting of circuit boards JPL-236A	B63-10174	01
Electrically conductive fibers thermally isolate temperature sensor GSPC-456	B66-10349	01	Connector for thermocouple leads saves costly wire, makes reliable connectors LANGLEY-26	B63-10529	01
Electrical cabling withstands severe environmental conditions M-FS-1585	B66-10427	01	Plastic molds reduce cost of encapsulating electric cable connectors M-FS-69	B63-10568	05
Tungsten fiber-reinforced copper composites form high strength electrical conductors LEWIS-338	B66-10572	03	Circuit reliability boosted by soldering pins of disconnect plugs to sockets JPL-447	B64-10002	01
Logic circuitry used to automatically test shielded cables HQ-60	B66-10659	01	Continuity tester screens out faulty socket connections JPL-596	B64-10065	01
Metal boot permits fabrication of hermetically sealed splices in metal sheathed instrumentation cables NU-0083	B66-10704	05	Improved technique for localizing electropolishing features novel nozzles WOO-101	B64-10271	01
Substituting gold for silver improves electrical connections M-FS-2390	B67-10228	03	Photoelectric semiconductor switch operates with low level inputs JPL-SC-068	B65-10033	01
Tester automatically checks insulation of individual conductors in multiple-strand cables NUC-10068	B67-10260	01	Piezoresistive gage tests pin-connector sockets JPL-675	B65-10128	01
Precision capacitor has improved temperature and operational stability ARG-189	B67-10313	01	Inexpensive electrical connector is moisture and corrosion-proof MSC-164	B65-10196	01
Protected, high-temperature connecting cable LEWIS-10149	B67-10461	01	Electrical cable connector-clamp has smooth exterior surface MSC-154	B65-10201	05
Composite solar cell matrix is reliable, lightweight and flexible NFO-10821	B67-10503	01	Indexing device ensures proper mating of electrical connectors MSC-155	B65-10263	01
Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area NUC-10007	B67-10538	01	Feed-through connector withstands high temperatures in vacuum environment GSPC-442	B65-10328	01
Areas of irregular, discontinuous patterns rapidly and accurately measured GSPC-10184	B67-10674	01	Floating device aligns blind connections MSC-256	B66-10007	05
Multichannel wireway adapter box MSC-90645	B68-10052	05	Single connector provides safety fuses for multiple lines MSC-199	B66-10050	01
			High-pressure, low temperature electrical connector makes no-leak seal MSC-276	B66-10079	02
			Soldering tool heats workpieces and applies solder in one operation		

ELECTRIC CONTACTS

SUBJECT INDEX

LEWIS-247	B66-10115	05	An improved method for electrical cable terminations	NPO-10694	B69-10327	01	
Bismuth alloy potting seals aluminum connector in cryogenic application	WOO-260	B66-10138	03	Modular packaging technique for combining integrated circuits and discrete components	GSFC-10369	B69-10453	01
Device without electrical connections in tank measures liquid level	WOO-235	B66-10198	01	Breakaway electrical connector	NPO-11140	B69-10474	01
Special tool seals conductors with combination of plastic sleeves	M-FS-579	B66-10209	05	Cover protects critical electrical connectors against damage during handling	HSC-15662	B69-10526	01
Rugged microelectronic module package supports circuitry on heat sink	HSC-81A	B66-10245	01	An electrical connector pin protector	HSC-15660	B69-10742	01
Polarizing keys prevent mismatch of connector plugs and receptacles	HSC-443	B66-10251	01	ELECTRIC CONTACTS			
Exclusive-or logic circuit has useful properties	LANGLEY-214	B66-10272	01	Stepping switch with simple actuator provides many contacts in small space	JPL-122	B63-10118	01
Device serves as hinge and electrical connector for circuit boards	M-FS-743	B66-10359	01	Improved molybdenum disulfide-silver motor brushes have extended life	M-FS-64	B63-10479	03
Junction connectors permit strategic placement of television cameras	KSC-66-22	B66-10391	01	Contact stresses calculated for miniature slip rings	M-FS-280	B65-10098	05
Plug-in connector socket accepts coaxial cable end	ARG-9	B66-10478	01	Electrical probe ensures reliable contact in socket	M-FS-315	B65-10215	01
Optical monitor panel provides flexible test panel configurations	KSC-66-18	B66-10494	01	Lightweight coaxial cable connector reduces signal loss	JPL-720	B65-10244	01
Process reduces secondary resonant emission in electronic components	JPL-934	B66-10685	01	Lamp automatically switches to new filament on burnout	M-FS-498	B66-10046	01
Thermocouple-flexible cable connector insulator is highly reliable	NU-0082	B66-10709	01	New energy storage concept uses tapes	LEWIS-239	B66-10098	02
Edge-type connectors evaluated by electrical noise measurement	M-FS-2243	B67-10125	01	Integral skin electrode for electrocardiography is expendable	HSC-299	B66-10118	04
Cracks in glass electrical connector headers removed by dry blasting with fine abrasive	LEWIS-381	B67-10148	03	Diffusion technique stabilizes resistor values	HSC-205	B66-10142	01
Composite solar cell matrix is reliable, lightweight and flexible	NPO-10821	B67-10503	01	Solar cell submodule design facilitates assembly of lightweight arrays	JPL-728	B66-10231	02
Connector shorting cap provides pin alignment, inspection, and stray voltage protection	M-FS-13111	B67-10635	01	Brushless dc motor has high efficiency, long life	GSFC-181	B66-10355	01
Inspection criteria ensure quality control of parallel gap soldering	M-FS-14530	B68-10257	05	Junction connectors permit strategic placement of television cameras	KSC-66-22	B66-10391	01
Design concept for nonarcing electrical connector	M-FS-14937	B68-10404	01	Solid state detectors monitor relay contacts	JPL-785	B66-10396	01
Coaxial cable stripper for confined areas	KSC-10167	B68-10444	05	System for etching thick aluminum layers minimizes bridging and undercutting	M-FS-1366	B66-10400	03
Simple switch actuated by force applied over wide solid angle	XNP-09808	B69-10032	01	Plug-in connector socket accepts coaxial cable end	ARG-9	B66-10478	01
Concept for a multifunctional oscilloscope probe	M-FS-16390	B69-10129	01	Device accurately measures and records low gas-flow rates	M-FS-1077	B66-10569	01
Adjustable wrench for electronic connectors	M-FS-18547	B69-10184	05	Gage accurately controls force for placing chips on substrates	M-FS-1941	B66-10675	01
				Variable reluctance switch avoids contact corrosion and contact bounce	HSC-1178	B67-10137	01

SUBJECT INDEX

ELECTRIC CURRENT

Thin film process forms effective electrical contacts on semiconductor crystals M-FS-2343	B67-10142	01	Sensitive electrometer features digital output GSFC-288	B65-10206	01
Hybrid solid state switch replaces motor-driven power switch JPL-931	B67-10165	01	Detector circuit compensates for vidicon beam current variations GSFC-310	B65-10212	01
Environmental study of miniature slip rings M-FS-2443	B67-10210	05	Multiaxial analyzer detects low-energy electrons GSFC-329	B65-10213	01
Continuous wave detector has wide frequency range M-FS-1849	B67-10386	01	Electrical probe ensures reliable contact in socket M-FS-315	B65-10215	01
Technique eliminates high voltage arcing at electrode-insulator contact area LEWIS-10133	B67-10470	01	One-shot valve may be remotely actuated WOO-195	B65-10266	05
Capacitance-coupled wiper increases potentiometer life ARC-10060	B68-10175	01	Circuit exhibits power efficiency greater than 75 percent MSC-254	B66-10034	01
Vibration testing and dynamic studies of relays M-FS-14542	B68-10268	01	Lamp automatically switches to new filament on burnout M-FS-498	B66-10046	01
System measures arc energy dissipated in relay contact cycling M-FS-14541	B68-10312	01	Single connector provides safety fuses for multiple lines MSC-199	B66-10050	01
Contact-spring forming machine for flat conductor cable receptacles M-FS-20126	B68-10550	05	Calculations enable optimum design of magnetic brake LEWIS-251	B66-10073	05
Gage provides audible signal to facilitate checkout of connector pins KSC-10335	B69-10173	01	Fingertip current control facilitates use of arc welding gun MSC-289	B66-10092	05
Masking of aluminum surface against anodizing M-FS-12964	B69-10335	05	Ring counter circuit switches multiphase motor direction of rotation JPL-SC-166	B66-10101	01
Temperature-controlled resistor NPO-10713	B69-10440	01	Low-power ring counter drives high-level loads GSFC-431	B66-10106	01
An electrical connector pin protector MSC-15660	B69-10742	01	Safety switch permits emergency bridge crane shutdown M-FS-549	B66-10168	05
ELECTRIC CONTROL			Apparatus presents visual display of semiconductor surface characteristics JPL-665		
Binary counter accumulates time by complementary preset MSC-242	B65-10399	01	Magnetically operated limit switch has improved reliability, minimizes arcing MSC-422	B66-10270	01
Thermal motor positions magnetometer sensors ARC-51	B66-10078	05	Video signal processing system uses gated current mode switches to perform high speed multiplication and digital-to-analog conversion MSC-781	B66-10429	01
Electrically controlled optical latch and switch requires less current JPL-SC-111	B66-10414	01	Trisphere spark gap actuates overvoltage relay ARC-68	B66-10557	01
Nonreciprocal gain control for ring laser M-FS-14041	B67-10653	02	Electronic circuit provides accurate sensing and control of dc voltage NU-0089	B66-10591	01
Low-cost, fast-response drive circuit for electromagnetic torque motors LEWIS-10143	B68-10386	01	Low input voltage converter/regulator minimizes external disturbances GSFC-527	B66-10689	01
ELECTRIC CORONA			Equivalent circuit for a field effect transistor established for computer simulation M-FS-1752		
Toroidal ring prevents gas ignition at vent stack outlet M-FS-2042	B67-10098	05	Logarithmic current simulator generates electrical currents accurately between 10 to the minus 11 ampere to 10 to the minus 3 ampere NU-0087	B66-10690	01
ELECTRIC CURRENT			Resistance heating releases structural		
Liquid switch is remotely operated by low dc voltage GSFC-119	B63-10599	01			
Field-effect transistor improves electrometer amplifier ARC-36	B64-10143	01			
Pickup device reads pressures from ports in rotating mechanisms LEWIS-158	B65-10021	05			
Laser beam transmits electric power GSFC-293	B65-10158	01			

ELECTRIC DISCHARGES

SUBJECT INDEX

adhesive M-PS-1607	B67-10045	05	Integrated circuit with multiple collector current source M-PS-20177	B69-10126	01
Clamp provides efficient connection for high-density currents M-PS-2417	B67-10140	01	Technical report on galvanic cells with fused-salt electrolytes ARG-10297	B69-10155	01
Solenoid valve design has one moving part NPO-10039	B67-10219	05	Magnetohydrodynamic generators using two-phase liquid-metal flows ARG-10168	B69-10162	01
Primary cell uses neither liquid nor fused electrolytes NPO-10001	B67-10275	01	Nondestructive evaluation of printed wiring boards by microhm resistance measurements SAN-10034	B69-10272	01
Circuit provides overcurrent protection to push-pull amplifier MSC-12033	B67-10300	01	Preparation of superconducting thin films of transition-metal interstitial compounds HQ-10445	B69-10470	01
Transistor biased amplifier minimizes diode discriminator threshold attenuation ARG-163	B67-10311	01	Analysis of cell performance and thermal regeneration of a lithium-tin cell having an immobilized fused-salt electrolyte ARG-10453	B69-10627	03
Electronic test instrument generates extremely small current signals ARG-276	B67-10318	01	Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01
General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-PS-13094	B67-10331	06	Battery charge-discharge controller MSC-11836	B69-10747	01
Braze joint quality tested electromagnetically M-PS-12795	B67-10333	01	ELECTRIC DISCHARGES		
Field effect transistors improve buffer amplifier M-PS-916	B67-10334	01	Reference black body is compact, convenient to use ARC-3	B63-10004	03
Digital-to-analog converter operates from low level inputs JPL-907	B67-10357	01	Regenerative fuel cell combines high efficiency with low cost WOO-090	B65-10363	01
Design for high-temperature /1800 deg F/ liquid metal pressure transducer LEWIS-10144	B67-10458	01	Cold cathode ionization gage has rigid metal housing GSFC-445	B66-10041	01
Copper and nickel adherently electroplated on titanium alloy M-PS-13952	B67-10532	03	Hollow needle used to cut metal honeycomb structures MSC-486	B66-10244	05
Low cost SCR lamp driver indicates contents of digital computer registers GSFC-10221	B67-10656	01	Large capacitor performs as a distributed parameter pulse line LEWIS-176	B66-10291	01
Lightweight heater generates high temperatures from low current SAN-10004	B68-10223	01	Thermocouples easily installed in hard-to- get-to places M-PS-1946	B66-10653	01
Welder analyzer MSC-12068	B68-10242	01	High-energy-rate magnetohydraulic metal forming system M-PS-2142	B67-10126	02
Recharge unit provides for optimum recharging of battery cells GSFC-10688	B68-10273	01	Test instrumentation evaluates electrostatic hazards in fluid system M-PS-2277	B67-10145	01
Fluidic-thermochromic display device ERC-10031	B68-10350	01	Traveling wire electrode increases productivity of Electrical Discharge Machining /EDM/ equipment ARG-136	B67-10238	05
Nondestructive test determines overload destruction characteristics of current limiter fuses XGS-08566	B68-10364	01	Standard surface grinder for precision machining of thin-wall tubing ARG-10014	B67-10400	05
Method for reducing snap in magnetic amplifiers LEWIS-10388	B68-10388	01	Silicon oxide films grown in microwave discharge M-PS-14634	B68-10171	01
CIRCUS--A digital computer program for transient analysis of electronic circuits M-PS-15002	B68-10416	06	Miniature pressure transducer for stressed member application MSC-11869	B68-10246	01
Locating **sneak paths** in electrical circuitry M-PS-15018	B68-10565	01	Recharge unit provides for optimum recharging of battery cells GSFC-10688	B68-10273	01
Bootstrap unloader XNP-09768	B69-10120	01	High-voltage pulse generator developed for wide-gap spark chambers ARG-10136	B68-10283	01

SUBJECT INDEX

ELECTRIC GENERATORS

Method for removing surface-damaged layers from nickel alloys M-FS-18151	B68-10522	03	
Simple quasi-exponential slope generator NPO-11130	B69-10439	01	
Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01	
Battery charge-discharge controller MSC-11836	B69-10747	01	
ELECTRIC ENERGY STORAGE			
Regenerative fuel cell combines high efficiency with low cost WOO-090	B65-10363	01	
New energy storage concept uses tapes LEWIS-239	B66-10098	02	
Storage of electric and magnetic energy in passive nonreciprocal networks ARG-10360	B69-10630	01	
ELECTRIC EQUIPMENT			
Hot-air soldering technique prevents overheating of electrical components GSFC-91	B63-10536	01	
Inexpensive electrical connector is moisture and corrosion-proof MSC-164	B65-10196	01	
Electrical probe ensures reliable contact in socket M-FS-315	B65-10215	01	
Keyed plugs and sockets prevent improper connections MSC-231	B65-10381	01	
An improved method for electrical cable terminations NPO-10694	B69-10327	01	
Simple test indicates degree of cure of polyimide coatings MSC-15487	B69-10330	03	
ELECTRIC EQUIPMENT TESTS			
Tester periodically registers dc amplifier characteristics MSC-190	B66-10148	01	
Apparatus presents visual display of semiconductor surface characteristics JPL-665	B66-10200	01	
Tester automatically checks insulation of individual conductors in multiple-strand cables NUC-10068	B67-10260	01	
Tester automatically checks paper tape punch and reader after maintenance ARC-66	B67-10267	01	
Dc pin-to-pin testing of integrated circuits GSFC-10284	B68-10001	01	
ELECTRIC FIELDS			
Rod and dish cathode improves penning-type vacuum gage GSFC-447	B66-10082	01	
Spherical ion source XNP-08898	B69-10186	01	
Synchronous charge-constrained electroquasistatic generator HQ-10231	B69-10461	01	
Production of crystalline polymers via liquid crystal monomers HQ-10235	B69-10744	03	
ELECTRIC FILTERS			
High-speed square-wave current limiter operates efficiently JPL-SC-073	B65-10233	01	
Circuit operates as sine function generator MSC-255	B66-10038	01	
Improved relay optical element for spectroradiometer using cryogenically cooled detector MSC-11688	B68-10245	02	
Active rc filter permits easy trade-off of amplifier gain and sensitivity to gain ARC-10042	B68-10539	01	
Improved phase-shift-keyed detector M-FS-20064	B69-10101	01	
Full wave dc-to-dc converter using energy storage transformers LEWIS-10375	B69-10140	01	
PCM bit detection with correction for intersymbol interference GSFC-10155	B69-10153	01	
ELECTRIC FUSES			
One-shot valve may be remotely actuated WOO-195	B65-10266	05	
Single connector provides safety fuses for multiple lines MSC-199	B66-10050	01	
Solid-state recoverable fuse functions as circuit breaker GSFC-560	B66-10691	01	
Fused diode provides visual indication of fuse condition KSC-67-16	B67-10230	01	
Eutectic fuse provides current and thermal protection under high vibration M-FS-13664	B67-10535	01	
Nondestructive test determines overload destruction characteristics of current limiter fuses XGS-08566	B68-10364	01	
ELECTRIC GENERATORS			
Electropneumatic rheostat regulates high current ARC-44	B65-10299	01	
Threshold detector produces narrow pulses at high repetition rates GSFC-383	B65-10310	01	
Thermionic scanner pinpoints work function of emitter surfaces JPL-SC-177	B66-10444	01	
A design procedure for the weight optimization of straight finned radiators GSFC-547	B66-10618	05	
Logarithmic current simulator generates electrical currents accurately between 10 to the minus 11 ampere to 10 to the minus 3 ampere NU-0087	B66-10706	01	
High power dc/dc and dc/ac electrical power conversion techniques developed M-FS-13227	B67-10390	01	
Potassium plasma cell facilitates thermionic energy conversion process ARC-10010	B67-10399	01	
Design for high-temperature /1800 deg F/ liquid metal pressure transducer LEWIS-10144	B67-10458	01	
Electronic load for testing power			

ELECTRIC IGNITION

SUBJECT INDEX

generating devices NPO-10350	B68-10203	01	Gear drive automatically indexes rotary table M-FS-753	B66-10383	05
High temperature alloy LEWIS-10377	B68-10253	03	Interior servicing platform simplifies maintenance of storage tanks M-FS-1300	B66-10425	05
Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01	Flexible drive allows blind machining and welding in hard-to-reach areas MSC-524	B66-10428	05
Concept to convert electrical power GSFC-10222	B68-10321	01	Solid state circuit controls direction, speed, and braking of dc motor JPL-757	B66-10486	01
Full wave dc-to-dc converter using energy storage transformers LEWIS-10375	B69-10140	01	Hybrid solid state switch replaces motor- driven power switch JPL-931	B67-10165	01
Channel-wall limitations in the magnetohydrodynamic induction generator ARG-10128	B69-10255	02	Automated microsyringe is highly accurate and reliable NPO-10142	B67-10203	01
Electrothermal linear actuator NPO-10637	B69-10296	05	Variable-speed, portable routing skate M-FS-13772	B67-10525	05
An unconventional magnetically-coupled multivibrator HQ-10226	B69-10480	01	Development of lunar drill to take core samples to 100-foot depths M-FS-13015	B67-10529	05
ELECTRIC IGNITION Quick-closing valve is actuated by explosive discharge ARC-55	B66-10233	05	Improved control system power unit for large parachutes MSC-12052	B67-10677	05
Evaluation of ignition mechanisms in selected nonmetallic materials MSC-11645	B68-10167	03	Hermetically sealed pump LEWIS-10837	B69-10320	05
ELECTRIC MOTORS Metal strip forms 21 foot boom, rolls up for compact storage GSFC-151	B64-10011	05	ELECTRIC NETWORKS Transistor circuit increases range of logarithmic current amplifier NU-0018	B66-10350	01
Compact cartridge drives coded tape at constant readout speed JPL-472	B64-10222	01	New computer program solves wide variety of heat flow problems M-FS-421	B66-10404	01
Stepping motor drive circuit designed for low power drain GSFC-198	B65-10026	01	Logarithmic current simulator generates electrical currents accurately between 10 to the minus 11 ampere to 10 to the minus 3 ampere NU-0087	B66-10706	01
Multiple test tubes stirred mechanically ARC-42	B65-10120	01	Solid state circuit averages multiple signals and rejects those varying significantly from the average NUC-10066	B67-10262	01
Rotor position sensor switches currents in brushless dc motors GSFC-315	B65-10151	01	Oscilloscope used as X-Y plotter or two-dimensional analyzer LEWIS-311	B67-10269	01
Magnetic-shift-register circuit controls step motor operation GSFC-340	B65-10226	01	Transient Analysis Generator /TAG/ simulates behavior of large class of electrical networks NPO-10031	B67-10319	06
Brushless dc motor uses electron beam switching tube as commutator GSFC-345	B65-10237	01	Logic realization of simple majority voting connectives JPL-727	B67-10511	06
Respiratory transfer valve has fail-safe feature ARC-1	B65-10369	01	Automatic transducer switching provides accurate wide range measurement of pressure differential NUC-10001	B67-10540	01
Ring counter circuit switches multiphase motor direction of rotation JPL-SC-166	B66-10101	01	Ultraminiature manometer-tipped cardiac catheter ARC-10054	B67-10669	01
Electropneumatic transducer automatically limits motor current LEWIS-253	B66-10160	01	Active rc networks of low sensitivity for integrated circuit transfer function ARC-10146	B68-10210	01
Electronic phase-locked-loop speed control system is stable JPL-SC-084	B66-10232	01	Performance analysis of electrical circuits /PANE/ M-FS-15001	B68-10448	06
Compact actuator converts rotary to linear motion JPL-786	B66-10265	05	Active rc filter permits easy trade-off of amplifier gain and sensitivity to gain		
Brushless dc motor has high efficiency, long life GSFC-181	B66-10355	01			

SUBJECT INDEX

ELECTRIC POTENTIAL

ARC-10042	B68-10539	01	JPL-486	B64-10226	01
Locating **sneak paths** in electrical circuitry			Transistorized converter provides nondissipative regulation		
M-FS-15018	B68-10565	01	GSFC-238	B64-10305	01
Storage of electric and magnetic energy in passive nonreciprocal networks			Voltage generator sweeps oscillator frequency linearly with time		
ARG-10360	B69-10630	01	M-FS-219	B64-10320	01
ELECTRIC OUTLETS			Bandwidth switching is transient-free, avoids loss of loop lock		
Continuity tester screens out faulty socket connections			WOO-054	B64-10349	01
JPL-596	B64-10065	01	Circuit converts AM signals to FM for magnetic recording		
Piezoresistive gage tests pin-connector sockets			GSFC-227	B65-10001	01
JPL-675	B65-10128	01	Tunnel-diode circuit features zero-level clipping		
Electrical probe ensures reliable contact in socket			GSFC-241	B65-10002	01
M-FS-315	B65-10215	01	Inexpensive, stable circuit measures heart rate		
Keyed plugs and sockets prevent improper connections			MSC-95	B65-10010	01
MSC-231	B65-10381	01	Zener diode function generator requires no external reference voltage		
Polarizing keys prevent mismatch of connector plugs and receptacles			JPL-0031	B65-10013	01
MSC-443	B66-10251	01	Transistor voltage comparator performs own sensing		
High-torque power wrench, a concept			GSFC-228	B65-10028	01
M-FS-18194	B68-10299	05	Pulse height analyzer operates at high repetition rates, low power		
ELECTRIC POTENTIAL			WOO-046	B65-10041	01
Igniting system for mercury lamps protects transistorized sustaining supply			Zener diode is starter for transistor regulated power supply		
JPL-421	B63-10262	01	NU-0015	B65-10052	01
Two-stage emitter follower is temperature stabilized			Pulse generator permits nondestructive testing of component breakdown voltage		
MSC-20	B63-10493	01	MSC-122	B65-10054	01
Simple circuit provides adjustable voltage with linear temperature variation			Vibrating-membrane electrometer has high conversion gain		
JPL-WOO-029	B63-10537	01	ARC-38	B65-10056	01
Transistorized trigger circuit is frequency-controllable			Fuel cell serves as oxygen level detector		
GSFC-111	B63-10553	01	JPL-SC-072	B65-10066	01
Simple circuit continuously monitors thermocouple sensor			Synchronized pulse generator needs no external power		
M-FS-61	B63-10567	01	GSFC-274	B65-10072	01
Liquid switch is remotely operated by low dc voltage			Light-sensitive potentiometer measures product of two variables		
GSFC-119	B63-10599	01	GSFC-240	B65-10076	01
Circuit controls transients in SCR inverters			Variable voltage supply uses Zener diode as reference		
GSFC-120	B63-10600	01	GSFC-262	B65-10097	01
Monostable circuit with tunnel diode has fast recovery			High-gain amplifier has excellent stability and low power consumption		
GSFC-132	B63-10603	01	GSFC-272	B65-10138	01
Temperature-sensitive network drives astable multivibrator			Digital-output cardiometer measures rapid changes in heartbeat rate		
GSFC-137	B63-10609	01	MSC-133	B65-10143	01
Low-power transistorized circuit provides staircase waveform			Dc to ac converter operates efficiently at low input voltages		
GSFC-48	B64-10007	01	GSFC-130	B65-10178	01
Digital logic elements provide additional functions from analog input			Voltage controlled oscillator is easily aligned, has low phase noise		
MSC-64	B64-10064	01	JPL-510	B65-10223	01
Auxiliary silver electrode eliminates two-step voltage discharge characteristic of silver-zinc cells			Nonlinear feedback reduces analog-to-digital converter error		
GSFC-169	B64-10114	01	ARC-46	B65-10277	01
Field effect transistors used as voltage controlled resistors			Photoresistance analog multiplier has wide range		
M-FS-174	B64-10163	01	GSFC-360	B65-10287	01
Temperature-compensation circuit stabilizes performance of vidicons					

ELECTRIC POWER

SUBJECT INDEX

Dual-voltage power supply has increased efficiency LEWIS-107A	B66-10002	01	Electromotive series established for metals used in aerospace technology M-FS-18327	B68-10385	03
System proportions fluid-flow in response to demand signals GSFC-457	B66-10094	01	Charge control of nickel-cadmium batteries by coulometer and third electrode method GSFC-10487	B68-10431	01
Tester periodically registers dc amplifier characteristics MSC-190	B66-10148	01	Method for measuring alternator voltage transients LEWIS-10373	B68-10513	01
Simple, nondestructive test identifies metals MSC-525	B66-10305	03	Performance of low-pressure thermionic converters is evaluated ARG-10276	B69-10090	01
Phase inverter provides variable reference push-pull output HQ-23	B66-10344	01	Bootstrap unloader XNP-09768	B69-10120	01
Transistor circuit increases range of logarithmic current amplifier NU-0018	B66-10350	01	Self-starting circuit for switching regulators LEWIS-10686	B69-10128	05
Standard arc welders provide high amperage direct current source LANGLEY-267	B66-10441	01	Positive and negative output circuits LEWIS-10715	B69-10151	01
Semiconductors can be tested without removing them from circuitry M-FS-1163	B66-10447	01	PCM bit detection with correction for intersymbol interference GSFC-10155	B69-10153	01
High voltage potential divider calibrated by simple device ARG-83	B66-10497	01	Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01
Electronic circuit delivers pulse of high interval stability MSC-673	B66-10501	01	Improved liquid-level sensor for cryogenics ARG-10162	B69-10210	02
Computer programs calculate potential and charge distributions in a plasma M-FS-871	B66-10553	01	Linear voltage-to-frequency converter GSFC-10546	B69-10220	01
Computer program simplifies transient and steady-state temperature prediction for complex body shapes MSC-989	B66-10619	01	Highly linear, sensitive analog-to-digital converter MSC-13110	B69-10230	01
Test instrumentation evaluates electrostatic hazards in fluid system M-FS-2277	B67-10145	01	Piezoelectric lock mechanism resists lockpicking SAN-10037	B69-10281	01
Iron serves as diffusion barrier in thermally regenerative galvanic cell ARG-29	B67-10189	03	Remote control thermal actuator LEWIS-10873	B69-10307	01
Electrometer amplifier operates over dynamic range of five orders of magnitude ARC-75	B67-10199	01	An electronic circuit for sensing malfunctions in test instrumentation KSC-10209	B69-10392	01
Amplifier provides dual outputs from a single source with complete isolation NUC-10056	B67-10221	01	Hydrogen flash lamps studied ARG-10419	B69-10411	02
General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-FS-13094	B67-10331	06	Accurate nine-decade temperature-compensated logarithmic amplifier ARG-10480	B69-10429	01
Braze joint quality tested electromagnetically M-FS-12795	B67-10333	01	Synchronous charge-constrained electroquasistatic generator HQ-10231	B69-10461	01
Crack growth measured on flat and curved surfaces at cryogenic temperatures LEWIS-389	B67-10384	01	Synchronizing redundant power oscillators XGS-09377	B69-10546	01
Series transistors isolate amplifier from flyback voltage MSC-11023	B67-10468	01	Use of medical and dental X-ray equipment for nondestructive testing MSC-13389	B69-10553	01
Converter provides constant electrical power at various output voltages GSFC-519	B67-10481	01	Automatic frequency control of voltage-controlled oscillators NPO-11064	B69-10569	01
Improved limiter for turn-on current transient GSFC-10413	B68-10384	01	Flexible high-voltage supply for experimental electron microscope ARG-10482	B69-10603	01
			Cryogenic flux-concentrator ARG-10494	B69-10654	02
			ELECTRIC POWER		
			Camera shutter is actuated by electric signal ARC-20	B63-10560	05

SUBJECT INDEX

ELECTRIC RELAYS

Ring counter may be advanced or retarded by command signal GSFC-101	B64-10144	01	New television camera eliminates vidicon tube M-FS-472	B66-10112	01
Electrically heated diaphragm eliminates use of pyrotechnics MSC-241	B65-10400	01	Single channel pulse-height analyzer operates in subnanosecond range LEWIS-267	B66-10377	01
A design procedure for the weight optimization of straight finned radiators GSFC-547	B66-10618	05	Parallel line raster eliminates ambiguities in reading timing of pulses less than 500 microseconds apart JPL-805	B66-10386	01
Control circuit ensures solar cell operation at maximum power GSFC-432	B67-10061	01	Pulse generator using transistors and silicon controlled rectifiers produces high current pulses with fast rise and fall times MSC-405	B66-10456	01
Standard surface grinder for precision machining of thin-wall tubing ARG-10014	B67-10400	05	Electronic circuit delivers pulse of high interval stability MSC-673	B66-10501	01
Study made of anodized aluminum circuit boards M-FS-13580	B67-10425	01	Cleanroom air sampler counts, categorizes, and records particle data M-FS-2221	B67-10076	01
Regulated dc-to-dc converter features low power drain GSFC-03429	B68-10017	01	Alpha particle backscattering measurements used for chemical analysis of surfaces ARG-116	B67-10186	03
Welder analyzer MSC-12068	B68-10242	01	Laboratory pulse modulator uses minority carrier storage diodes M-FS-2442	B67-10226	01
Conceptual hermetically sealed elbow actuator M-FS-14710	B68-10300	05	Improved television signal processing system NPO-10140	B67-10246	01
Technical report on galvanic cells with fused-salt electrolytes ARG-10297	B69-10155	01	Fast-response frequency-to-analog converter M-FS-709	B67-10257	01
Studies of cycles for liquid-metal magnetohydrodynamic generation of power ARG-10250	B69-10194	02	Oscilloscope used as X-Y plotter or two-dimensional analyzer LEWIS-311	B67-10269	01
Electrothermal linear actuator NEO-10637	B69-10296	05	Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01
ELECTRIC POWER PLANTS Liquid-metal-piston MHD generator ARG-10500	B69-10771	02	Automatic tuning of hydrogen masers GSFC-10127	B69-10452	01
ELECTRIC POWER TRANSMISSION Reparable, high-density microelectronic module provides effective heat sink M-FS-13075	B67-10356	01	ELECTRIC REACTORS Multipulse current source offers low power losses and high reliability LANGLEY-68	B67-10603	01
Liquid gallium rotary electric contract LEWIS-10828	B69-10138	03	ELECTRIC RELAYS Simple circuit continuously monitors thermocouple sensor M-FS-61	B63-10567	01
Optimizing solar-cell grid geometry HQ-10417	B69-10460	01	Electronic ohmmeter provides direct digital output GSFC-363	B65-10274	01
ELECTRIC PROPULSION Full wave dc-to-dc converter using energy storage transformers LEWIS-10375	B69-10140	01	Remote control electrical switching system has 1000-output capability M-FS-380	B65-10318	01
ELECTRIC PULSES Ball bearing used in design of rugged flowmeter LEWIS-159	B64-10170	05	Ring counter circuit switches multiphase motor direction of rotation JPL-SC-166	B66-10101	01
Explosives actuate nonmagnetic indexing device GSFC-237	B65-10017	05	Solid state detectors monitor relay contacts JPL-785	B66-10396	01
Solid-state switching used to speed up capacitive integrator LANGLEY-104	B65-10159	01	Solid-state switch increases switching speed WOO-298	B66-10430	01
Brushless dc motor uses electron beam switching tube as commutator GSFC-345	B65-10237	01	Electronic circuit provides accurate sensing and control of dc voltage NU-0089	B66-10591	01
Simple device produces accelerometer calibration pulse M-FS-363	B65-10269	01	Electrical continuity scanner facilitates identification of wires for soldering to connectors MSC-626	B66-10605	01
Frequency discriminator with binary output eliminates tuned circuits M-FS-376	B65-10349	01	Magnetoresistor monitors relay performance		

ELECTRIC SPARKS

SUBJECT INDEX

M-FS-1754	B66-10650	01	Soldering iron temperature is automatically reduced	B66-10203	01
Improved fluid control circuit operates on low power input	B67-10042	01	Key-locked guard prevents accidental switch actuation	B66-10235	05
LEWIS-325	B67-10165	01	Magnetically operated limit switch has improved reliability, minimizes arcing	B66-10270	01
Hybrid solid state switch replaces motor-driven power switch	B67-10314	01	Flexible arms provide constant force for pressure switch calibration	B66-10317	05
JPL-931	B67-10369	01	Low rate flow switch can be used for gas or liquid	B66-10696	01
SiC/Si diode trigger circuit provides automatic range switching for log amplifier	B67-10314	01	Variable reluctance switch avoids contact corrosion and contact bounce	B67-10137	01
M-FS-1879	B67-10369	01	Dynamic linearity measurement technique	B68-10290	01
Multiple meter monitoring circuits served by single alarm	B67-10369	01	Random access-random release relay switching matrix	B68-10301	01
MSC-10984	B68-10268	01	M-FS-12590	B68-10301	01
Vibration testing and dynamic studies of relays	B68-10301	01	Simple switch actuated by force applied over wide solid angle	B69-10032	01
M-FS-14542	B68-10312	01	XNP-09808	B69-10032	01
Random access-random release relay switching matrix	B68-10312	01	Bootstrap unloader	B69-10120	01
M-FS-12590	B68-10384	01	XNP-09768	B69-10120	01
System measures arc energy dissipated in relay contact cycling	B68-10384	01	Gage provides audible signal to facilitate checkout of connector pins	B69-10173	01
M-FS-14541	B68-10535	05	KSC-10335	B69-10173	01
Improved limiter for turn-on current transient	B68-10535	05			
GSFC-10413	B68-10535	05			
Pyrotechnic-actuated cable release	B68-10535	05			
XNP-10849	B68-10535	05			
ELECTRIC SPARKS			ELECTRIC TERMINALS		
Instrument accurately measures extremely low air densities	B65-10221	01	Small digital recording head has parallel bit channels, minimizes cross talk	B63-10284	01
M-FS-193	B65-10221	01	JPL-0029	B63-10284	01
Small, high-intensity flasher permits continuous close-in photography	B66-10119	03	Use of tear ring permits repair of sealed module circuitry	B65-10014	05
NU-0043	B66-10119	03	M-FS-210	B65-10014	05
Toroidal ring prevents gas ignition at vent stack outlet	B67-10098	05	Graphite element serves as radiant heat source	B65-10218	01
M-FS-2042	B67-10098	05	M-FS-105	B65-10218	01
Effects of surface preparation on quality of aluminum alloy weldments	B68-10302	03	Standoff tool speeds placement of friction-fit electrical terminals	B65-10348	05
M-FS-13152	B68-10302	03	W00-029	B65-10348	05
Detecting hydrogen-containing contaminants on metal surfaces	B69-10192	03	Adhesive-backed terminal board eliminates mounting screws	B65-10396	01
M-FS-20456	B69-10192	03	MSC-173	B65-10396	01
High voltage pulse generator	B69-10548	01	Low power heating element provides thermal control during swaging operations	B66-10206	05
MSC-12178	B69-10548	01	M-FS-457	B66-10206	05
ELECTRIC SWITCHES			Semiautomatic device tests components with biaxial leads	B66-10337	03
Stepping switch with simple actuator provides many contacts in small space	B63-10118	01	MSC-516	B66-10337	03
JPL-122	B63-10118	01	Device serves as hinge and electrical connector for circuit boards	B66-10359	01
Coincident switch closing reduces error in motor-driven timer	B63-10143	05	M-FS-743	B66-10359	01
JPL-182	B63-10143	05	Electronic bidirectional valve circuit prevents crossover distortion and threshold effect	B66-10420	01
High-speed square-wave current limiter operates efficiently	B65-10233	01	MSC-193	B66-10420	01
JPL-SC-073	B65-10233	01	Electrical continuity scanner facilitates identification of wires for soldering to connectors	B66-10605	01
Remote control electrical switching system has 1000-output capability	B65-10318	01	MSC-626	B66-10605	01
M-FS-380	B65-10318	01	Teleprinter uses thermal printing technique	B67-10572	01
Miniature bioelectric device accurately measures and telemeters temperature	B66-10057	01	MSC-11327	B67-10572	01
ARC-52	B66-10057	01	Flat cable insulation stripping machine	B67-10581	05
Switching mechanism senses angular acceleration	B66-10158	01	M-FS-13776	B67-10581	05
GSFC-462	B66-10158	01			
Safety switch permits emergency bridge crane shutdown	B66-10168	05			
M-FS-549	B66-10168	05			

SUBJECT INDEX

ELECTRICAL FAULTS

SEAL /Subnetwork Enumeration And listing/ ERC-10116	B68-10227	06	hermetically sealed splices in metal sheathed instrumentation cables NU-0083	B66-10704	05
Frangible electrochemical cell and sealing technique XGS-10010	B69-10056	01	Glass formulation has high coefficient of thermal expansion NU-0084	B66-10705	03
Novel terminal strips for transformers NPO-10842	B69-10246	01	Thermocouple-flexible cable connector insulator is highly reliable NU-0082	B66-10709	01
Pressure transducer NPO-10853	B69-10364	01	Evaluation of high temperature stranded hookup wire M-FS-2478	B67-10122	03
Breakaway electrical connector NPO-11140	B69-10474	01	Cable clamp bolt fixture facilitates assembly in close quarters KSC-67-80	B67-10244	05
Folded stick module NPO-10854	B69-10498	01	Tester automatically checks insulation of individual conductors in multiple-strand cables NUC-10068	B67-10260	01
Device for reflowing electrodeposited solder on terminals M-FS-13821	B69-10670	01	Eutectic fuse provides current and thermal protection under high vibration M-FS-13664	B67-10535	01
ELECTRIC WELDING			Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area NUC-10007		
Shoulder adapter steadies spot welding gun M-FS-321	B66-10076	05	Standards for compatibility of printed circuit and component lead materials M-FS-14531	B68-10310	01
Automatic reel controls filler wire in welding machines MSC-416	B66-10236	05	System for measuring spatial distribution of ejected droplets, a concept NPO-10185	B68-10402	01
Welds chilled by liquid coolant manifold M-FS-679	B66-10354	05	Conditioning flat conductors for flat conductor cable production M-FS-14914	B68-10429	01
ELECTRIC WIRE			Breakaway electrical connector NPO-11140	B69-10474	01
Small digital recording head has parallel bit channels, minimizes cross talk JPL-0029	B63-10284	01	Folded stick module NPO-10854	B69-10498	01
Circuit reliability boosted by soldering pins of disconnect plugs to sockets JPL-447	B64-10002	01	Exploding bridgewire detonator simulator M-FS-02191	B69-10782	01
Hand tool bends component leads accurately M-FS-308	B65-10181	05	ELECTRICAL CONDUCTIVITY METERS		
Force controlled solenoid drives microweld tester WOO-125	B65-10182	01	Electronic circuitry used to automate paper chromatography JPL-840	B67-10201	01
Compact retractor protects cabling loops M-FS-561	B66-10018	05	ELECTRICAL FAULTS		
Mounting improves heat-sink contact with beryllia washer MSC-194	B66-10144	01	Spherical electrode eliminates high-voltage breakdown LEWIS-155	B65-10139	01
Two-light circuit continuously monitors ac ground, phase, and neutral wires MSC-356	B66-10163	01	Solid state detectors monitor relay contacts JPL-785	B66-10396	01
Liquid trap seals thermocouple leads M-FS-688	B66-10212	05	Cryogenic cooling reduces high voltage arcing between electrodes operating in a vacuum ARG-109	B66-10499	02
Jig protects transistors from heat while tinning leads MSC-515	B66-10240	05	Cut-through tester accurately measures insulation failure rates M-FS-12506	B67-10354	03
Polarizing keys prevent mismatch of connector plugs and receptacles MSC-443	B66-10251	01	Study made of dielectric properties of promising materials for cryogenic capacitors M-FS-13620	B67-10366	03
Multiple temperatures sampled using only one reference junction GSFC-485	B66-10260	01	Reducing bubbles in glass coatings improves electrical breakdown strength LEWIS-10278	B68-10214	03
Semiautomatic device tests components with biaxial leads MSC-516	B66-10337	03	Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time		
Tool forms right angles in component leads M-FS-722	B66-10346	05			
Electrically conductive fibers thermally isolate temperature sensor GSFC-456	B66-10349	01			
Metal boot permits fabrication of					

ELECTRICAL GROUNDING

SUBJECT INDEX

ARG-10110	B68-10328	01	New electrical plethysmograph monitors cardiac output MSC-11447	B68-10220	01
Nondestructive testing of welds on thin-walled tubing M-FS-18144	B69-10402	01	Locating **sneak paths** in electrical circuitry M-FS-15018	B68-10565	01
Use of medical and dental X-ray equipment for nondestructive testing MSC-13389	B69-10553	01	One hundred MHz voltage-controlled oscillator NPO-11004	B69-10133	01
ELECTRICAL GROUNDING			Quality-weld parameters for microwelding techniques and equipment M-FS-20484	B69-10303	05
Self-shielding printed circuit boards for high frequency amplifiers and transmitters HQ-10433	B69-10314	01	Field Effect Transistor /FET/ circuit for variable gain amplifiers GSFC-10116	B69-10322	01
ELECTRICAL IMPEDANCE			Energy-storage of a prescribed impedance ARG-10428	B69-10431	02
Double-throw microwave device switches two lines quickly JPL-410	B63-10258	01	Ionene membrane battery separator NPO-11091	B69-10501	03
Circuit switches latching relay in response to signals of different polarity WOO-055	B63-10508	01	ELECTRICAL INSULATION		
Unijunction frequency divider is free of backward loading JPL-WOO-010	B65-10112	01	Radiant heater for vacuum furnaces offers high structural rigidity, low heat loss LEWIS-39	B63-10342	01
Simplified electrometer has excellent operating characteristics JPL-413	B65-10125	01	New apparatus increases ion beam power density LEWIS-73	B63-10440	01
Field effect transistor presents high input impedance in ac amplifier JPL-500	B65-10232	01	Connector for thermocouple leads saves costly wire, makes reliable connectors LANGLEY-26	B63-10529	01
Complementary monostable circuits achieve low power drain and high reliability GSFC-433	B66-10179	01	Continuity tester screens out faulty socket connections JPL-596	B64-10065	01
FET comparator detects analog signal levels without loading analog device M-FS-503	B66-10224	01	Improved technique for localizing electropolishing features novel nozzles WOO-101	B64-10271	01
Simple circuit provides reliable multiple signal average and reject capability NU-0069	B66-10282	01	Improved magnetometer uses toroidal gating coil GSFC-249	B65-10103	01
Large capacitor performs as a distributed parameter pulse line LEWIS-176	B66-10291	01	Efficient thin film heating element takes minimum space GSFC-289	B65-10123	01
Simple, nondestructive test identifies metals MSC-525	B66-10305	03	Simple device produces accelerometer calibration pulse M-FS-363	B65-10269	01
Microphone multiplex system provides multiple outlets from single source GSFC-426	B66-10308	01	Ceramic materials purified by experimental method LEWIS-225	B65-10270	03
Feedback loop compensates for rectifier nonlinearity M-FS-384	B66-10382	01	Boron nitride housing cools transistors WOO-079	B65-10289	01
Video signal processing system uses gated current mode switches to perform high speed multiplication and digital-to-analog conversion MSC-781	B66-10429	01	Reflective insulator layers separated by bonded silica beads MSC-215	B66-10070	03
Amplifier provides dual outputs from a single source with complete isolation NUC-10056	B67-10221	01	Mounting improves heat-sink contact with beryllia washer MSC-194	B66-10144	01
An efficient, temperature-compensated subcarrier oscillator JPL-SC-091	B67-10251	01	Special tool seals conductors with combination of plastic sleeves M-FS-579	B66-10209	05
Analog buffer isolates high impedance source from low impedance load M-FS-13481	B67-10544	01	Electric arc heater is self starting LANGLEY-208	B66-10230	03
Multipulse current source offers low power losses and high reliability LANGLEY-68	B67-10603	01	Rugged microelectronic module package supports circuitry on heat sink MSC-81A	B66-10245	01
Bilateral, zero-impedance static semiconductor switch LEWIS-10129	B68-10118	01	Multiple temperatures sampled using only one reference junction GSFC-485	B66-10260	01
			Electrical cabling withstands severe		

SUBJECT INDEX

ELECTRICAL RESISTANCE

environmental conditions M-FS-1585	B66-10427	01	Improved insertion-loss tester JPL-358	B64-10080	01
Rubber and alumina gaskets retain vacuum seal in high temperature EMF cell ARG-17	B66-10472	05	Pulse height analyzer operates at high repetition rates, low power WOO-046	B65-10041	01
Nonelectrolytic tantalum capacitors developed M-FS-1546	B66-10552	01	Vibrating-membrane electrometer has high conversion gain ARC-38	B65-10056	01
Thermocouple-flexible cable connector insulator is highly reliable NU-0082	B66-10709	01	Variable load automatically tests dc power supplies GSFC-291	B65-10105	01
Feed-through connector couples RF power into vacuum chamber NU-0096	B67-10027	01	Semiautomatic device tests components with biaxial leads MSC-516	B66-10337	03
RF inductor has high Q, is stable at higher temperatures JPL-1019	B67-10106	01	Edge-type connectors evaluated by electrical noise measurement M-FS-2243	B67-10125	01
Evaluation of high temperature stranded hookup wire M-FS-2478	B67-10122	03	Improved circuit for measuring capacitive and inductive reactances M-FS-13083	B67-10513	01
Cracks in glass electrical connector headers removed by dry blasting with fine abrasive LEWIS-381	B67-10148	03	Studies in zirconium oxidation ARG-10099	B68-10199	03
X-ray source uses interchangeable target anodes to vary X-ray wavelength NPO-10036	B67-10218	02	Welder analyzer MSC-12068	B68-10242	01
Tester automatically checks insulation of individual conductors in multiple-strand cables NUC-10068	B67-10260	01	Recharge unit provides for optimum recharging of battery cells GSFC-10688	B68-10273	01
Protected, high-temperature connecting cable LEWIS-10149	B67-10461	01	Nondestructive test determines overload destruction characteristics of current limiter fuses XGS-08566	B68-10364	01
Composite solar cell matrix is reliable, lightweight and flexible NPO-10821	B67-10503	01	Electromotive series established for metals used in aerospace technology M-FS-18327	B68-10385	03
Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01	Method for measuring alternator voltage transients LEWIS-10373	B68-10513	01
Eutectic fuse provides current and thermal protection under high vibration M-FS-13664	B67-10535	01	Low-cost voltage-level detector LEWIS-10885	B69-10217	01
Vapor deposition process provides new method for fabricating high temperature thermocouples NUC-10152	B67-10616	01	Instrumentation for potentiostatic corrosion studies with distilled water ARG-10409	B69-10413	03
Conceptual apparatus for detecting leaks of nonconductive liquids M-FS-14713	B68-10303	01	ELECTRICAL PROPERTIES		
Temperature or pressure controller LEWIS-10297	B68-10337	01	Copper wire plated with nickel and silver resists corrosion M-FS-761	B66-10421	03
Gage measures total radiation, including vacuum UV, from ionized high-temperature gases XNP-09802	B69-10028	02	Development of improved potting and conformal coating compounds M-FS-20219	B69-10559	03
Refractory oxide insulated thermocouple designed and analyzed for high temperature applications ARG-10202	B69-10053	03	A theoretical study of radar backscatter from distributed targets with emphasis on polarization dependence M-FS-13775	B69-10560	02
Tools for applying lead tape to flat conductor cabling for chemical stripping M-FS-20429	B69-10190	05	ELECTRICAL RESISTANCE		
Novel terminal strips for transformers NPO-10842	B69-10246	01	Ohmmeter senses depletion of lubricant in journal bearings LEWIS-37	B64-10042	01
ELECTRICAL MEASUREMENT			Lead oxide ceramic makes excellent high-temperature lubricant LEWIS-144	B64-10116	03
New low-level a-c amplifier provides adjustable noise cancellation and automatic temperature compensation ARC-2	B63-10003	04	Adhesive for vacuum environments resists shock and vibration MSC-56	B65-10016	03
			Logic circuit exhibits optimum performance LANGLEY-129	B65-10193	01
			Electronic ohmmeter provides direct digital output		

ELECTRICAL RESISTIVITY

SUBJECT INDEX

GSFC-363	B65-10274	01	A new solid lubricant LEWIS-10812	B69-10250	03
Electropneumatic rheostat regulates high current ARC-44	B65-10299	01	Nondestructive evaluation of printed wiring boards by microhm resistance measurements SAN-10034	B69-10272	01
Improved strain-wire flowmeter has fast response time LEWIS-241	B65-10304	01	Design of a strain-gage probe ARG-10338	B69-10343	05
Thin-film resistors used in functional electronic blocks GSFC-380	B65-10305	01	Generation of sonic power during welding M-FS-20339	B69-10404	05
Cuprous selenide and sulfide form improved photovoltaic barriers WOO-212	B66-10025	01	Temperature-controlled resistor NPO-10713	B69-10440	01
Gelatin coated electrodes allow prolonged bioelectronic measurements MSC-153	B66-10088	01	Synchronous charge-constrained electroquasistatic generator HQ-10231	B69-10461	01
Hot-wire detector for chemically active materials used in gas chromatography MSC-269	B66-10139	03	Thermally conducting electron transfer polymers GSFC-10703	B69-10511	03
Complementary monostable circuits achieve low power drain and high reliability GSFC-433	B66-10179	01	Engineering thermal analyzer /BETA 2/ M-FS-15055	B69-10760	06
High-performance RC bandpass filter is adapted to miniaturized construction ARC-60	B66-10309	01	Exploding bridgewire detonator simulator M-FS-02191	B69-10782	01
Minimum permissible leakage resistance established for instrumentation systems M-FS-848	B66-10397	01	ELECTRICAL RESISTIVITY		
New computer program solves wide variety of heat flow problems M-FS-421	B66-10404	01	Indium foil with beryllia washer improves transistor heat dissipation GSFC-42	B63-10033	01
Thermocouples electrically checked while connected to data system LANGLEY-182	B66-10623	01	Cooling method prolongs life of hot-wire transducer LEWIS-41	B63-10344	02
Equivalent circuit for a field effect transistor established for computer simulation M-FS-1752	B66-10690	01	Improved conductive paste secures biomedical electrodes MSC-107	B65-10015	03
Solid-state recoverable fuse functions as circuit breaker GSFC-560	B66-10691	01	Carbon-arc rod holder has long life, reduces arc splatter MSC-144	B65-10095	03
Clamp provides efficient connection for high-density currents M-FS-2417	B67-10140	01	Portable self-powered device detects internal flaws in tubular structures NU-0019	B66-10028	01
Fast-acting calorimeter measures heat output of plasma gun accelerator LEWIS-388	B67-10192	01	Improved electrode paste provides reliable measurement of galvanic skin response MSC-146	B66-10049	04
Fused diode provides visual indication of fuse condition KSC-67-16	B67-10230	01	Reflective insulator layers separated by bonded silica beads MSC-215	B66-10070	03
Concept for cryogenic liquid reclamation system NPO-10322	B67-10420	02	Thermal motor positions magnetometer sensors ARC-51	B66-10078	05
Graphite cloth facilitates vacuum evaporation of silicon monoxide M-FS-14764	B68-10256	03	Refractory coating protects intricate graphite elements from high-temperature hydrogen NU-0027	B66-10084	01
Superconductive thin film makes convenient liquid helium level sensor LANGLEY-10289	B68-10341	01	Integral skin electrode for electrocardiography is expendable MSC-299	B66-10118	04
Ratio matching of half-bridge weldable strain gages, computer program FRC-10032	B69-10040	06	Diffusion technique stabilizes resistor values MSC-205	B66-10142	01
Microelectronic oscillator GSFC-10375	B69-10064	01	Mounting improves heat-sink contact with beryllia washer MSC-194	B66-10144	01
Refractory-metal compound impregnation of polytetrafluoroethylene LEWIS-10733	B69-10072	03	Aluminum doping improves silicon solar cells LEWIS-206	B66-10181	02
			Electrical upsetting of metal sheet forms weld edge M-FS-720	B66-10248	05
			Silver-base ternary alloy proves superior for slip ring lead wires M-FS-1540	B66-10540	03

SUBJECT INDEX

ELECTRO-OPTICS

Tungsten fiber-reinforced copper composites form high strength electrical conductors LEWIS-338	B66-10572	03	NPO-10185	B68-10402	01
Spray-on electrodes enable EKG monitoring of physically active subjects FRC-36	B66-10649	04	Design concept for nonarcing electrical connector M-FS-14937	B68-10404	01
Simple technique determines ac properties of hard superconductive materials M-FS-1818	B66-10657	02	Stress-corrosion-induced property changes in aluminum alloys M-FS-20209	B68-10568	03
Primary cells utilize halogen-organic charge transfer complex JPL-926	B66-10682	02	Propagation of density disturbances in air-water flow ARG-10260	B69-10043	02
Solid-state recoverable fuse functions as circuit breaker GSFC-560	B66-10691	01	Refractory oxide insulated thermocouple designed and analyzed for high temperature applications ARG-10202	B69-10053	03
Hydrated multivalent cations are new class of molten salt mixtures ARG-211	B67-10033	03	Segmented SiGe-PbTe couples GSFC-10746	B69-10233	01
Mechanisms of superconductivity investigated by nuclear radiation M-FS-1944	B67-10057	02	Field Effect Transistor /FET/ circuit for variable gain amplifiers GSFC-10116	B69-10322	01
Evaluation of high temperature stranded hookup wire M-FS-2478	B67-10122	03	Magnetic forming of resistive materials M-FS-20417	B69-10397	03
Static electricity of polymers reduced by treatment with iodine NPO-10062	B67-10132	03	Improved ferrous shielding for flat cables M-FS-14524	B69-10401	01
Oxide film on metal substrate reduced to form metal-oxide-metal layer structure ARG-48	B67-10187	03	Production of solvated electrons ARG-10416	B69-10430	03
Switching-type regulator circuit has increased efficiency MSC-1063	B67-10190	01	Improved inorganic ion exchange membranes LEWIS-10737	B69-10451	03
X-ray source uses interchangeable target anodes to vary X-ray wavelength NPO-10036	B67-10218	02	Abrasion and fracture testing in a high-pressure hydrogen environment M-FS-18480	B69-10457	03
Substituting gold for silver improves electrical connections M-FS-2390	B67-10228	03	Preparation of superconducting thin films of transition-metal interstitial compounds HQ-10445	B69-10470	01
Fused diode provides visual indication of fuse condition KSC-67-16	B67-10230	01	Analysis of cell performance and thermal regeneration of a lithium-tin cell having an immobilized fused-salt electrolyte ARG-10453	B69-10627	03
Sensitive bridge circuit measures conductance of low-conductivity electrolyte solutions ARG-147	B67-10294	01	Technique for predicting the thermal expansion coefficients of cryogenic metallic alloys NUC-10554	B69-10707	02
Crack growth measured on flat and curved surfaces at cryogenic temperatures LEWIS-389	B67-10384	01	ELECTRO-OPTICAL EFFECT		
Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01	Point-source light sensor circuit is insensitive to background light JPL-778	B66-10502	01
Bacteriostatic conformal coating for electronic components GSFC-10007	B67-10599	03	ELECTRO-OPTICS		
Eddy current probe measures size of cracks in nonmetallic materials M-FS-14059	B67-10645	03	Interferometer combines laser light source and digital counting system MSC-151	B65-10161	01
Resistivity measurements of neutron-irradiated pure metals and Al-Zn alloys ARG-10108	B68-10200	03	Communication system uses modulated laser beam GSFC-377	B65-10333	01
Moebius resistor is noninductive and nonreactive SAN-10020	B68-10267	01	Improved atmospheric particle analyzer ERC-33	B67-10231	01
System for measuring spatial distribution of ejected droplets, a concept			Laser system generates single-frequency light M-FS-2556	B67-10288	02
			Wideband, high efficiency optical modulator requires less than 10 watts drive power M-FS-12733	B67-10289	01
			Electro-optic modulator for infrared laser using gallium arsenide crystal GSFC-10686	B68-10255	02
			Technique developed for measuring transmittance of optical birefringent networks M-FS-14267	B68-10260	02

ELECTROCARDIOGRAPHY

SUBJECT INDEX

Improved electro-optical tracking system M-FS-14791	B68-10311	01	ELECTROCHEMICAL CELLS Elastomers bonded to metal surfaces seal electrochemical cells GSFC-168	B64-10113	03
Rapid-response, light-exposure control system NPO-10238	B68-10502	01	Didymium compound improves nickel-cadmium cell GSFC-295	B65-10083	03
Hydrogen flash lamps studied ARG-10419	B69-10411	02	Apparatus measures swelling of membranes in electrochemical cells GSFC-280	B65-10087	01
The Quantasyn, an improved quantum detector ERC-10148	B69-10443	01	Rubber and alumina gaskets retain vacuum seal in high temperature EMF cell ARG-17	B66-10472	05
Technique for improving solid state mosaic images M-FS-20532	B69-10676	01	Primary cells utilize halogen-organic charge transfer complex JPL-926	B66-10682	02
ELECTROCARDIOGRAPHY New low-level a-c amplifier provides adjustable noise cancellation and automatic temperature compensation ARC-2	B63-10003	04	Gas pressure in sealed electrochemical cells measured externally GSFC-10004	B67-10551	03
Improved electrode gives high-quality biological recordings MSC-17	B64-10025	04	Electrochemical cell has internal resistive heater element GSFC-10358	B68-10325	01
Digital cardiometer computes and displays heartbeat rate MSC-93	B64-10258	01	Frangible electrochemical cell and sealing technique XGS-10010	B69-10056	01
Inexpensive, stable circuit measures heart rate MSC-95	B65-10010	01	Refractory-metal compound impregnation of polytetrafluoroethylene LEWIS-10733	B69-10072	03
Simulator produces physiological waveforms MSC-94	B65-10091	01	High-energy, high-power, long-life battery LEWIS-10724	B69-10131	01
Auxiliary circuit enables automatic monitoring of EKG's MSC-106	B65-10142	01	Analysis of secondary cells with lithium anodes and immobilized fused-salt electrolytes ARG-10452	B69-10613	01
Digital-output cardiometer measures rapid changes in heartbeat rate MSC-133	B65-10143	01	ELECTROCHEMICAL CORROSION Galvanic corrosion reduced in aluminum fabrications M-FS-272	B65-10140	03
Tiny biomedical amplifier combines high performance, low power drain ARC-41	B65-10203	01	ELECTROCHEMICAL MACHINING Electrolytic etching process provides effective bonding surface on stainless steel GSFC-484	B66-10299	03
Gelatin coated electrodes allow prolonged bioelectronic measurements MSC-153	B66-10088	01	Electrochemical milling removes burrs and solder from tubing ends M-FS-714	B66-10358	03
Integral skin electrode for electrocardiography is expendable MSC-299	B66-10118	04	Internal machining accomplished at constant radii M-FS-1573	B66-10546	05
Phonocardiograph system monitors heart sounds MSC-185	B66-10154	04	Clamp provides efficient connection for high-density currents M-FS-2417	B67-10140	01
Spray-on electrodes enable EKG monitoring of physically active subjects FRC-36	B66-10649	04	Mechanical properties of wire insulation automatically determined MSC-10983	B67-10370	01
Phase plane displays detect incipient failure in servo system testing HQ-10018	B67-10662	01	ELECTROCHEMISTRY Study of stress corrosion in aluminum alloys M-FS-13906	B67-10533	03
Cardiac R-wave detector LEWIS-10394	B68-10144	01	Nondestructive method for measuring residual stresses in metals, a concept KSC-10237	B68-10378	03
Electrocardiograph transmitted by RF and telephone links in emergency situations FRC-10031	B68-10233	01	Electrochemical study of aluminum corrosion in boiling high purity water ARG-10306	B69-10033	03
Direct reading of electrocardiograms and respiration rates KSC-10233	B69-10188	04	Electrochemical sintering process for producing electrodes from cadmium felt and a nickel or silver grid GSFC-10764	B69-10227	05
Quick don-doff electrode pastes MSC-13249	B69-10598	04	ELECTROCATALYSTS Mass transport mechanism in porous fuel cell electrodes HQ-10343	B69-10135	01

SUBJECT INDEX

ELECTRODES

Coordination chemistry in fused-salt solutions ARG-10469	B69-10423	03	MSC-158	B65-10320	01
ELECTRODELESS DISCHARGES			Segmented electrode increases operating pressure of MHD accelerator LANGLEY-95	B65-10356	02
Electrodeless discharge lamp is easily started, has high stability WOO-030	B66-10015	01	Regenerative fuel cell combines high efficiency with low cost WOO-090	B65-10363	01
ELECTRODEPOSITION			Wire bundle formed into grids with minute interstices WOO-089	B65-10372	03
Metals plated on fluorocarbon polymers JPL-544	B63-10612	03	Photosensors used to maintain welding electrode-to-joint alignment MSC-243	B65-10401	05
Fresnel zone plate forms images at wavelengths below 1000 angstroms GSFC-231	B65-10171	02	Thin-film semiconductor rectifier has improved properties MSC-207	B66-10012	01
Nickel solution prepared for precision electroforming WOO-070	B65-10303	03	Reaction heat used in static water removal from fuel cells M-FS-532	B66-10013	01
Device for reflowing electrodeposited solder on terminals M-FS-13821	B69-10670	01	Improved carbon electrode reduces arc sputtering MSC-219	B66-10026	01
Mixed ether bath for electrodeposition of aluminum LANGLEY-10200	B69-10737	03	Resilient clamp holds fuel cell stack through resilient clamp holds fuel cell stack through thermal cycle MSC-313	B66-10035	05
ELECTRODES			Improved electrode paste provides reliable measurement of galvanic skin response MSC-146	B66-10049	04
New low-level a-c amplifier provides adjustable noise cancellation and automatic temperature compensation ARC-2	B63-10003	04	Gelatin coated electrodes allow prolonged bioelectronic measurements MSC-153	B66-10088	01
Level of super-cold liquids automatically maintained by levelometer JPL-397	B63-10250	01	Integral skin electrode for electrocardiography is expendable MSC-299	B66-10118	04
Welded pressure transducer made as small as 1/8th-inch in diameter ARC-11	B63-10429	03	Small, high-intensity flasher permits continuous close-in photography NU-0043	B66-10119	03
New apparatus increases ion beam power density LEWIS-73	B63-10440	01	Optically driven switch turn-off time reduced by opaque coatings JPL-SC-107	B66-10141	01
Improved electrode gives high-quality biological recordings MSC-17	B64-10025	04	Electric arc heater is self starting LANGLEY-208	B66-10230	03
Auxiliary silver electrode eliminates two-step voltage discharge characteristic of silver-zinc cells GSFC-169	B64-10114	01	Electrical upsetting of metal sheet forms weld edge M-FS-720	B66-10248	05
Welding procedures improves quality of welds, offers other advantages M-FS-32	B64-10309	01	Damping technique gives accelerometer flat frequency response M-FS-471	B66-10293	01
Modification increases light output of injection-luminescent diodes M-FS-192	B65-10006	01	Simple, nondestructive test identifies metals MSC-525	B66-10305	03
Improved conductive paste secures biomedical electrodes MSC-107	B65-10015	03	Vibrator improves spark erosion cutting process NU-0071	B66-10333	01
Pulsed plasma accelerator operates repetitively without complex controls LANGLEY-48	B65-10062	01	Device removes hydrogen gas from enclosed spaces GSFC-495	B66-10340	03
Didysium compound improves nickel-cadmium cell GSFC-295	B65-10083	03	Miniature capacitive accelerometer is especially applicable to telemetry ARC-72	B66-10491	01
Spherical electrode eliminates high-voltage breakdown LEWIS-155	B65-10139	01	Cryogenic cooling reduces high voltage arcing between electrodes operating in a vacuum ARG-109	B66-10499	02
Electrostatically driven dynamic capacitor employs capacitive feedback JPL-771	B65-10293	01	Opposed arcs permit deep weld penetration with only one pass M-FS-1696	B66-10513	05
Thermoelectric elements diffusion-bonded to tungsten electrodes GSFC-346	B65-10309	01			
Rugged pressed disk electrode has low contact potential					

ELECTROENCEPHALOGRAPHY

SUBJECT INDEX

Helmet system broadcasts electroencephalograms of wearer ARC-70	B66-10536	01	Improved fuel-cell-type hydrogen sensor M-FS-14656	B68-10263	01
High intensity radiation heat source is capable of sustained operation ARC-61	B66-10547	02	High-voltage pulse generator developed for wide-gap spark chambers ARG-10136	B68-10283	01
Computer programs calculate potential and charge distributions in a plasma M-FS-871	B66-10553	01	Concept to convert electrical power GSFC-10222	B68-10321	01
Collector/collector guard ring balancing circuit eliminates edge effects JPL-SC-143	B66-10563	01	Gage measures total radiation, including vacuum UV, from ionized high-temperature gases XNP-09802	B69-10028	02
A continuously operating source of vacuum ultraviolet below 500 angstrom GSFC-545	B66-10576	01	Frangible electrochemical cell and sealing technique XGS-10010	B69-10056	01
Power arc welder touch-started with consumable electrode M-FS-1485	B66-10641	05	Mounting method improves electrical and vibrational characteristics of screen electrodes M-FS-20169	B69-10097	01
Spray-on electrodes enable EKG monitoring of physically active subjects FRC-36	B66-10649	04	Ion-retarding lens improves the abundance sensitivity of tandem mass spectrometers ARG-10365	B69-10166	02
Primary cells utilize halogen-organic charge transfer complex JPL-926	B66-10682	02	Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456	B69-10192	03
Hermetically sealed cells protected from internal gas pressure GSFC-555	B66-10692	01	Electrochemical sintering process for producing electrodes from cadmium felt and a nickel or silver grid GSFC-10764	B69-10227	05
Laboratory arc furnace features interchangeable hearths ARG-125	B67-10052	05	Cobalt improves nickel hydroxide electrodes for batteries LEWIS-10760	B69-10228	01
An improved soft X-ray photoionization detector GSFC-540	B67-10072	02	Improved vacuum deposition apparatus NPO-11009	B69-10365	02
Traveling wire electrode increases productivity of Electrical Discharge Machining /EDM/ equipment ARG-136	B67-10238	05	Hydrogen flash lamps studied ARG-10419	B69-10411	02
Portable machine welding head automatically controls arc M-FS-12763	B67-10272	05	Instrumentation for potentiostatic corrosion studies with distilled water ARG-10409	B69-10413	03
Primary cell uses neither liquid nor fused electrolytes NPO-10001	B67-10275	01	Automatic frequency control of voltage-controlled oscillators NPO-11064	B69-10569	01
Lamp enables measurement of oxygen concentration in presence of water vapor MSC-10043	B67-10387	01	Quick don-doff electrode pastes MSC-13249	B69-10598	04
Standard surface grinder for precision machining of thin-wall tubing ARG-10014	B67-10400	05	Monopole mass spectrometer with improved sensitivity and reduced background HQ-10476	B69-10666	01
Fuel cell life improved by metallic sinter activation after electrode assembly welding MSC-10965	B67-10436	03	Pulsed high-voltage dc RF sputtering LEWIS-10920	B69-10699	01
Design for high-temperature /1800 deg F/ liquid metal pressure transducer LEWIS-10144	B67-10458	01	ELECTROENCEPHALOGRAPHY		
Technique eliminates high voltage arcing at electrode-insulator contact area LEWIS-10133	B67-10470	01	Gelatin coated electrodes allow prolonged bioelectronic measurements MSC-153	B66-10088	01
High-temperature /1100 degrees F/ capacitors operate without supplement cooling LEWIS-10324	B67-10550	01	Helmet system broadcasts electroencephalograms of wearer ARC-70	B66-10536	01
Method of maintaining activity of hydrogen-sensing platinum electrode M-FS-1422	B68-10049	03	Spray-on electrodes enable EKG monitoring of physically active subjects FRC-36	B66-10649	04
Welder analyzer MSC-12068	B68-10242	01	Phase plane displays detect incipient failure in servo system testing HQ-10018	B67-10662	01
			Quick don-doff electrode pastes MSC-13249	B69-10598	04
			Biomedical bulk data processing program FRC-10015	B69-10720	06

SUBJECT INDEX

ELECTROLYTES

ELECTROFORMING

High purity electroforming yields superior metal models
ARC-6 B63-10007 05

Vacuum forming of thermoplastic sheet results in low-cost investment casting patterns
ARC-7 B63-10008 05

Ellipsoidal optical reflectors reproduced by electroforming
GSFC-92 B63-10547 05

Nickel solution prepared for precision electroforming
WOO-070 B65-10303 03

Pressure vessels fabricated with high-strength wire and electroformed nickel
M-PS-580 B66-10218 05

Electrical upsetting of metal sheet forms weld edge
M-PS-720 B66-10248 05

Electroformed screens with uniform hole size
LEWIS-10117 B68-10107 05

ELECTROHYDRAULIC FORMING

High-energy-rate magnetohydraulic metal forming system
M-PS-2142 B67-10126 02

ELECTROKINETICS

Fundamental electrode kinetics
ARG-10067 B68-10196 03

ELECTROLUMINESCENCE

Pneumotachometer counts respiration rate of human subject
MSC-92 B64-10259 01

Legibility of electroluminescent instrument panels investigated
MSC-494 B66-10316 02

Panels illuminated by edge-lighted lens technique
MSC-871 B66-10507 02

Plotter design simplifies determination of image sensor transfer characteristic
NPO-10164 B67-10206 01

Improved radiographic image amplifier panel
M-PS-14522 B68-10363 02

Silicon carbide diode for increased light output
M-PS-20063 B69-10096 01

Improved method of fabricating planar gallium arsenide diodes
INP-04235 B69-10271 01

ELECTROLYSIS

Regenerative fuel cell combines high efficiency with low cost
WOO-090 B65-10363 01

ELECTROLYTES

Level of super-cold liquids automatically maintained by levelometer
JPL-397 B63-10250 01

Elastomers bonded to metal surfaces seal electrochemical cells
GSFC-168 B64-10113 03

Filler device for handling hot corrosive materials
MSC-85 B64-10166 03

Improved technique for localizing electropolishing features novel nozzles
WOO-101 B64-10271 01

Fuel cell serves as oxygen level detector

JPL-SC-072 B65-10066 01

Apparatus measures swelling of membranes in electrochemical cells
GSFC-280 B65-10087 01

Nickel solution prepared for precision electroforming
WOO-070 B65-10303 03

Reaction heat used in static water removal from fuel cells
M-PS-532 B66-10013 01

Resilient clamp holds fuel cell stack through resilient clamp holds fuel cell stack through thermal cycle
MSC-313 B66-10035 05

Gelatin coated electrodes allow prolonged bioelectronic measurements
MSC-153 B66-10088 01

New energy storage concept uses tapes
LEWIS-239 B66-10098 02

Vapor diffusion electrode improves fuel cell operation
LEWIS-187 B66-10281 03

Simple, nondestructive test identifies metals
MSC-525 B66-10305 03

Device removes hydrogen gas from enclosed spaces
GSFC-495 B66-10340 03

Electrochemical milling removes burrs and solder from tubing ends
M-PS-714 B66-10358 03

Rubber and alumina gaskets retain vacuum seal in high temperature EMF cell
ARG-17 B66-10472 05

Study shows effect of surface preparations on improving thermionic emission
JPL-SC-140 B66-10493 01

Primary cells utilize halogen-organic charge transfer complex
JPL-926 B66-10682 02

New electrolyte may increase life of polarographic oxygen sensors
MSC-1049 B67-10003 03

Primary cell uses neither liquid nor fused electrolytes
NPO-10001 B67-10275 01

Sensitive bridge circuit measures conductance of low-conductivity electrolyte solutions
ARG-147 B67-10294 01

Development of low temperature battery
LEWIS-10326 B67-10546 01

Fundamental electrode kinetics
ARG-10067 B68-10196 03

Nondestructive method for measuring residual stresses in metals, a concept
KSC-10237 B68-10378 03

Electromotive series established for metals used in aerospace technology
M-PS-18327 B68-10385 03

System for measuring spatial distribution of ejected droplets, a concept
NPO-10185 B68-10402 01

Frangible electrochemical cell and sealing technique
XGS-10010 B69-10056 01

Corrosion protection of aluminum alloys in

ELECTROLYTIC CELLS

SUBJECT INDEX

contact with other metals M-FS-18526	B69-10098	03	ARG-10506	B69-10642	03
Production of metals and compounds by radiation chemistry LEWIS-10231	B69-10123	03	ELECTROMAGNETIC ABSORPTION Optically driven switch turn-off time reduced by opaque coatings JPL-SC-107	B66-10141	01
Battery case shear GSFC-10783	B69-10127	05	Blood oxygen saturation determined by transmission spectrophotometry of hemolyzed blood samples MSC-11018	B67-10252	04
High-energy, high-power, long-life battery LEWIS-10724	B69-10131	01	Correction for losses in optical birefringent networks, a concept M-FS-20088	B68-10571	02
Advances in aluminum anodizing M-FS-14600	B69-10144	05	Primary radical yields in pulse irradiated alkaline aqueous solution ARG-10322	B69-10167	02
Quick don-doff electrode pastes MSC-13249	B69-10598	04	ELECTROMAGNETIC FIELDS Liquid switch is remotely operated by low dc voltage GSFC-119	B63-10599	01
Analysis of secondary cells with lithium anodes and immobilized fused-salt electrolytes ARG-10452	B69-10613	01	Device measures fluid drag on test vehicles LANGLEY-34	B65-10195	01
Analysis of cell performance and thermal regeneration of a lithium-tin cell having an immobilized fused-salt electrolyte ARG-10453	B69-10627	03	Capacitive system detects and locates fluid leaks M-FS-478	B66-10099	01
Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01	System precisely controls oscillation of vibrating mass M-FS-1875	B67-10276	01
Device separates hydrogen from solution in water at ambient temperatures MSC-13335	B69-10635	03	Precision capacitor has improved temperature and operational stability ARG-189	B67-10313	01
ELECTROLYTIC CELLS Pressure sensor responds only to shock wave M-FS-238	B65-10184	01	Movable RF probe eliminates need for calibration in plasma accelerators LEWIS-10127	B67-10362	01
Composite seal reduces alkaline battery leakage GSFC-337	B65-10271	01	Solenoid hammer valve developed for quick-opening requirements LEWIS-10134	B67-10639	05
Device removes hydrogen gas from enclosed spaces GSFC-495	B66-10340	03	High efficiency, high frequency magnetic deflection driver MSC-11597	B68-10116	01
Iron serves as diffusion barrier in thermally regenerative galvanic cell ARG-29	B67-10189	03	Concept to convert electrical power GSFC-10222	B68-10321	01
Lithium-tellurium bimetallic cell has increased voltage ARG-10141	B68-10400	01	Levitiation-melting technique for metals and alloys ARG-10240	B69-10006	03
New bimetallic EMF cell shows promise in direct energy conversion ARG-10183	B68-10415	01	Report on a cryogenic gyroscope NPO-11200	B69-10504	02
Electrolytic silver ion cell sterilizes water supply MSC-11827	B68-10555	01	ELECTROMAGNETIC HAMMERS Electromagnetic hammer removes weld distortions from aluminum tanks M-FS-287	B65-10342	05
Two systems developed for purifying inert atmospheres ARG-10234	B69-10026	03	ELECTROMAGNETIC INTERFERENCE Improved communication system for large operations center M-FS-15016	B68-10529	01
Technical report on galvanic cells with fused-salt electrolytes ARG-10297	B69-10155	01	An integrated circuit switch NPO-11073	B69-10326	01
Improved anode design for metal-oxygen cells LEWIS-10871	B69-10318	01	An overview of electromagnetic interference problems in spacecraft NPO-11170	B69-10362	01
Analysis of cell performance and thermal regeneration of a lithium-tin cell having an immobilized fused-salt electrolyte ARG-10453	B69-10627	03	ELECTROMAGNETIC MEASUREMENT Brazed joint quality tested electromagnetically M-FS-12795	B67-10333	01
Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01	Alternating current electromagnetic servo induction meter XFR-03838	B68-10100	01
ELECTROLYTIC POLARIZATION Electrolytic separation of crystals of transition-metal oxides			Technique developed for measuring		

SUBJECT INDEX

ELECTROMECHANICAL DEVICES

transmittance of optical birefringent networks M-FS-14267	B68-10260	02	nonstatistical noise bursts on multichannel scaler digital averaging systems ARG-90143	B68-10193	06
Energy-storage of a prescribed impedance ARG-10428	B69-10431	02	ELECTROMAGNETIC WAVE TRANSMISSION Optical frequency waveguide and ion transmission system HQ-10541	B69-10746	01
ELECTROMAGNETIC NOISE Low input voltage converter/regulator minimizes external disturbances GSFC-527	B66-10689	01	ELECTROMAGNETISM Gas-injection valve operates at high speed HQ-49	B66-10381	05
Edge-type connectors evaluated by electrical noise measurement M-FS-2243	B67-10125	01	High transients suppressed in electromagnetic devices KSC-66-13	B67-10031	01
Environmental study of miniature slip rings M-FS-2443	B67-10210	05	Improved fluid control circuit operates on low power input LEWIS-325	B67-10042	01
Low speed, long term tracking electric drive system has zero backlash NPO-10173	B67-10220	01	Calibration technique for electromagnetic flowmeters LEWIS-10328	B67-10554	01
Laser system generates single-frequency light M-FS-2556	B67-10288	02	New passive telemetry system HQ-10214	B69-10312	01
Video synchronization processor overcomes poor signal-to-noise ratio KSC-10002	B67-10515	01	Magnetomotive forming for precision sizing and joining of large-diameter tubes M-FS-20481	B69-10422	05
Operational integrator NPO-10230	B68-10547	01	ELECTROMAGNETS Device calibrates vibration transducer at amplitudes up to 20 g M-FS-86	B63-10572	01
Survey of man-made electrical noise affecting radio broadcasting HQ-10290	B69-10308	01	Magnetic field controls carbon arc tail flame MSC-139	B65-10108	01
ELECTROMAGNETIC PROPERTIES Microwave technique measures plasma characteristics LANGLEY-134	B65-10122	02	Neutron diffractometer allows both magnetic and crystallographic analyses ARG-191	B67-10131	02
Low-cost, fast-response drive circuit for electromagnetic torque motors LEWIS-10143	B68-10386	01	Rectangular configuration improves superconducting cable ARG-90088	B68-10098	02
ELECTROMAGNETIC PULSES High-energy-rate magnetohydraulic metal forming system M-FS-2142	B67-10126	02	ELECTROMECHANICAL DEVICES Stepping switch with simple actuator provides many contacts in small space JPL-122	B63-10118	01
ELECTROMAGNETIC RADIATION Large capacitor performs as a distributed parameter pulse line LEWIS-176	B66-10291	01	Coincident switch closing reduces error in motor-driven timer JPL-182	B63-10143	05
Detector measures power in 50 to 30,000 GHz radiation band ERC-26	B66-10581	01	Electromechanically operated camera shutter provides uniform exposure JPL-357	B63-10227	01
High-voltage pulse generator developed for wide-gap spark chambers ARG-10136	B68-10283	01	Knob linkage permits one-hand control of several operations MSC-30	B65-10022	05
Imaging slitless spectrometer for X-ray astronomy M-FS-14309	B68-10546	02	Digital system accurately controls velocity of electromechanical drive GSFC-287	B65-10096	01
A positive taper traveling-wave tube LANGLEY-10263	B69-10407	01	Device measures fluid drag on test vehicles LANGLEY-34	B65-10195	01
ELECTROMAGNETIC SCATTERING A theoretical study of radar backscatter from distributed targets with emphasis on polarization dependence M-FS-13775	B69-10560	02	Electromechanical flowmeter accurately monitors fluid flow GSFC-357	B65-10273	01
ELECTROMAGNETIC SHIELDING Transducer measures temperature differentials in presence of strong electromagnetic fields ARC-27	B65-10089	01	Electronic ohmmeter provides direct digital output GSFC-363	B65-10274	01
Self-shielding printed circuit boards for high frequency amplifiers and transmitters HQ-10433	B69-10314	01	Remote control electrical switching system has 1000-output capability M-FS-380	B65-10318	01
ELECTROMAGNETIC WAVE FILTERS Digital filter suppresses effects of			Circuit operates as sine function generator MSC-255	B66-10038	01
			Electropneumatic transducer automatically limits motor current		

ELECTROMECHANICS

SUBJECT INDEX

LEWIS-253	B66-10160	01	ELECTROMETERS		
Device without electrical connections in tank measures liquid level			Field-effect transistor improves electrometer amplifier		
WOO-235	B66-10198	01	ARC-36	B64-10143	01
Electronic phase-locked-loop speed control system is stable			Vibrating-membrane electrometer has high conversion gain		
JPL-SC-084	B66-10232	01	ARC-38	B65-10056	01
Compact actuator converts rotary to linear motion			Simplified electrometer has excellent operating characteristics		
JPL-786	B66-10265	05	JPL-413	B65-10125	01
Flowmeter measures flow rates of high temperature fluids			Sensitive electrometer features digital output		
LEWIS-328	B66-10521	01	GSFC-288	B65-10206	01
Motion drive system is accurately controlled in the 1-micron range			Electrometer has automatic zero bias control		
JPL-864	B66-10695	05	GSFC-350	B65-10242	01
Instrument continuously measures density of flowing fluids			Electrometer preamplifier has drift correction feedback		
LEWIS-309	B67-10080	01	JPL-SC-074	B65-10267	01
Low speed, long term tracking electric drive system has zero backlash			Electrostatically driven dynamic capacitor employs capacitive feedback		
NPO-10173	B67-10220	01	JPL-771	B65-10293	01
Power torque wrench concept for precision torque application			Electrometer amplifier operates over dynamic range of five orders of magnitude		
M-FS-13546	B67-10547	05	ARC-75	B67-10199	01
Rolamite - A new mechanical design concept			Flexible high-voltage supply for experimental electron microscope		
SAN-10001	B67-10611	05	ARG-10482	B69-10603	01
System remotely inspects, measures, and records internal irregularities in piping			A simple electrometer for measuring small photoelectric currents		
M-FS-14545	B68-10149	01	GSFC-10603	B69-10734	01
Random access-random release relay switching matrix			ELECTROMOTIVE FORCES		
M-FS-12590	B68-10301	01	Metal sheath improves thermocouple using graphite in one leg		
Conceptual apparatus for detecting leaks of nonconductive liquids			NU-0011	B65-10051	01
M-FS-14713	B68-10303	01	Apparatus measures thermal conductivity of honeycomb-core panels		
Improved electromechanical master-slave manipulator			LANGLEY-202	B66-10127	01
ARG-10027	B68-10372	05	Rubber and alumina gaskets retain vacuum seal in high temperature EMF cell		
Electromechanical rotary actuator operates over wide temperature range			ARG-17	B66-10472	05
M-FS-18402	B69-10100	05	Thermoelectric metal comparator determines composition of alloys and metals		
Two devices for analysis of nystagmus			ARG-235	B67-10035	01
HQ-10273	B69-10224	01	Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique		
Improved perceptual-motor performance measurement system			ARG-277	B67-10324	03
HQ-10123	B69-10385	01	Electromotive series established for metals used in aerospace technology		
Simplified, reliable circuit sorts binary numbers in order of magnitude			M-FS-18327	B68-10385	03
NPO-10112	B69-10503	01	Identification of thermocouple material		
ELECTROMECHANICS			M-FS-18540	B69-10356	01
Variable-capacitance tachometer eliminates troublesome magnetic fields			Analysis of cell performance and thermal regeneration of a lithium-tin cell having an immobilized fused-salt electrolyte		
GSFC-435	B66-10126	01	ARG-10453	B69-10627	03
Human transfer functions used to predict system performance parameters			Liquid-metal-piston MHD generator		
LANGLEY-203	B66-10379	01	ARG-10500	B69-10771	02
Separation simulator			ELECTROMYOGRAPHY		
KSC-67-15	B69-10315	01	Auxiliary circuit enables automatic monitoring of EKG'S		
Electronic analog equalization for vibrational testing			MSC-106	B65-10142	01
NPO-10544	B69-10472	01	Tiny biomedical amplifier combines high performance, low power drain		
Gas Metal Arc /GMA/ weld torch proximity control			ARC-41	B65-10203	01
M-FS-16327	B69-10533	01	ELECTRON BEAM WELDING		
			Split glass tube assures quality in electron beam brazing		

SUBJECT INDEX

ELECTRON ENERGY

M-FS-564	B66-10151	05	Electron beam recrystallization of amorphous semiconductor materials	B68-10556	02
Electron beam welding of copper-Monel facilitated by circular magnetic shields			LEWIS-10443		
M-FS-569	B66-10215	05	Optically exciting a magnetic memory - A feasibility study	B69-10060	02
Suppressor plate eliminates undesired arcing during electron beam welding			M-FS-14854		
M-FS-1126	B66-10357	05	Spherical ion source	B69-10186	01
Electron beam welder X-rays its own welds			XNP-08898		
LEWIS-10111	B67-10216	02	ELECTRON BOMBARDMENT		
Fuel cell life improved by metallic sinter activation after electrode assembly welding			Electron bombardment improves vacuum chamber efficiency	B65-10280	02
MSC-10965	B67-10436	03	LEWIS-160		
Tube-to-header joint for bimetallic construction			ELECTRON DECAY RATE		
LEWIS-10282	B67-10464	05	Reduction by monovalent zinc, cadmium, and nickel cations	B69-10170	03
Aluminum and stainless steel tubes joined by simple ring and welding process			ARG-10328		
M-FS-13120	B67-10472	05	ELECTRON DENSITY (CONCENTRATION)		
Weld microfissuring in Inconel 718 minimized by minor elements			Microwave technique measures plasma characteristics	B65-10122	02
M-FS-18185	B68-10251	03	LANGLEY-134		
Electron beam selectively seals porous metal filters			Concept for using laser beams to measure electron density in plasmas	B66-10645	01
LEWIS-10162	B68-10331	05	M-FS-965		
Welding, brazing, and soldering handbook			ELECTRON DIFFRACTION		
M-FS-20504	B69-10264	05	IR-transmission glasses formed from oxides of bismuth and tellurium	B65-10190	03
Cryogenic pressure transducer			M-FS-279		
M-FS-14909	B69-10601	01	ELECTRON DISTRIBUTION		
ELECTRON BEAMS			Four pi-recoil proportional counter used as neutron spectrometer	B68-10326	02
Titanium treatment improves brazed joints			ARG-10101		
MSC-127	B65-10153	05	Rectangular-bore, high-gain laser plasma tube	B69-10193	02
Tantalum cathode improves electron-beam evaporation of tantalum			HQ-10234		
JPL-W00-021	B65-10175	03	ELECTRON EMISSION		
Electron-beam deflection controlled by digital signals			New apparatus increases ion beam power density	B63-10440	01
GSFC-385	B65-10283	02	LEWIS-73		
Electron beam seals outer surfaces of porous bodies			Precision gage measures ultrahigh vacuum levels	B63-10597	01
M-FS-562	B66-10033	03	GSFC-114		
Niobium thin films are superconductive in strong magnetic fields at low temperatures			Ionization vacuum gage starts quickly, is unaffected by spurious currents	B65-10036	02
JPL-SC-174	B66-10122	02	JPL-304		
Radiation used to temperature compensate semiconductor strain gages			Suppressor plate eliminates undesired arcing during electron beam welding	B66-10357	05
LANGLEY-207	B66-10186	02	M-FS-1126		
An improved method for testing performance of vidicons during vibration			Improved design provides faster response time in photomultiplier	B66-10526	01
JPL-SC-113	B66-10442	01	GSFC-451		
Lower-cost tungsten-rhenium alloys			Process reduces secondary resonant emission in electronic components	B66-10685	01
LEWIS-332	B66-10528	03	JPL-934		
Process yield Co-Fe alloys with superior high temperature magnetic properties			X-ray source uses interchangeable target anodes to vary X-ray wavelength	B67-10218	02
LEWIS-333	B66-10535	03	NPO-10036		
Electron beam parallel X-ray generator			Thermionic diode switching has high temperature application	B67-10672	01
MSC-11022	B67-10372	02	NPO-10404		
Electron beam deflected to determine focal point location			Technique increases storage capacity in camera tube target	B68-10213	01
M-FS-14107	B67-10649	01	MSC-11599		
Electron beam standby absorber system			Magnetron tuner has locking feature	B69-10119	05
M-FS-14108	B67-10650	01	XNP-09771		
Superconductive thin film makes convenient liquid helium level sensor			ELECTRON ENERGY		
LANGLEY-10289	B68-10341	01	Multiaxial analyzer detects low-energy electrons	B65-10213	01
			GSFC-329		
			Thin carbon film serves as UV bandpass filter		

ELECTRON GUNS

SUBJECT INDEX

ERC-8	B66-10060	02	solutions ARG-10469	B69-10423	03
ELECTRON GUNS			ELECTRON PLASMA		
Electron bombardment improves vacuum chamber efficiency			Thin carbon film serves as UV bandpass filter		
LEWIS-160	B65-10280	02	ERC-8	B66-10060	02
Potassium plasma cell facilitates thermionic energy conversion process			ELECTRON PROBES		
ARG-10010	B67-10399	01	Standards for electron probe microanalysis of silicates prepared by convenient method	B66-10234	03
ELECTRON IRRADIATION			ELECTRON RADIATION		
Radiation used to temperature compensate semiconductor strain gages			Semiconductor forms biomedical radiation probe	B66-10252	04
LANGLEY-207	B66-10186	02	MSC-320		
Inverted grounding technique for electron beam heating			Rate constants measured for hydrated electron reactions with peptides and proteins	B68-10424	04
LEWIS-10543	B68-10411	01	ARG-10195		
Electron beam recrystallization of amorphous semiconductor materials			ELECTRON SCATTERING		
LEWIS-10443	B68-10556	02	Measurements of thermoelectric power in annealed and quenched gold-platinum alloys	B69-10206	03
Production of metals and compounds by radiation chemistry			ARG-10303		
LEWIS-10231	B69-10123	03	Electron interaction in matter	B69-10674	02
ELECTRON MICROSCOPES			M-FS-14886		
Ion pump provides increased vacuum pumping speed			Pulse-height defect due to electron interaction in dead layers of Ge/Li/gamma-ray detectors	B69-10767	02
NEO-13	B65-10239	02	ARG-10362		
Probe samples components of rocket engine exhaust			ELECTRON SOURCES		
M-FS-485	B65-10384	03	New apparatus increases ion beam power density	B63-10440	01
Improved television signal processing system			LEWIS-73		
NPO-10140	B67-10246	01	Tantalum cathode improves electron-beam evaporation of tantalum	B65-10175	03
New electron microscope employs new video display technique			JPL-WOO-021		
ARG-158	B67-10312	03	ELECTRON SPIN		
Study of stress corrosion in aluminum alloys			Magnetometer measures orthogonal components of magnetic fields	B65-10315	01
M-FS-13906	B67-10533	03	GSFC-395		
Scan rate converter for tape recording and playback of TV pictures			ELECTRON TRANSFER		
NFO-10166	B67-10676	01	Magnetic field controls carbon arc tail flame	B65-10108	01
Elementary review of electron microprobe techniques and correction requirements			MSC-139		
ARG-10062	B68-10195	03	Thermally conducting electron transfer polymers	B69-10511	03
Stratification of centrifuged amoeba nuclei investigated by electron microscopy			GSFC-10703		
ARG-10161	B68-10366	04	ELECTRON TUBES		
Fractography can be used to analyze failure modes in polytetrafluoroethylene			Fine-mesh screen made by simplified method	B64-10282	03
M-FS-20294	B69-10066	03	WOO-104		
Health hazards of ultrafine metal and metal oxide powders			Wire winding increases lifetime of oxide coated cathodes	B65-10032	03
LEWIS-10878	B69-10268	04	LEWIS-154		
Technique for pinpointing submicron particles in the electron microprobe			Cantilever springs maintain tension in thermally expanded wires	B65-10149	05
HQ-10043	B69-10465	01	LEWIS-136		
Epitaxial crystalline growth upon cold substrates			Brushless dc motor uses electron beam switching tube as commutator	B65-10237	01
MSC-11196	B69-10494	01	GSFC-345		
Flexible high-voltage supply for experimental electron microscope			Titanium diaphragm makes excellent amplatron cathode support	B65-10298	01
ARG-10482	B69-10603	01	GSFC-394		
Strain-age cracking in Rene 41 alloy			Thermionic scanner pinpoints work function of emitter surfaces	B66-10444	01
M-FS-18650	B69-10605	03	JPL-SC-177		
ELECTRON OPTICS			Mounting method improves electrical and vibrational characteristics of screen electrodes	B69-10097	01
Electrooptical scanning of film			M-FS-20169		
NPO-11106	B69-10568	01	ELECTRON TUNNELING		
ELECTRON PARAMAGNETIC RESONANCE			Detection of molecular infrared spectra	B69-10172	02
Coordination chemistry in fused-salt			HQ-10377		
			Preparation of superconducting thin films		

SUBJECT INDEX

ELECTRONIC EQUIPMENT

of transition-metal interstitial compounds HQ-10445	B69-10470	01	GSFC-385	B65-10283	02
ELECTRONIC CONTROL			Boron nitride housing cools transistors WOO-079	B65-10289	01
Improved cavity-type absolute total-radiation radiometer JPL-807	B67-10557	01	Thin-film resistors used in functional electronic blocks GSFC-380	B65-10305	01
Conceptual servo technique for controlling tape drivers M-FS-12955	B67-10595	01	Instrument performs nondestructive chemical analysis, data can be telemetered JPL-SC-078	B65-10317	01
Hydraulic servo system increases accuracy in fatigue testing LANGLEY-217	B67-10637	01	Standoff tool speeds placement of friction-fit electrical terminals WOO-029	B65-10348	05
Electronic aperture control devised for solid state imaging system M-FS-12428	B68-10028	01	Multiphase clock-pulse generator uses simplified circuitry M-FS-297	B65-10353	01
Electronic circuit provides automatic level control for liquid nitrogen traps KSC-10127	B68-10061	01	Insulator-holder protects transistors in dense electronic assemblies MSC-214	B65-10389	01
Remote balance weighs accurately amid high radiation ARG-10387	B69-10242	05	Adhesive-backed terminal board eliminates mounting screws MSC-173	B65-10396	01
An unconventional magnetically-coupled multivibrator HQ-10226	B69-10480	01	Copper foil provides uniform heat sink path MSC-262	B66-10004	02
Radiometric temperature reference MSC-13276	B69-10507	01	Floating device aligns blind connections MSC-256	B66-10007	05
Automatic frequency control of voltage-controlled oscillators MFO-11064	B69-10569	01	Compact retractor protects cabling loops M-FS-561	B66-10018	05
ELECTRONIC EQUIPMENT			Portable self-powered device detects internal flaws in tubular structures NU-0019	B66-10028	01
Lightweight magnesium-lithium alloys show promise M-FS-17	B63-10389	03	Circuit operates as sine function generator MSC-255	B66-10038	01
Unmanned seismometer levels self, corrects drift errors GSFC-100	B63-10551	01	Ferroelectric bolometer measures RF absolute power at submillimeter wavelengths GSFC-422	B66-10051	01
Comfortable, lightweight safety helmet holds radio transmitter, receiver MSC-53	B64-10015	05	Soldering tool heats workpieces and applies solder in one operation LEWIS-247	B66-10115	05
Electronic assembly rack panels snap on and off GSFC-59	B64-10121	05	Fixture aids soldering of electronic components on circuit board ARC-56	B66-10162	01
Improved holder protects crystal during high acceleration and impact JPL-463	B65-10037	05	Critical parts are stored and shipped in environmentally controlled reusable container M-FS-703	B66-10258	05
Pulse generator permits nondestructive testing of component breakdown voltage MSC-122	B65-10054	01	Tool forms right angles in component leads M-FS-722	B66-10346	05
Feedback oscillator functions as low-level pulse stretcher GSFC-261	B65-10069	01	Electronic circuit delivers pulse of high interval stability MSC-673	B66-10501	01
System measures angular displacement without contact LANGLEY-46	B65-10073	01	Electronic circuit provides accurate sensing and control of dc voltage NU-0089	B66-10591	01
Logic circuit exhibits optimum performance LANGLEY-129	B65-10193	01	Sensors measure surface ablation rate of reentry vehicle heat shield LANGLEY-287	B66-10592	01
Wire mesh isolator protects sensitive electronic components GSFC-347	B65-10216	05	Electrical continuity scanner facilitates identification of wires for soldering to connectors MSC-626	B66-10605	01
Voltage controlled oscillator is easily aligned, has low phase noise JPL-510	B65-10223	01	Improved rolling element bearings provide low torque and small temperature rise in ultrahigh vacuum environment LEWIS-359	B66-10678	05
Electronic ohmmeter provides direct digital output GSFC-363	B65-10274	01	Process reduces secondary resonant emission in electronic components JPL-934	B66-10685	01
Electron-beam deflection controlled by digital signals					

ELECTRONIC EQUIPMENT TESTS

SUBJECT INDEX

Coldplate of pin fin design makes efficient heat exchanger MSC-1093	B67-10073	05	multiple stress reversals HQ-10039	B69-10147	03
Double emitter suppressed carrier modulator uses commercially available components M-FS-2494	B67-10101	01	Low-cost voltage-level detector LEWIS-10885	B69-10217	01
Neutron diffractometer allows both magnetic and crystallographic analyses ARG-191	B67-10131	02	Two devices for analysis of nystagmus HQ-10273	B69-10224	01
Electronic shutter gates image orthicon on and off HQ-96	B67-10270	01	Radiation tolerant silicon nitride insulated gate field effect transistors GSFC-10581	B69-10253	01
IR vidicon scanner monitors many test points M-FS-1937	B67-10277	01	Automatic Gaussian random-noise limiter NPO-10169	B69-10349	01
Electronic dummy for acoustical testing MSC-206	B67-10298	01	Pressure transducer NPO-10853	B69-10364	01
Electronic test instrument generates extremely small current signals ARG-276	B67-10318	01	Phase multiplying electronic scanning array NPO-10302	B69-10381	01
Accuracy of laser measurements improved by pulse autocorrelator electronic system MSC-10033	B67-10338	01	Improved perceptual-motor performance measurement system HQ-10123	B69-10385	01
Continuous wave detector has wide frequency range M-FS-1849	B67-10386	01	Temperature-controlled resistor NPO-10713	B69-10440	01
Coaxial cable stripping device facilitates RF cabling fabrication NPO-10315	B67-10419	05	Current-switching technique for analog pulse circuits ARG-10479	B69-10445	01
Eutectic fuse provides current and thermal protection under high vibration M-FS-13664	B67-10535	01	Fuse protects circuit from voltage and current overloads MSC-12135	B69-10490	01
Continuous microbial cultures maintained by electronically-controlled device ARG-177	B67-10556	04	Development of improved potting and conformal coating compounds M-FS-20219	B69-10559	03
Flat pack interconnection structure simplifies modular electronic assemblies JPL-819	B67-10560	01	Automated plotting of equipotentials NPO-11134	B69-10570	01
Regulated dc-to-dc converter features low power drain GSFC-03429	B68-10017	01	Balloon batteries, charged and heated by solar energy GSFC-10769	B69-10585	01
System for measuring roundness and concentricity of large tanks M-FS-13362	B68-10099	05	Electrolytic separation of crystals of transition-metal oxides ARG-10506	B69-10642	03
Multichip packaging with thermal insulation M-FS-14076	B68-10119	02	Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06
Electronic calorimetric computer LEWIS-90254	B68-10138	01	ELECTRONIC EQUIPMENT TESTS		
Standards for compatibility of printed circuit and component lead materials M-FS-14531	B68-10310	01	Electronic device simulates respiration rate and depth MSC-89	B64-10255	01
Ultrasonic temperature measuring device LEWIS-10446	B68-10319	01	Probe tests microweld strength WOO-118	B65-10111	05
Automatic, nondestructive test monitors in-process weld quality M-FS-14996	B68-10333	01	Piezoresistive gage tests pin-connector sockets JPL-675	B65-10128	01
High resolution Ge/Li/ spectrometer reduces rate-dependent distortions at high counting rates ARG-10144	B68-10420	01	Novel probe simplifies electronic component testing GSFC-342	B65-10243	01
Electronic component reliability analysis by data reduction system NPO-10243	B68-10507	05	Vibration tests on vidicons made by improved method JPL-SC-115	B66-10042	01
Magnetron tuner has locking feature XNP-09771	B69-10119	05	Semiautomatic device tests components with biaxial leads MSC-516	B66-10337	03
Torsion system for creep testing with			Device serves as hinge and electrical connector for circuit boards M-FS-743	B66-10359	01
			Basic suppression techniques are evaluated M-FS-867	B66-10449	01
			Numerical data frame readout system used in testing telemetry systems GSFC-551	B67-10175	01

SUBJECT INDEX

ELECTRONIC TRANSDUCERS

A phonocardiogram simulator KSC-67-94	B67-10239	01	NPO-10821	B67-10503	01
Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi NUC-10067	B67-10263	01	Logic realization of simple majority voting connectives JPL-727	B67-10511	06
Liquid crystals detect voids in fiber glass laminates LEWIS-10104	B67-10286	03	Plastic preforms facilitate fabrication of welded cordwood electronic modules LEWIS-90339	B68-10063	01
Test device prevents weld joint damage by eliminating axial pin forces on unpotted modules LEWIS-10201	B67-10359	01	Inspection criteria ensure quality control of parallel gap soldering M-FS-1453C	B68-10257	05
Test and inspection for process control of monolithic circuits M-FS-13084	B67-10507	01	Encapsulation technique eliminates thermal stresses in welded electronic modules M-FS-14581	B68-10307	01
Analog buffer isolates high impedance source from low impedance load M-FS-13481	B67-10544	01	Modular packaging technique for combining integrated circuits and discrete components GSFC-10369	B69-10453	01
Electronic load for testing power generating devices NPO-10350	B68-10203	01	Folded stick module NPO-10854	B69-10498	01
Concept for a multifunctional oscilloscope probe M-FS-16390	B69-10129	01	Sprayed shielding of plastic-encapsulated electronic modules M-FS-13570	B69-10607	01
ELECTRONIC FILTERS			ELECTRONIC PACKAGING		
Electropneumatic rheostat regulates high current ARC-44	B65-10299	01	Modular chassis simplifies packaging and interconnecting of circuit boards JPL-236A	B63-10174	01
Electronic filter discriminates between true and false reflections HQ-55	B67-10071	02	Rugged microelectronic module package supports circuitry on heat sink MSC-81A	B66-10245	01
ELECTRONIC MODULES			Study made of anodized aluminum circuit boards M-FS-1358C	B67-10425	01
Welded pressure transducer made as small as 1/8th-inch in diameter ARC-11	B63-10429	03	Ultraminiature television camera M-FS-11967	B67-10469	01
Use of tear ring permits repair of sealed module circuitry M-FS-210	B65-10014	05	Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01
Electronic modules easily separated from heat sink MSC-142	B65-10186	02	Method of disjoining adhesively bonded electronic cordwood modules MSC-12060	B68-10086	01
Handtool facilitates extraction of circuit modules LANGLEY-38	B65-10231	05	Multichip packaging with thermal insulation M-FS-14076	B68-10119	02
Assembly jig assures reliable solar cell modules GSFC-455	B66-10040	05	Nondestructive evaluation of printed wiring boards by microhm resistance measurements SAN-10034	B69-10272	01
Solar cell submodule design facilitates assembly of lightweight arrays JPL-728	B66-10231	02	Modular packaging technique for combining integrated circuits and discrete components GSFC-10369	B69-10453	01
Rugged microelectronic module package supports circuitry on heat sink MSC-81A	B66-10245	01	Folded stick module NPO-10854	B69-10498	01
Packaging of electronic modules JPL-801	B66-10664	01	Sprayed shielding of plastic-encapsulated electronic modules M-FS-1357C	B69-10607	01
Test device prevents weld joint damage by eliminating axial pin forces on unpotted modules LEWIS-10201	B67-10359	01	ELECTRONIC TRANSDUCERS		
Transducer measures embedment stresses in electronic modules M-FS-13486	B67-10367	01	Pressure sensor responds only to shock wave M-FS-238	B65-10184	01
Aluminum heat sink enables power transistors to be mounted integrally with printed circuit board M-FS-13663	B67-10426	01	Control system maintains selected liquid level M-FS-470	B66-10039	01
Composite solar cell matrix is reliable, lightweight and flexible			Noncontacting transducer measures shaft torque M-FS-474	B66-10048	01
			Sensor detects hydrocarbon oil contaminants in fluid lines M-FS-522	B66-10068	01
			Capacitive system detects and locates fluid leaks M-FS-478	B66-10099	01

ELECTRONICS

SUBJECT INDEX

Phonocardiograph system monitors heart sounds MSC-185	B66-10154	04	Metals plated on fluorocarbon polymers JPL-544	B63-10612	03
Electropneumatic transducer automatically limits motor current LEWIS-253	B66-10160	01	New method used to fabricate gallium arsenide photovoltaic device WOO-062	B64-10019	01
Transducer measures force in vacuum environment LEWIS-218	B66-10161	01	Adherent protective coatings plated on magnesium-lithium alloy M-FS-365	B65-10294	03
Fatigue cracks detected and measured without test interruption LEWIS-266	B66-10178	02	Plated nickel wire mesh makes superior catalyst bed MSC-216	B65-10321	03
Simple circuit provides reliable multiple signal average and reject capability NU-0069	B66-10282	01	Nickel/tin coating protects threaded fasteners in corrosive environment MSC-253	B65-10398	03
Phonocardiograph microphone is rugged and moistureproof MSC-212	B66-10314	04	Cuprous selenide and sulfide form improved photovoltaic barriers WOO-212	B66-10025	01
Personal communication system combines high performance with miniaturization MSC-720	B67-10119	01	Hollow spherical rotors fabricated by electroplating JPL-SC-117	B66-10366	05
Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi NUC-10067	B67-10263	01	Electroplating eliminates gas leakage in brazed areas M-FS-923	B66-10415	05
Improved circuit for measuring capacitive and inductive reactances M-FS-13083	B67-10513	01	Silver plating technique seals leaks in thin wall tubing joints NU-0090	B66-10703	05
Automatic transducer switching provides accurate wide range measurement of pressure differential NUC-10001	B67-10540	01	Silver plating ensures reliable diffusion bonding of dissimilar metals M-FS-1975	B67-10124	03
Instrumentation monitors transported material through variety of parameters M-FS-12938	B67-10545	01	Clamp provides efficient connection for high-density currents M-FS-2417	B67-10140	01
ELECTRONICS			Study to minimize hydrogen embrittlement of ultrahigh-strength steels M-FS-2455	B67-10141	03
Automatic testing device facilitates noise checks and electronic calibrations LEWIS-10173	B67-10467	01	Electronic circuitry used to automate paper chromatography JPL-840	B67-10201	01
Development of Electronic Data Processing /EDP/ augmented management system M-FS-14715	B68-10287	06	Copper and nickel adherently electroplated on titanium alloy M-FS-13952	B67-10532	03
Quality-weld parameters for microwelding techniques and equipment M-FS-20484	B69-10303	05	High-emittance coatings on metal substrates LEWIS-10325	B68-10381	03
Surface profilometer for examining grain-boundary grooves ARG-10290	B69-10345	05	Masking of aluminum surface against anodizing M-FS-12964	B69-10335	05
Thermally conducting electron transfer polymers GSFC-10703	B69-10511	03	Effects of hydrogen on metals M-FS-20364	B69-10372	03
ELECTRONS			Leads integral with the internal interconnection that penetrate the molded wall of a package LANGLEY-10228	B69-10436	01
Multiaxial analyzer detects low-energy electrons GSFC-329	B65-10213	01	Improved nickel plating of Inconel X-750 M-FS-18604	B69-10463	05
Primary radical yields in pulse irradiated alkaline aqueous solution ARG-10322	B69-10167	02	Rhodium-plated barrier against high-temperature fusion bonding M-FS-92155	B69-10544	05
Reduction by monovalent zinc, cadmium, and nickel cations ARG-10328	B69-10170	03	Literature review on pickling inhibitors and cadmium electroplating processes M-FS-14421	B69-10606	03
Production of solvated electrons ARG-10416	B69-10430	03	ELECTROPLETHYSMOGRAPHY		
ELECTROPHYSICS			New electrical plethysmograph monitors cardiac output MSC-11447	B68-10220	01
ELECTROPLATING			ELECTROPOLISHING		
High purity electroforming yields superior metal models ARC-6	B63-10007	05	Improved technique for localizing electropolishing features novel nozzles		

SUBJECT INDEX

ELONGATION

W00-101	B64-10271	01	ELEVATION An interferometer tracking radar system MSC-10956	B69-10523	01
Study shows effect of surface preparations on improving thermionic emission JPL-SC-140	B66-10493	01	ELEVATION ANGLE Telescope mount with azimuth-only primary NPO-10468	B67-10671	02
Method for removing surface-damaged layers from nickel alloys M-FS-18151	B68-10522	03	LM lookangle program MSC-13179	B69-10370	06
ELECTROSLAG WELDING Welding, brazing, and soldering handbook M-FS-20504	B69-10264	05	ELEVATORS (CONTROL SURFACES) Break-up of metal tube makes one-time shock absorber, bars rebound LANGLEY-1A	B63-10304	05
ELECTROSTATIC CHARGE Vibrating diaphragm measures high electrostatic field strengths MSC-189	B65-10352	01	ELEVATORS (LIFTS) Emergency escape system protects personnel from explosion and fire KSC-66-12	B66-10634	05
Variable-capacitance tachometer eliminates troublesome magnetic fields GSFC-435	B66-10126	01	ELIMINATION Metabolic and toxicological effects of water-soluble xenon compounds are studied ARC-90239	B68-10076	04
Hollow needle used to cut metal honeycomb structures MSC-486	B66-10244	05	Conceptual techniques for reducing parasitic current gain of lateral pnp transistors MSC-13199	B69-10244	01
Dust particle injector for hypervelocity accelerators provides high charge-to-mass ratio GSFC-509	B66-10347	01	Precise gimbaling mechanism NPO-11057	B69-10270	01
Test instrumentation evaluates electrostatic hazards in fluid system M-FS-2277	B67-10145	01	Inhibition of browning in foodstuffs HQ-10177	B69-10493	04
Synchronous charge-constrained electroquasistatic generator HQ-10231	B69-10461	01	ELLIPSOIDS Fresnel cup reflector directs maximum energy from light source JPL-424	B63-10263	03
ELECTROSTATIC GENERATORS Synchronous charge-constrained electroquasistatic generator HQ-10231	B69-10461	01	Ellipsoidal optical reflectors reproduced by electroforming GSFC-92	B63-10547	05
ELECTROSTATIC PROPULSION Electrostatically driven dynamic capacitor employs capacitive feedback JPL-771	B65-10293	01	Wide-angle sensor measures radiant heat energy in corrosive atmospheres M-FS-228	B65-10019	05
ELECTROSTATIC SHIELDING Improved insertion-loss tester JPL-358	B64-10080	01	Ellipsoidal-mirror reflectometer accurately measures infrared reflectance of materials GSFC-566	B67-10444	01
Improved magnetometer uses toroidal gating coil GSFC-249	B65-10103	01	ELLIPTICITY Eccentric drive mechanism is adjustable during operation M-FS-2576	B67-10373	05
Metal Oxide Silicon /MOS/ transistors protected from destructive damage by wire ARC-65	B66-10419	01	ELONGATION Lightweight aluminum casting alloy is useful at cryogenic temperatures M-FS-267	B65-10092	03
Improved ferrous shielding for flat cables M-FS-14524	B69-10401	01	Polymer deformation gage measures thickness change in tensile tests JPL-745	B66-10147	01
ELECTROSTATICS Vibrating-membrane electrometer has high conversion gain ARC-38	B65-10056	01	Extensometer automatically measures elongation in elastomers M-FS-517	B66-10284	05
ELECTROSTRICTION A laboratory method for precisely determining the micro-volume-magnitudes of liquid efflux ARC-10052	B69-10295	05	Weldable aluminum alloy has improved mechanical properties M-FS-295	B66-10445	03
ELECTROTHERMAL ENGINES Computer program simplifies transient and steady-state temperature prediction for complex body shapes MSC-989	B66-10619	01	Study made of ductility limitations of aluminum-silicon alloys M-FS-12524	B67-10392	03
Electrothermal linear actuator NPO-10637	B69-10296	05	Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133	B67-10437	03
ELEMENTS Photonicrometrology M-FS-14556	B69-10736	01	Heat treatment procedure to increase ductility of degraded nickel alloy M-FS-12410	B68-10029	03
			Manual of typical low temperature		

ELUTION

SUBJECT INDEX

mechanical properties of several materials M-FS-18331	B69-10179	03	storage vessel materials M-FS-18605	B69-10730	03
Development of improved potting and conformal coating compounds M-FS-20219	B69-10559	03	EMBRYOS Study made of relationship between growth and metabolism ARG-10046	B67-10604	04
Strain-age cracking in Rene 41 alloy M-FS-18650	B69-10605	03	Compound equation developed for postnatal growth of birds and mammals ARG-10192	B68-10427	04
ELUTION Trace hydrazines in aqueous solutions accurately determined by gas chromatography MSC-11222	B67-10290	03	EMERGENCIES Safety switch permits emergency bridge crane shutdown M-FS-549	B66-10168	05
Characteristics of fluidized-packed beds ARG-10049	B68-10278	03	Electrocardiograph transmitted by RF and telephone links in emergency situations FRC-10031	B68-10233	01
Zone purification of potassium chloride ARG-10377	B69-10241	03	EMERGENCY BREATHING TECHNIQUES Miniature oxygen resuscitator KSC-10398	B69-10319	04
Separation of the rare earths by anion-exchange in the presence of lactic acid ARG-10436	B69-10377	03	EMERGENCY LIFE SUSTAINING SYSTEMS Buoyant stokes litter assembly used for sea rescue operations MSC-131	B66-10019	05
EMBEDDING Corrosion of metal samples rapidly measured NU-0041	B66-10140	03	Portable lightweight cell provides controlled environment MSC-648	B66-10370	05
Quality control criteria for acceptance testing of cross-wire welds MSC-627	B66-10587	05	Improved chlorate candle provides concentrated oxygen source MSC-1137	B67-10095	03
Heat-treatment of metal parts facilitated by sand embedment M-FS-1543	B66-10616	03	EMISSION Emission tester for high-power vacuum tubes JPL-628	B64-10158	01
Study made to control depth of potting compound for honeycomb sandwich fasteners LEWIS-370	B66-10677	05	A radiometer-pyrometer LEWIS-284	B66-10606	01
Nonwoven glass fiber mat reinforces polyurethane adhesive M-FS-2309	B67-10113	03	Circuit provides overcurrent protection to push-pull amplifier MSC-12033	B67-10300	01
Transducer measures embedment stresses in electronic modules M-FS-13486	B67-10367	01	Vibration analysis utilizing Mossbauer effect M-FS-11974	B67-10339	01
Eutectic fuse provides current and thermal protection under high vibration M-FS-13664	B67-10535	01	Design for high-temperature /1800 deg F/ liquid metal pressure transducer LEWIS-10144	B67-10458	01
Precision trimmer aids in preparing biomedical specimen blocks for ultrathin sectioning ARG-242	B67-10541	05	Review of physics, instrumentation and dosimetry of radioactive isotopes ARG-10037	B67-10640	02
EMBRITTLMENT New alloy brazes titanium to stainless steel MSC-102	B65-10060	05	Nondispersive X-ray emission analysis for geochemical exploration GSFC-10568	B69-10011	02
Study to minimize hydrogen embrittlement of ultrahigh-strength steels M-FS-2455	B67-10141	03	Spectrographic analysis of bismuth-tin eutectic alloys by spark-ignited low-voltage ac-arc excitation ARG-10288	B69-10081	03
Susceptibility of irradiated steels to hydrogen embrittlement ARG-10115	B68-10194	03	Mossbauer vibration calibration systems evaluated M-FS-20014	B69-10125	01
High temperature alloy LEWIS-10377	B68-10253	03	Positive and negative output circuits LEWIS-10715	B69-10151	01
Improved high-temperature silicide coatings LEWIS-10817	B69-10266	03	Laser microprobe facility used in the elemental analysis of small feature of a sample ARG-10359	B69-10165	02
Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03	Investigation of spacecraft coatings M-FS-20456	B69-10181	06
Effects of hydrogen on metals M-FS-20364	B69-10372	03	Magnetically coupled emission regulator GSFC-10056	B69-10213	01
Literature review on pickling inhibitors and cadmium electroplating processes M-FS-14421	B69-10606	03	Conceptual techniques for reducing		
Effects of high-pressure hydrogen on					

SUBJECT INDEX

EMULSIONS

parasitic current gain of lateral pnp transistors MSC-13199	B69-10244	01	GSFC-267	B65-10102	01
EMISSION SPECTRA			Simplified electrometer has excellent operating characteristics JPL-413	B65-10125	01
Trace levels of metallic corrosion in water determined by emission spectrography MSC-1193	B66-10701	03	Tiny biomedical amplifier combines high performance, low power drain ARC-41	B65-10203	01
Status of ultrachemical analysis for semiconductors M-FS-2254	B67-10138	03	Vapor grown silicon dioxide improves transistor base-collector junctions GSFC-389	B66-10091	01
Solar X-ray spectrum reproduced in vacuum MSC-228	B67-10164	02	New television camera eliminates vidicon tube M-FS-472	B66-10112	01
An improved nuclear magnetic resonance spectrometer JPL-762	B67-10234	01	Optically driven switch turn-off time reduced by opaque coatings JPL-SC-107	B66-10141	01
Analytical technique characterizes all trace contaminants in water MSC-11032	B67-10243	03	Bypass rod transfers heat developed in thermionic diode JPL-SC-136	B66-10303	05
Laser action from a terbium beta-ketoenolate at room temperature GSFC-10593	B69-10324	02	Remote preamplifier circuit maintains stability over wide temperature range WOO-278	B66-10432	01
An infrared television system for hydrogen flame detection KSC-10368	B69-10354	01	Chemical regeneration of emitter surface increases thermionic diode life LEWIS-17	B66-10435	02
Prediction of thermal radiation from a rocket's exhaust plume M-FS-20414	B69-10371	02	Thermionic scanner pinpoints work function of emitter surfaces JPL-SC-177	B66-10444	01
Pulse-height defect due to electron interaction in dead layers of Ge/Li/gamma-ray detectors ARG-10362	B69-10767	02	Semiconductors can be tested without removing them from circuitry M-FS-1163	B66-10447	01
EMISSIONIVITY			Collector/collector guard ring balancing circuit eliminates edge effects JPL-SC-143	B66-10563	01
Special coatings control temperature of structures GSFC-444	B65-10337	03	Electronic circuit provides accurate sensing and control of dc voltage NU-0089	B66-10591	01
Properties of optics at high temperature and their measurement, a study M-FS-14696	B68-10240	02	Double emitter suppressed carrier modulator uses commercially available components M-FS-2494	B67-10101	01
Improved relay optical element for spectroradiometer using cryogenically cooled detector MSC-11688	B68-10245	02	Potassium plasma cell facilitates thermionic energy conversion process ARG-10010	B67-10399	01
Surface temperature mapping with infrared photographic pyrometry LEWIS-10763	B69-10113	01	Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time ARG-10110	B68-10328	01
EMITTANCE			Performance of low-pressure thermionic converters is evaluated ARG-10276	B69-10090	01
Technique for measuring absorptance and emittance by using cyclic incident radiation LEWIS-321	B66-10630	02	Self-starting circuit for switching regulators LEWIS-10686	B69-10128	05
High-emittance coatings on metal substrates LEWIS-10325	B68-10381	03	Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01
EMITTERS			Modification to improve self-isolating transistor arrays M-FS-20499	B69-10678	01
New apparatus increases ion beam power density LEWIS-73	B63-10440	01	EMOTIONAL FACTORS		
Two-stage emitter follower is temperature stabilized MSC-20	B63-10493	01	Improved electrode paste provides reliable measurement of galvanic skin response MSC-146	B66-10049	04
Transistor voltage comparator performs own sensing GSFC-228	B65-10028	01	EMULSIONS		
Photoelectric semiconductor switch operates with low level inputs JPL-SC-068	B65-10033	01	Scribable coating for plastic films MSC-11194	B67-10409	03
Variable voltage supply uses Zener diode as reference GSFC-262	B65-10097	01	Automated microorganism Sample Collection		
Simple circuit functions as frequency discriminator for PFM signals					

ENAMELS

SUBJECT INDEX

Module HQ-10421	B69-10223	04	heater element GSFC-10358	B68-10325	01
ENAMELS			Effects of hydrogen on metals M-FS-20364	B69-10372	03
Inexpensive infrared source improvised from flashlight M-FS-494	B66-10096	02	ENERGY		
White primer permits a corrosion-resistant coating of minimum weight M-FS-304	B66-10207	03	Lamp enables measurement of oxygen concentration in presence of water vapor MSC-10043	B67-10387	01
Copper-acrylic enamel serves as lubricant for cold drawing of refractory metals ARG-54	B66-10471	05	Proposed method of rotary dynamic balancing by laser M-FS-12422	B67-10452	02
Improved method of edge coating flat ribbon wire M-FS-902	B66-10684	03	Welder analyzer MSC-12068	B68-10242	01
ENCAPSULATING			ENERGY ABSORPTION		
Connector for thermocouple leads saves costly wire, makes reliable connectors LANGLEY-26	B63-10529	01	Frictional wedge shock mount is inexpensive, has good damping characteristics JPL-IT-1001	B63-10289	05
Plastic molds reduce cost of encapsulating electric cable connectors M-FS-69	B63-10568	05	Break-up of metal tube makes one-time shock absorber, bars rebound LANGLEY-1A	B63-10304	05
Encapsulation process sterilizes and preserves surgical instruments JPL-484	B64-10066	05	Kinetic-energy absorber employs frictional force between mating cylinders LEWIS-75	B63-10442	05
PTC thermistor protects multiloaded power supplies GSFC-236	B64-10281	01	Materials physically tested in variable- environment chamber JPL-789	B66-10130	01
Seismometer designed for remote operation in random orientation JPL-320	B66-10085	01	Torus elements used in effective shock absorber WOO-114	B66-10318	05
Phonocardiograph system monitors heart sounds MSC-185	B66-10154	04	High energy forming facility M-FS-14026	B67-10588	05
Phonocardiograph microphone is rugged and moistureproof MSC-212	B66-10314	04	Electron beam standby absorber system M-FS-14108	B67-10650	01
RF inductor has high Q, is stable at higher temperatures JPL-1019	B67-10106	01	Thick transducers used for generating short-duration stress pulses in thin specimens ARG-10232	B69-10045	01
Transducer measures embedment stresses in electronic modules M-FS-13486	B67-10367	01	Hydrodynamics of a new concept of primary containment by energy absorption ARG-10242	B69-10046	05
Multiplexer uses insulated gate-field effect transistors M-FS-13096	B67-10396	01	ENERGY ABSORPTION FILMS		
Encapsulation technique eliminates thermal stresses in welded electronic modules M-FS-14581	B68-10307	01	Modular thermoelectric cell is easily packaged in various arrays GSFC-339	B65-10199	01
Leads integral with the internal interconnection that penetrate the molded wall of a package LANGLEY-10228	B69-10436	01	Detector measures power in 50 to 30,000 GHz radiation band ERC-26	B66-10581	01
Development of improved potting and conformal coating compounds M-FS-20219	B69-10559	03	ENERGY CONVERSION		
Improved cure method for single component silicone rubber MSC-12230	B69-10749	03	New method used to fabricate gallium arsenide photovoltaic device WOO-062	B64-10019	01
ENCLOSURES			Laser beam transmits electric power GSFC-293	B65-10158	01
Portable lightweight cell provides controlled environment MSC-648	B66-10370	05	Potassium plasma cell facilitates thermionic energy conversion process ARG-10010	B67-10399	01
ENDFIRE ARRAYS			New bimetallic EMF cell shows promise in direct energy conversion ARG-10183	B68-10415	01
Improved circularly polarized planar-array antenna NPO-10301	B69-10382	01	Technical report on galvanic cells with fused-salt electrolytes ARG-10297	B69-10155	01
ENDOTHERMIC REACTIONS			Magnetohydrodynamic generators using two-phase liquid-metal flows ARG-10168	B69-10162	01
Electrochemical cell has internal resistive			Segmented SiGe-PbTe couples GSFC-10746	B69-10233	01

SUBJECT INDEX

ENGINE PARTS

Optimizing solar-cell grid geometry HQ-10417	B69-10460	01	Energy-storage of a prescribed impedance ARG-10428	B69-10431	02
ENERGY CONVERSION EFFICIENCY			ENERGY TRANSFER		
Modular thermoelectric cell is easily packaged in various arrays GSFC-339	B65-10199	01	Flexible arms provide constant force for pressure switch calibration HQ-38	B66-10317	05
ENERGY DISSIPATION			Optical automatic gain channel M-FS-1550	B66-10596	02
Improved system measures output energy of pyrotechnic devices WOO-256	B66-10159	01	Computer program determines chemical composition of physical system at equilibrium MSC-1119	B66-10670	01
System measures arc energy dissipated in relay contact cycling M-FS-14541	B68-10312	01	Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters M-FS-13594	B67-10527	03
Four pi-recoil proportional counter used as neutron spectrometer ARG-10101	B68-10326	02	Advances in light-gas gun technology M-FS-14270	B68-10288	05
Radial inflow turbine design charts LEWIS-10720	B68-10567	05	Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01
Mechanical properties of a lap joint under uniform clamping pressure M-FS-14538	B69-10141	05	Axisymmetric two-phase perfect gas performance program MSC-11774	B68-10374	06
Effects of sterilization on the energy-dissipating properties of balsa wood WFO-11207	B69-10592	03	Technique for assessing potential fire hazards HQ-10279	B69-10287	03
ENERGY DISTRIBUTION			High voltage pulse generator MSC-12178	B69-10548	01
Semiconductor forms biomedical radiation probe MSC-320	B66-10252	04	ENGINE CONTROL		
Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01	Analysis of dynamic systems with DAP4H computer program M-FS-13999	B67-10523	06
Detection of molecular infrared spectra HQ-10377	B69-10172	02	ENGINE DESIGN		
ENERGY LEVELS			Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates ARG-151	B66-10601	05
Solar X-ray spectrum reproduced in vacuum MSC-228	B67-10164	02	Materials data handbook, aluminum alloy 7075 M-FS-2349	B67-10301	03
Low energy ohmmeter can be used to test sensitive circuits, other meters SAN-10013	B68-10269	01	Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01
ENERGY SOURCES			Continuous detonation reaction engine M-FS-14019	B68-10034	03
Closed fluid system without moving parts controls temperature LEWIS-222	B65-10331	02	Radial inflow turbine design charts LEWIS-10720	B68-10567	05
Fluidic-thermochromic display device ERC-10031	B68-10350	01	Computer program for off-design performance of radial inflow turbines LEWIS-10764	B69-10267	06
Self-starting circuit for switching regulators LEWIS-10686	B69-10128	05	ENGINE FAILURE		
ENERGY SPECTRA			Analytical technique permits comparison of reliability of alternate mechanical designs NUC-10065	B67-10261	06
Alpha particle backscattering measurements used for chemical analysis of surfaces ARG-116	B67-10186	03	ENGINE INLETS		
Ion-retarding lens improves the abundance sensitivity of tandem mass spectrometers ARG-10365	B69-10166	02	Flow direction measurement with fixed probes LEWIS-11044	B69-10714	02
ENERGY STORAGE			ENGINE PARTS		
Large capacitor performs as a distributed parameter pulse line LEWIS-176	B66-10291	01	Internal machining accomplished at constant radii M-FS-1573	B66-10546	05
Study made of dielectric properties of promising materials for cryogenic capacitors M-FS-13620	B67-10366	03	Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01
Eddy current disk valve LEWIS-10123	B67-10638	05	Nondestructive testing of brazed rocket engine components M-FS-18191	B68-10394	03
Full wave dc-to-dc converter using energy storage transformers LEWIS-10375	B69-10140	01			

ENGINE TESTS

SUBJECT INDEX

ENGINE TESTS

In-tank shutoff valve is provided with maximum blast protection
M-PS-1529 B66-10514 05

Rocket engine vibration accurately measured by photography
M-PS-1916 B66-10652 02

ENGINEERING DRAWINGS

Built-in templates speed up process for making accurate models
LANGLEY-23 B63-10526 05

Use of photographs speeds inspection of printed-circuit boards
MSC-72 B64-10118 01

Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates
ARG-151 B66-10601 05

Concept for modifying drafting instruments to minimize smearing
KSC-10056 B67-10283 05

Photographic and drafting techniques simplify method of producing engineering drawings
MSC-716 B68-10128 02

Welding, brazing, and soldering handbook
M-PS-20504 B69-10264 05

ENGINES

Device measures reaction engine thrust vector deviations
JPL-SC-163 B66-10642 05

Cooled miniature pressure transducers effective at high temperatures
LEWIS-10401 B68-10370 01

Improved high-temperature silicide coatings
LEWIS-10817 B69-10266 03

ENGRAVING

Technique for abrasive cutting of thick-film conductors for hybrid circuits
MSC-13242 B69-10235 03

ENTHALPY

Experimental investigation of megawatt dc arc heating of nitrogen
LEWIS-313 B66-10508 02

Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique
ARG-277 B67-10324 03

Pure xenon hexafluoride prepared for thermal properties studies
ARG-10056 B67-10577 03

Study of thermal effects on nickel-cadmium batteries
GSFC-10003 B67-10614 01

Real fluid properties of normal and parahydrogen
LEWIS-10458 B68-10361 06

The thermodynamic properties of the wustite phase are studied
ARG-10200 B68-10408 03

A mass flux probe for measurement in a supersonic stream
LEWIS-10695 B68-10533 02

Isothermal drop calorimeter provides measurements for alpha active, pyrophoric materials
ARG-10186 B69-10002 02

Plasma-heating by induction
LEWIS-10528 B69-10185 02

Computer program for high pressure real gas effects
LEWIS-10820 B69-10222 06

Thermophysical properties of sodium
ARG-10363 B69-10240 03

ENTIRE FUNCTIONS

Water-glycol system volume calculation
MSC-15193 B69-10563 02

ENTRAINMENT

Study made of Raney nickel technology
M-PS-2054 B67-10208 03

Improved sample capsule for determination of oxygen in hemolyzed blood
MSC-11017 B67-10408 04

ENTROPY

Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique
ARG-277 B67-10324 03

Thermodynamic properties of saturated liquid parahydrogen charted for important temperature range
NUC-10018 B67-10346 03

Real fluid properties of normal and parahydrogen
LEWIS-10458 B68-10361 06

The thermodynamic properties of the wustite phase are studied
ARG-10200 B68-10408 03

Investigation of temperature dependence of development and aging
ARG-10145 B69-10022 04

Computer program for high pressure real gas effects
LEWIS-10820 B69-10222 06

Thermophysical properties of sodium
ARG-10363 B69-10240 03

Experimental design for research on shock-turbulence interaction
M-PS-20031 B69-10604 02

ENVELOPES

X-ray film holder permits single continuous picture of tubing joint
LEWIS-10382 B68-10343 05

Method of making conical fiber optical components
XNP-09745 B69-10020 02

ENVIRONMENT SIMULATION

Miniature piezoelectric triaxial accelerometer measures cranial accelerations
ARC-71 B66-10534 01

Method for X-ray study under extreme temperature and pressure conditions
MSC-11232 B67-10474 02

ENVIRONMENT SIMULATORS

Simulator effects partial gravity conditions
MSC-152 B66-10339 05

Heat-load simulator for heat sink design
MSC-15170 B68-10510 02

ENVIRONMENTAL CONTROL

Self-contained clothing system provides protection against hazardous environments
M-PS-536 B66-10201 05

Critical parts are stored and shipped in environmentally controlled reusable container
M-PS-703 B66-10258 05

Portable lightweight cell provides controlled environment

SUBJECT INDEX

EPITAXY

MSC-648	B66-10370	05	SAN-10028	B68-10445	06
Computer program analyzes generalized environmental control and life support systems			Dual-purpose chamber-cooling system		
MSC-1157	B67-10415	06	NPO-10467	B68-10506	02
Environmental control system for cryogenic testing of tensile specimens			Evaluation of a fluorocarbon plastic used in cryogenic valve seals		
NUC-10523	B67-10618	02	M-FS-18189	B68-10523	03
Sterilization training manual			Electronic analog equalization for vibrational testing		
M-FS-20437	B69-10277	04	NPO-10544	B69-10472	01
Mass culture of photobacteria to obtain luciferase			ENVIRONMENTS		
GSFC-10563	B69-10294	04	Molybdenum disulfide mixtures make effective high-vacuum lubricants		
Rate of heat extraction controller for environmental control			M-FS-54	B63-10453	03
HQ-10318	B69-10516	01	Miniature servo accelerometer is force-balanced		
Liquid oxygen-compatible insulation system			JPL-155	B65-10340	01
M-FS-16113	B69-10599	03	Instrumentation monitors transported material through variety of parameters		
ENVIRONMENTAL ENGINEERING			M-FS-12938	B67-10545	01
Desert soil collection at the JPL soil science laboratory			Conceptual hermetically sealed elbow actuator		
NPO-11206	B69-10571	04	M-FS-14710	B68-10300	05
ENVIRONMENTAL INDEX			Multiple-orifice throttle valve		
Experimental study and evaluation of radioprotective drugs			XNP-09698	B69-10030	05
ARG-10196	B68-10320	04	Fatigue failure in metal bellows due to flow-induced vibrations		
ENVIRONMENTAL LABORATORIES			M-FS-18383	B69-10071	05
Concept for cryogenic liquid reclamation system			Journal gas bearing for curved surfaces		
NPO-10322	B67-10420	02	M-FS-20423	B69-10182	05
Life detection			Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna		
NPO-10510	B69-10475	04	ARG-10345	B69-10258	02
ENVIRONMENTAL TESTS			An infrared television system for hydrogen flame detection		
System transmits mechanical vibration into hazardous environment			KSC-10368	B69-10354	01
NU-0025	B65-10248	05	A simple electrometer for measuring small photoelectric currents		
Multiple test chamber exposes materials to various environments			GSFC-10603	B69-10734	01
MSC-179	B65-10268	01	ENZYME ACTIVITY		
Materials physically tested in variable-environment chamber			Microorganisms detected by enzyme-catalyzed reaction		
JPL-789	B66-10130	01	JPL-782	B66-10117	04
Tester periodically registers dc amplifier characteristics			Study of behavior of sterols at interfaces		
MSC-190	B66-10148	01	ARG-10085	B68-10281	03
Multicolor stroboscope pinpoints resonances in vibrating components			The preparation, identification and properties of chlorophyll derivatives		
JPL-0033	B66-10223	01	ARG-10205	B68-10409	03
Semiautomatic device tests components with biaxial leads			ENZYMES		
MSC-516	B66-10337	03	Cytology is advanced by studying effects of deuterium environment		
Monitoring system determines amplitude and time of vibration channel peaks			ARG-205	B67-10304	04
JPL-879	B66-10699	01	Purification and characterization of two fully deuterated enzymes		
Personal communication system combines high performance with miniaturization			ARG-10314	B69-10207	04
MSC-720	B67-10119	01	Quantitative determination of flavin nucleotide using the bacterial bioluminescent reaction		
Environmental study of miniature slip rings			GSFC-10565	B69-10715	04
M-FS-2443	B67-10210	05	EPRENEBRIDES		
Analog buffer isolates high impedance source from low impedance load			ABTEAJ on-site tracking prediction program		
M-FS-13481	B67-10544	01	NPO-10836	B69-10103	06
Automatic calibration system for pressure transducers			EPITAXY		
M-FS-20127	B68-10412	01	Single-crystal semiconductor films grown on foreign substrates		
Environmental test planning, selection and standardization aids available			WOO-076	B66-10225	01
			Efficient millimeter wave 1140 GHz/ diode		

EPOXY COMPOUNDS

SUBJECT INDEX

for harmonic power generation HQ-61	B67-10166	01	Aluminum alloys protected against stress- corrosion cracking M-FS-235	B65-10172	03
Improved process for epitaxial deposition of silicon on prediffused substrates M-FS-14910	B68-10390	03	Epoxy-resin patterns speed shell-molding of aluminum parts M-FS-303	B65-10177	05
Conceptual techniques for reducing parasitic current gain of lateral pnp transistors MSC-13199	B69-10244	01	Modular thermoelectric cell is easily packaged in various arrays GSFC-339	B65-10199	01
Epitaxial crystalline growth upon cold substrates MSC-11196	B69-10494	01	Thermocouple-to-instrumentation connector features quick assembly NU-0022	B65-10246	05
Modification to improve self-isolating transistor arrays M-FS-20499	B69-10678	01	Composite seal reduces alkaline battery leakage GSFC-337	B65-10271	01
Lateral PNP bipolar transistor with aiding field diffusions MSC-13072	B69-10741	01	Epoxy blanket protects milled part during explosive forming M-FS-307	B66-10029	03
EPOXY COMPOUNDS			Spray-on technique simplifies fabrication of complex thermal insulation blanket M-FS-497	B66-10053	03
Epoxy blanket protects milled part during explosive forming M-FS-307	B66-10029	03	Hydrogen-atmosphere induction furnace has increased temperature range LEWIS-153	B66-10055	05
Thermocouple-flexible cable connector insulator is highly reliable NU-0082	B66-10709	01	Compound improves thermal interface between thermocouple and sensed surface NU-0028	B66-10121	02
Standards for compatibility of printed circuit and component lead materials M-FS-14531	B68-10310	01	Bismuth alloy potting seals aluminum connector in cryogenic application WOO-260	B66-10138	03
Electron beam selectively seals porous metal filters LEWIS-10162	B68-10331	05	Phonocardiograph system monitors heart sounds MSC-185	B66-10154	04
Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01	Epoxy-coated containers easily opened by wire band M-FS-592	B66-10174	05
EPOXY RESINS			Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02
Integral coolant channels supply made by melt-out method M-FS-91	B63-10497	05	Improved adhesive for cryogenic applications cures at room temperature WOO-132	B66-10185	03
New method forms bond line free of voids LANGLEY-20	B63-10558	05	Coating permits use of strain gage in water and liquid hydrogen M-FS-594	B66-10192	01
Plastic molds reduce cost of encapsulating electric cable connectors M-FS-69	B63-10568	05	Rugged microelectronic module package supports circuitry on heat sink MSC-81A	B66-10245	01
Compact coaxial connector for printed circuit adds reliability MSC-57	B64-10016	01	Phonocardiograph microphone is rugged and moistureproof MSC-212	B66-10314	04
Stringent cleaning technique assures reliable epoxy bond GSFC-161	B64-10142	03	Fiber length and orientation prevent migration in fluid filters M-FS-541	B66-10319	05
Screening technique makes reliable bond at room temperature M-FS-227	B65-10004	03	Strippable grid facilitates removal of grid-surfaced conical workpiece from die M-FS-716	B66-10334	01
Adhesive for vacuum environments resists shock and vibration MSC-56	B65-10016	03	Sprayable birefringent coating enables strain measurements on large surfaces M-FS-1484	B66-10578	03
Optical arrangement increases useful light output of semiconductor diodes JPL-SC-064	B65-10020	05	Study made to control depth of potting compound for honeycomb sandwich fasteners LEWIS-370	B66-10677	05
Miniature stress transducer has directional capability JPL-591	B65-10023	01	Solid-state recoverable fuse functions as circuit breaker GSFC-560	B66-10691	01
Wide-aperture solar energy collector is light in weight JPL-SC-055	B65-10046	02	Metal boot permits fabrication of hermetically sealed splices in metal		
Transducer measures temperature differentials in presence of strong electromagnetic fields ARC-27	B65-10089	01			

SUBJECT INDEX

EQUATIONS OF STATE

sheathed instrumentation cables
NU-0083 B66-10704 05

Miniature capacitor functions as pressure
sensor
JPL-903 B67-10020 01

RF inductor has high Q, is stable at
higher temperatures
JPL-1019 B67-10106 01

Photosensitive filler minimizes internal
stresses in epoxy resins
M-FS-1880 B67-10227 03

Pipe joints reinforced in place with fitted
aluminum sleeves
MSC-11109 B67-10271 05

Low-energy gamma ray inspection of brazed
aluminum joints
MSC-1189 B67-10337 02

Transducer measures embedment stresses in
electronic modules
M-FS-13486 B67-10367 01

Flowmeter determines mix ratio for viscous
adhesives
M-FS-2308 B67-10378 01

Multiplexer uses insulated gate-field
effect transistors
M-FS-13096 B67-10396 01

Technique eliminates high voltage arcing
at electrode-insulator contact area
LEWIS-10133 B67-10470 01

Multi-feed cone for Cassegrainian antenna
ARG-10025 B67-10484 03

Flame sprayed dielectric coatings improve
heat dissipation in electronic packaging
M-FS-13569 B67-10534 01

Epoxy resins produce improved plastic
scintillators
ARG-241 B67-10596 03

Bacteriostatic conformal coating for
electronic components
GSFC-10007 B67-10599 03

Synthesis of pure aromatic glycidyl esters
for use as adhesives
M-FS-12705 B67-10647 03

Cure of epoxy resins determined by
simple tests
M-FS-13131 B68-10043 03

Method for reinforcing tubing joints
MSC-11108 B68-10115 05

Miniature pressure transducer for stressed
member application
MSC-11869 B68-10246 01

Encapsulation technique eliminates thermal
stresses in welded electronic modules
M-FS-14581 B68-10307 01

Fiber glass reinforced structural materials
for aerospace application
M-FS-14806 B68-10360 03

Pressure-sensitive bonded junction
transducers
ERC-10087 B68-10563 01

Adhesive for cryogenic temperature
applications
LEWIS-10264 B69-10074 03

Novel terminal strips for transformers
NPO-10842 B69-10246 01

Automatic bird watcher

ARG-10342 B69-10286 02

Precision mounting for instrument optical
elements provided by polyimide bonding
M-FS-20293 B69-10310 05

Development of improved potting and
conformal coating compounds
M-FS-20219 B69-10559 03

EQUATIONS

Mechanical properties of plastics
predetermined by empirical method
ARC-28 B64-10068 03

New computer system simplifies programming of
mathematical equations
M-FS-441 B66-10361 01

Equations provide tubular information on
effects of uniform and variable loads on
thin, flat, circular plates
ARG-151 B66-10601 05

Exposure Value /EV/ system expanded to
include filter factors and transmittance
LANGLEY-190 B66-10602 02

Analytical drafting curves provide exact
equations for plotted data
LANGLEY-285 B67-10601 02

Determination of quadric equation
coefficients describing three-dimensional
surfaces, their constraint and skewed planes,
and view point areas
M-FS-15043 B69-10435 06

EQUATIONS OF MOTION

Calculations enable optimum design of
magnetic brake
LEWIS-251 B66-10073 05

Study of dynamic response of elastic space
stations
NPO-10124 B67-10169 06

Space trajectories program for IBM 7090
NPO-10125 B67-10172 06

Computer program for determination of
natural frequencies of closed spherical
sandwich shells
MSC-1246 B67-10279 06

Computer program for mass optional solutions
of some endpoint trajectory problems
M-FS-12976 B67-10310 06

DYANA - An advanced programming system for
large classes of dynamic and equivalent
systems
M-FS-12084 B67-10524 06

HICOV - Newton-Raphson calculus of
variation with automatic transversalities
M-FS-14468 B68-10232 06

Acoustic wave analysis
M-FS-18076 B68-10265 02

Vibration testing and dynamic studies of
relays
M-FS-14542 B68-10268 01

EQUATIONS OF STATE

Thermodynamic properties related to
expansion of two-component gas
MSC-1133 B67-10112 03

CINDA - Chrysler Improved Numerical
Differencing Analyzer computer program
M-FS-2298 B67-10278 06

Real fluid properties of normal and
parahydrogen
LEWIS-10458 B68-10361 06

Determination of permissible applied load

EQUILIBRIUM

SUBJECT INDEX

stress in structural elements M-FS-16556	B69-10823	02	Study of fluoride corrosion of nickel alloys ARG-10224	B69-10048	03
EQUILIBRIUM			Tube welding and brazing M-FS-20348	B69-10085	05
Improved variable-reluctance transducer measures transient pressures LANGLEY-10	B63-10321	01	EQUIPMENT SPECIFICATIONS		
Low-power transistorized circuit provides staircase waveform GSFC-48	B64-10007	01	Mylar film eliminates silk screening of equipment panels MSC-798	B66-10455	05
Simple transducer measures low heat-transfer rates JPL-466	B64-10122	01	Integrated mobility measurement and notation system MSC-726	B67-10114	04
Calorimeter accurately measures thermal radiation energy LANGLEY-173	B66-10058	02	Evaluation of high temperature stranded hookup wire M-FS-2478	B67-10122	03
General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-FS-13094	B67-10331	06	Technique for measuring magnetic tape interlayer adhesion NPO-10011	B67-10417	03
Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations NUC-10052	B67-10345	06	Gun facilitates adhesive bonding of studs to surfaces M-FS-20299	B69-10009	05
Continuous wave detector has wide frequency range M-FS-1849	B67-10386	01	EQUIPOTENTIALS		
Computer program analyzes generalized environmental control and life support systems MSC-1157	B67-10415	06	Automated plotting of equipotentials NPO-11134	B69-10570	01
Evaluation of superconducting magnets, a study M-FS-14808	B68-10396	02	EQUIVALENCE		
Mechanical properties of a lap joint under uniform clamping pressure M-FS-14538	B69-10141	05	Integrated circuit with multiple collector current source M-FS-20177	B69-10126	01
Electrolytic separation of crystals of transition-metal oxides ARG-10506	B69-10642	03	EQUIVALENT CIRCUITS		
EQUILIBRIUM FLOW			GERT EXCLUSIVE-OR combining paths and loops of electrical networks ERC-10206	B68-10435	06
Computer program determines gas flow rates in piping systems M-FS-443	B66-10300	01	EROSION		
New computer program solves wide variety of heat flow problems M-FS-421	B66-10404	01	Internal cooling increases range of immersion-type temperature probe LEWIS-171	B65-10157	02
Magnetoresistor monitors relay performance M-FS-1754	B66-10650	01	Vibrator improves spark erosion cutting process NU-0071	B66-10333	01
Computer program provides steady state analysis for liquid propellant propulsion systems MSC-10064	B67-10414	06	Labyrinth-type valve seat increases valve life by decreasing fluid velocity M-FS-1051	B66-10424	05
Program computes equilibrium normal shock and stagnation point solutions for arbitrary gas mixtures LANGLEY-10090	B67-10509	06	Plasma jet electrode has longer operating life NU-0098	B67-10024	02
Thermal Network Analyzer Program NUC-10540	B69-10239	06	Traveling wire electrode increases productivity of Electrical Discharge Machining /EDM/ equipment ARG-136	B67-10238	05
EQUIPMENT			Two-fluid, impinging-sheet injector NPO-10547	B68-10338	05
Apparatus of small size can be extended into long, rigid boom JPL-305	B63-10200	05	Design concept for nonarcing electrical connector M-FS-14937	B68-10404	01
Materials data handbook, aluminum alloy 7075 M-FS-2349	B67-10301	03	ERROR ANALYSIS		
Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide ARG-10154	B68-10293	02	FM carrier deviation measured by differential probability method M-FS-2166	B67-10213	01
			Study of optimum discrete estimators in measurement analysis M-FS-14915	B68-10348	02
			Refractory oxide insulated thermocouple designed and analyzed for high temperature applications ARG-10202	B69-10053	03
			Compensation of pulse-rebalanced inertial instruments MSC-13098	B69-10216	01
			The effect of mismatched components on		

SUBJECT INDEX

ERROR SIGNALS

microwave noise-temperature calibrations
NPO-11163 B69-10333 01

Prediction of thermal radiation from a
rocket's exhaust plume
M-FS-20414 B69-10371 02

Structure of the isotropic transport
operators in three independent space
variables
ARG-10448 B69-10432 06

Method reduces computer time for smoothing
functions and derivatives through ninth
order polynomials
NUC-10334 B69-10524 06

Vacuum gage calibration system for 10 to the
minus 8th power to 10 torr
LEWIS-11032 B69-10713 01

ERROR CORRECTING DEVICES

Nonlinear feedback reduces analog-to-digital
converter error
ARC-46 B65-10277 01

Simplified circuit corrects faults in parallel
binary information channels
JPL-SC-090 B66-10261 01

Neon isotopes cancel errors in gas laser
M-FS-1476 B66-10583 02

Optical automatic gain channel
M-FS-1550 B66-10596 02

Electrical continuity scanner facilitates
identification of wires for soldering to
connectors
MSC-626 B66-10605 01

A radiometer-pyrometer
LEWIS-284 B66-10606 01

Blackbody cavity radiometer has rapid
response
JPL-521 B66-10679 01

Automatic channel switching device
MSC-832 B67-10086 01

Transient Analysis Generator /TAG/
simulates behavior of large class of
electrical networks
NPO-10031 B67-10319 06

Metal flame spray coating protects electrical
cables in extreme environment
NUC-10077 B67-10351 03

Control apparatus for spectral energy
source
LEWIS-391 B67-10404 01

Improved sample capsule for determination
of oxygen in hemolyzed blood
MSC-11017 B67-10408 04

Algebraic Monte Carlo procedure reduces
statistical analysis time and cost factors
M-FS-1887 B67-10434 01

Self-correcting, synchronizing ring counter
using integrated circuit devices
M-FS-13901 B68-10067 01

Simultaneous message framing and error
detection
MSC-12001 B68-10330 01

A compact rotary vane attenuator
NPO-10562 B69-10427 01

Technique for improving solid state
mosaic images
M-FS-20532 B69-10676 01

Image position sensor
M-FS-14101 B69-10783 02

ERROR DETECTION CODES

Detection system ensures positive alarm
activation in digital message loss
WOC-208 B66-10287 01

Subroutine allows easy computation in
extended precision arithmetic
M-FS-1136 B66-10504 01

Digital system detects binary code patterns
containing errors
GSFC-541 B66-10516 01

Automatic channel switching device
MSC-832 B67-10086 01

Simultaneous message framing and error
detection
MSC-12001 B68-10330 01

Water-glycol system volume calculation
MSC-15193 B69-10563 02

ERROR FUNCTIONS

Computer program for network synthesis by
frequency response fit
M-FS-12686 B67-10406 06

FORTTRAN optical lens design program
NPO-10603 B68-10354 06

ERROR SIGNALS

Circuit detects errors in address currents for
magnetic core arrays
M-FS-234 B65-10047 01

Nulling pyrometer uses Kerr cell shutter for
fast responses
NU-0010 B65-10050 01

Tension is servo controlled in film advance
system
LANGLEY-54 B65-10075 05

System selects framing rate for spectrograph
camera
LANGLEY-55 B65-10086 01

Digital system accurately controls velocity
of electromechanical drive
GSFC-287 B65-10096 01

Pressure transducer system is force-balanced,
has digital output
M-FS-154 B65-10174 05

Light ray modulation controls optical system
alignment
GSFC-171 B65-10211 02

Electronic ohmmeter provides direct digital
output
GSFC-363 B65-10274 01

Control circuit maintains unity power factor
of reactive load
MSC-192 B66-10431 01

Point-source light sensor circuit is
insensitive to background light
JPL-778 B66-10502 01

Monitor assures availability and quality of
communication channels
KSC-66-38 B67-10028 01

Modified univibrator compensates for output
timing errors
ARG-85 B67-10130 01

Absolute frequency stabilization of laser
oscillator against laser amplifier
M-FS-2559 B67-10255 01

System precisely controls oscillation of
vibrating mass
M-FS-1875 B67-10276 01

Digital servo readout system increases

ERRORS

recording accuracy of servo-balance scales
 NUC-10125 B67-10496 01

Gimbaled-mirror scanning system capable
 of spiral pattern
 GSPC-10170 B67-10609 02

Hydraulic servo system increases accuracy
 in fatigue testing
 LANGLEY-217 B67-10637 01

Dynamic linearity measurement technique
 KSC-10186 B68-10290 01

Automatic system nondestructively monitors
 and records fatigue crack growth
 LANGLEY-10091 B68-10379 01

Accurate digital technique simulates flight
 control system
 M-FS-14787 B68-10569 02

Simple, accurate automatic frequency
 control circuit
 KSC-10393 B69-10323 01

Improved dc voltage regulator
 XKS-06467 B69-10369 01

Wide-band doubler and sine wave quadrature
 generator
 NPO-11133 B69-10383 01

Gas Metal Arc /GMA/ weld torch
 proximity control
 M-FS-16327 B69-10533 01

Automatic frequency control of
 voltage-controlled oscillators
 NPO-11064 B69-10569 01

Pulse-code-modulation baseline correction
 for low signal-to-noise ratios
 MSC-13268 B69-10750 01

ERRORS

Polarizing keys prevent mismatch of connector
 plugs and receptacles
 MSC-443 B66-10251 01

Analytical technique permits comparison of
 reliability of alternate mechanical designs
 NUC-10065 B67-10261 06

Miniature pressure transducer for stressed
 member application
 MSC-11869 B68-10246 01

Computer graphics data conditioning
 M-FS-14695 B68-10296 06

Performance statistics of the FORTRAN 4
 /H/ library for the IBM system/360
 ARG-10299 B69-10157 06

Stereo TV enhancement study
 M-FS-14805 B69-10497 01

Deposition monitor and control
 NPO-10706 B69-10722 01

ESCAPE SYSTEMS

Pressure sensor responds only to shock wave
 M-FS-238 B65-10184 01

Emergency escape system uses self-braking
 mechanism on fixed cable
 KSC-66-44 B66-10575 05

Emergency escape system protects personnel
 from explosion and fire
 KSC-66-12 B66-10634 05

ESCAPE VELOCITY

Experiments shed new light on
 nickel-fluorine reactions
 ARG-10008 B67-10397 03

SUBJECT INDEX

ESTERS

Synthesis of pure aromatic glycidyl esters
 for use as adhesives
 M-FS-12705 B67-10647 03

ESTIMATES

Design reliability goal developed from small
 sample
 M-FS-403 B66-10405 05

Computer program calculates monotonic
 maximum likelihood estimates using method
 of reversals
 M-FS-1516 B67-10136 01

Probabilistic approach to long range
 planning of manpower
 MSC-11524 B67-10510 06

Estimating reliability by application of
 matrix representation
 HQ-10246 B69-10793 02

ETCHANTS

Nonhazardous acid etches weld samples
 M-FS-975 B66-10378 05

A method for precision anodize stripping
 MSC-15040 B69-10581 03

Reducing contact resistance at semiconductor
 to metal or aluminum to metal interfaces
 ERC-10254 B69-10689 01

ETCHING

Metals plated on fluorocarbon polymers
 JPL-544 B63-10612 03

Stringent cleaning technique assures reliable
 epoxy bond
 GSPC-161 B64-10142 03

Modification increases light output of
 injection-luminescent diodes
 M-FS-192 B65-10006 01

Electroless nickel resist used in alkali
 etching of aluminum
 GSPC-284 B65-10162 03

Fresnel zone plate forms images at wavelengths
 below 1000 angstroms
 GSPC-231 B65-10171 02

Etching process mills PH 14-8 Mo alloy
 steel to precise tolerances
 MSC-270 B66-10110 03

Electrolytic etching process provides
 effective bonding surface on stainless steel
 GSPC-484 B66-10299 03

Chemical milling solution produces smooth
 surface finish on aluminum
 MSC-549 B66-10312 03

Nonhazardous acid etches weld samples
 M-FS-975 B66-10378 05

System for etching thick aluminum layers
 minimizes bridging and undercutting
 M-FS-1366 B66-10400 03

Study shows effect of surface preparations
 on improving thermionic emission
 JPL-SC-140 B66-10493 01

Silver plating ensures reliable diffusion
 bonding of dissimilar metals
 M-FS-1975 B67-10124 03

Warpage eliminated in copper-clad
 microwave circuit laminates
 M-FS-13892 B67-10454 03

Acid spray technique mills aluminum alloy
 materials without immersion
 M-FS-12500 B67-10463 03

SUBJECT INDEX

EUTECTIC ALLOYS

Reaction rates of graphite with ozone measured by etch decoration ARG-10086	B68-10101	03	hoods or condensers MSC-15611	B69-10552	03
Analytical techniques for determining boron in graphite ARG-10087	B68-10102	03	ETHYLENE Special tool seals conductors with combination of plastic sleeves M-FS-579	B66-10209	05
Standards for compatibility of printed circuit and component lead materials M-FS-14531	B68-10310	01	Method for copper staining of germanium crystals ARG-10403	B69-10257	03
Hydrogen peroxide etching proves useful for germanium ARG-10170	B68-10454	03	ETHYLENE COMPOUNDS Insert sleeve prevents tube soldering contamination MSC-552	B66-10238	05
Integrated metal transistor leads. GSFC-90536	B68-10518	01	Sea dye marker provides visibility for 20 hours MSC-714	B66-10313	03
Method for removing surface-damaged layers from nickel alloys M-FS-18151	B68-10522	03	Thermoplastic rubberlike material produced at low cost JPL-793	B66-10453	03
Multiple-mask chemical etching MSC-13114	B69-10221	01	Spectrophotometric technique quantitatively determines NaMBT inhibitor in ethylene glycol-water solutions MSC-11496	B67-10573	03
Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04	ETHYLENE OXIDE Encapsulation process sterilizes and preserves surgical instruments JPL-484	B64-10066	05
Radiation tolerant silicon nitride insulated gate field effect transistors GSFC-10581	B69-10253	01	Effects of sterilization on the energy-dissipating properties of balsa wood NPO-11207	B69-10592	03
Method for copper staining of germanium crystals ARG-10403	B69-10257	03	ETHYLENEDIAMINE Silazane elastomer remains resilient at 400 deg C M-FS-1144	B66-10667	05
Self-shielding printed circuit boards for high frequency amplifiers and transmitters HQ-10433	B69-10314	01	EUDIOMETERS Reaction of steam with molybdenum is studied ARG-295	B67-10502	03
Hermetically sealed pump LEWIS-10837	B69-10320	05	EULER-LAGRANGE EQUATION Study of dynamic response of elastic space stations NPO-10124	B67-10169	06
Leads integral with the internal interconnection that penetrate the molded wall of a package LANGLEY-10228	B69-10436	01	Generalized Newton-Raphson trajectory optimization-generator 1 M-FS-15020	B68-10422	06
ETHERS Test monkeys anesthetized by routine procedure HQ-18	B65-10332	04	EUROPIUM COMPOUNDS Liquid laser cavities GSFC-10592	B69-10234	02
Sea dye marker provides visibility for 20 hours MSC-714	B66-10313	03	EUTECTIC ALLOYS Coating method enables low-temperature brazing of stainless steel NU-0030	B65-10250	03
Silphenylene elastomers have high thermal stability and tensile strength M-FS-20250	B69-10580	03	Brazing method produces solid-solution bond between refractory metals LEWIS-212	B65-10370	05
Quick don-doff electrode pastes MSC-13249	B69-10598	04	Crucible cast from beryllium oxide and refractory cement is impervious to flux and molten metal ARG-22	B66-10527	03
ETHYL ALCOHOL Submicron metal powders produced by ball milling with grinding aids LEWIS-188	B66-10221	03	Vacuum chamber is remotely sealed by eutectic metal NU-0091	B67-10059	05
Coolants with selective optical filtering characteristics for ruby laser applications M-FS-20188	B68-10508	02	Eutectic fuse provides current and thermal protection under high vibration M-FS-13664	B67-10535	01
Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06	Spectrographic analysis of bismuth-tin eutectic alloys by spark-ignited low-voltage ac-arc excitation ARG-10288	B69-10081	03
ETHYL COMPOUNDS Thin transparent films formed from powdered glass GSFC-352	B65-10217	03			
Qualitative and quantitative analysis of mixtures of compounds containing both hydrogen and deuterium ARG-10312	B69-10177	04			
Technique for ultrasonic cleaning with volatile solvents eliminates need for					

EVACUATING (TRANSPORTATION)

SUBJECT INDEX

Niobium-uranium alloys with voids of predetermined size and total volume ARG-10490	B69-10641	03	M-FS-13084	B67-10507	01
EVACUATING (TRANSPORTATION)			Computerized Schedule Effectiveness Technique /SET/ determines present and future schedule position M-FS-13012	B67-10522	06
Emergency escape system uses self-braking mechanism on fixed cable KSC-66-44	B66-10575	05	SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield NUC-10142	B67-10537	06
Emergency escape system protects personnel from explosion and fire KSC-66-12	B66-10634	05	Cure of epoxy resins determined by simple tests M-FS-13131	B68-10043	03
EVACUATING (VACUUM)			FORTRAN optical lens design program NPO-10603	B68-10354	06
Tool permits damage-free removal of solar cell GSFC-467	B66-10219	05	Automatic calibration system for pressure transducers M-FS-20127	B68-10412	01
Brazing process using Al-Si filler alloy reliably bonds aluminum parts MSC-448	B66-10241	05	Beryllium fastener technology M-FS-20306	B69-10019	05
Apparatus enables accurate determination of alkali oxides in alkali metals LEWIS-256	B66-10296	03	Nondestructive evaluation of printed wiring boards by microhm resistance measurements SAN-10034	B69-10272	01
Device removes hydrogen gas from enclosed spaces GSFC-495	B66-10340	03	Evaluation of magnetic materials for static inverters and converters LEWIS-10343	B69-10306	01
Auxiliary titanium sublimation pump produces ultrahigh /10 to the minus 11 torr/ vacuum LANGLEY-212	B66-10388	02	EVAPORATION		
Seal-off assembly permits rapid evacuation of air from containers GSFC-513	B66-10446	05	Elastomers bonded to metal surfaces seal electrochemical cells GSFC-168	B64-10113	03
Radioactive method enables determination of surface areas rapidly and accurately NU-0088	B66-10710	03	Solder flux leaves corrosion-resistant coating on metal JPL-611	B64-10206	03
Isostatic compression process converts polyaromatics into structural material JPL-892	B67-10168	03	Tantalum cathode improves electron-beam evaporation of tantalum JPL-W00-021	B65-10175	03
Quartz crystals detect gas contaminants during vacuum chamber evacuation NPO-10144	B67-10205	01	Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations ARG-251	B67-10305	04
Hand-operated plug insertion valve M-FS-12019	B67-10466	05	Evaporant feed device facilitates flash vapor deposition process in vacuum NPO-10232	B67-10320	03
Thermal conductivity and dielectric constant of silicate materials M-FS-14856	B68-10351	03	Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination ARG-262	B67-10421	03
Thermal radiation shields for piping in vacuum environments LEWIS-10899	B69-10262	03	Improved process for making thin-film sodium niobate capacitors MSC-11231	B68-10163	01
New shield for gamma-ray spectrometry ARG-10388	B69-10344	02	Graphite cloth facilitates vacuum evaporation of silicon monoxide M-FS-14764	B68-10256	03
Preparation of superconducting thin films of transition-metal interstitial compounds HQ-10445	B69-10470	01	Effects of surface preparation on quality of aluminum alloy weldments M-FS-13152	B68-10302	03
Sealed container sampling device GSFC-10690	B69-10682	03	Superconductive thin film makes convenient liquid helium level sensor LANGLEY-10289	B68-10341	01
EVALUATION			Electron beam recrystallization of amorphous semiconductor materials LEWIS-10443	B68-10556	02
Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys ARG-199	B66-10594	03	Laser microprobe facility used in the elemental analysis of small feature of a sample ARG-10359	B69-10165	02
Evaluation of high temperature stranded hookup wire M-FS-2478	B67-10122	03	Freon, T-B1 cutting fluid MSC-11486	B69-10485	05
Effects of heat input rates on T-1 and T-1A steel welds M-FS-2475	B67-10163	03			
Vis-A-Plan /visualize a plan/ management technique provides performance-time scale KSC-10073	B67-10240	06			
Test and inspection for process control of monolithic circuits					

SUBJECT INDEX

EXPANDABLE STRUCTURES

Measurement of gas flow at extremely low pressures MSC-13261	B69-10522	03	EXHAUST GASES		
A rotating, noncapillary heat pipe LEWIS-10298	B69-10684	05	Plastic bags in evacuated chamber make lightweight gas sampling system FRC-31	B65-10264	01
Pulsed high-voltage dc RF sputtering LEWIS-10920	B69-10699	01	Probe samples components of rocket engine exhaust M-FS-485	B65-10384	03
Deposition monitor and control NPO-10706	B69-10722	01	Calculation of infrared spectral transmittances of inhomogeneous gases M-FS-1563	B66-10554	02
EVAPORATION RATE			Predicting surface heating rates and pressures resulting from hot exhaust gases MSC-971	B66-10633	05
Improved vacuum deposition apparatus NPO-11009	B69-10365	02	Axisymmetric two-phase perfect gas performance program MSC-11774	B68-10374	06
EVAPORATIVE COOLING			One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06
Dual-purpose chamber-cooling system NPO-10467	B68-10506	02	One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06
EXAMINATION			Axisymmetric reacting gas nonequilibrium performance program MSC-11781	B68-10377	06
Computer grading of examinations ARG-10269	B69-10159	06	EXHAUST NOZZLES		
Laser microprobe facility used in the elemental analysis of small feature of a sample ARG-10359	B69-10165	02	Computer program uses characteristics method for free-jet investigation LANGLEY-10117	B67-10490	06
Ion-retarding lens improves the abundance sensitivity of tandem mass spectrometers ARG-10365	B69-10166	02	EXHAUST SYSTEMS		
Continuous analysis of nitrogen dioxide in gas streams of plants ARG-10356	B69-10254	03	Magnetic field controls carbon arc tail flame MSC-139	B65-10108	01
Improved perceptual-motor performance measurement system HQ-10123	B69-10385	01	Probe measures characteristics of hot gas stream M-FS-240	B65-10133	02
EXCITATION			Heat exchanger tubes supported in high vibration environment M-FS-1401	B66-10567	05
Electrodeless discharge lamp is easily started, has high stability WOO-030	B66-10015	01	Axisymmetric reacting gas nonequilibrium performance program MSC-11781	B68-10377	06
Electronic gating circuit and ultraviolet laser excitation permit improved dosimeter sensitivity ARG-10109	B68-10077	02	Prediction of thermal radiation from a rocket's exhaust plume M-FS-20414	B69-10371	02
Silicon strain sensors enable pressure measurement at cryogenic temperatures M-FS-14703	B68-10262	01	EXHAUSTING		
Optically exciting a magnetic memory - A feasibility study M-FS-14854	B69-10060	02	Tool provides constant purge during tube welding M-FS-547	B66-10093	05
Spectrographic analysis of bismuth-tin eutectic alloys by spark-ignited low-voltage ac-arc excitation ARG-10288	B69-10081	03	EXOTHERMIC REACTIONS		
Detection of molecular infrared spectra HQ-10377	B69-10172	02	Nitrogen dioxide produced by self-sustained pyrolysis of nitrous oxide LANGLEY-32	B65-10074	05
Recent development in organic scintillators ARG-10344	B69-10198	03	Technique for assessing potential fire hazards HQ-10279	B69-10287	03
EXHALATION			EXPANDABLE STRUCTURES		
Device induces lungs to maintain known constant pressure MSC-50	B64-10108	04	Collapsible truss structure is automatically expandable GSFC-265	B65-10126	05
Rate of heat extraction controller for environmental control HQ-10318	B69-10516	01	Expandable insert serves as screw anchor MSC-301	B66-10132	05
EXHAUST DIFFUSERS			Extendable mast used in one shot soil penetrometer JPL-685	B66-10146	05
Gas diffuser facilitates withdrawal of cryogenic liquids from tanks M-FS-915	B66-10342	05	Expandable takeup reel facilitates paper tape removal WOO-271	B66-10399	05
Computer program calculates peripheral water injection cooling of axisymmetric subsonic diffuser NUC-10541	B67-10543	06	Plug replaces weld filler as seal in complex		

EXPANSION

SUBJECT INDEX

casting NU-0049	B66-10489	05	LEWIS-17	B66-10435	02
One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06	Experiments shed new light on nickel-fluorine reactions ARG-10008	B67-10397	03
EXPANSION			Pump simulator provides variable pressure-flow characteristics LEWIS-10122	B67-10453	05
Composite, vacuum-jacketed tubing replaces bellows in cryogenic systems LEWIS-67	B63-10368	05	Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01
Device spot-laps spheres to very close tolerances JPL-SC-119	B66-10175	05	EXPLODING WIRES		
Expandable rubber plug seals openings for pressure testing NU-0048	B66-10229	05	Pulse technique provides more accurate checkout of exploding bridge wire device HQ-62	B66-10561	01
Cork is used to make tooling patterns and molds MSC-425	B66-10328	01	Rapid-response, light-exposure control system NPO-10238	B68-10502	01
Thermodynamic properties of saturated liquid parahydrogen charted for important temperature range NUC-10018	B67-10346	03	EXPLOSIONS		
Bimetal sensor averages temperature of nonuniform profile LEWIS-10362	B68-10007	01	Cryostat modified to aid rotating beam fatigue test M-FS-435	B66-10083	03
Encapsulation technique eliminates thermal stresses in welded electronic modules M-FS-14581	B68-10307	01	Oxygen-hydrogen torch is a small-scale steam generator NU-0042	B66-10120	03
Techniques for controlling warpage and residual stresses in welded structures M-FS-20307	B69-10086	05	Circular, explosion-proof lamp provides uniform illumination MSC-382	B66-10156	02
Magnetomotive forming for precision sizing and joining of large-diameter tubes M-FS-20481	B69-10422	05	Magnetic latches provide positive overpressure control NU-0057	B66-10279	05
Water-glycol system volume calculation MSC-15193	B69-10563	02	Shock-operated valve would automatically protect fluid systems M-FS-801	B66-10335	03
Investigation of the development of cracks in solder joints M-FS-20444	B69-10807	01	Emergency escape system protects personnel from explosion and fire KSC-66-12	B66-10634	05
EXPECTATION			Blast deflector traps smoke and debris from explosive trains MSC-11241	B68-10105	03
Algebraic Monte Carlo procedure reduces statistical analysis time and cost factors M-FS-1887	B67-10434	01	Protective clothing for workers with 5-kW and 20-kW short-arc lamps NPO-11155	B69-10218	01
EXPERIMENTAL DESIGN			EXPLOSIVE DEVICES		
Cantilever springs maintain tension in thermally expanded wires LEWIS-136	B65-10149	05	Explosives actuate nonmagnetic indexing device GSFC-237	B65-10017	05
Multiple correlation computer program determines relationships between several independent and dependent variables M-FS-13024	B67-10327	06	Compact assembly generates plastic foam, inflates flotation bag LANGLEY-96	B65-10090	05
Experiments to investigate particulate materials in reduced gravity fields M-FS-13308	B67-10394	02	Splice plate design assures structural separation by mild explosive MSC-137	B65-10166	05
An overview of electromagnetic interference problems in spacecraft NPO-11170	B69-10362	01	Threaded split ring connector separates structural sections LANGLEY-145	B65-10383	05
Experimental design for research on shock-turbulence interaction M-FS-20031	B69-10604	02	Quick-closing valve is actuated by explosive discharge ARC-55	B66-10233	05
EXPERIMENTATION			Pneumatic separator gives quick release to heavy loads KSC-66-10	B66-10294	05
A technique for making animal restraints ARC-25	B63-10564	05	Study made of explosive cutting in simulated space environments M-FS-1597	B67-10040	01
Ceramic materials purified by experimental method LEWIS-225	B65-10270	03	Primary cell uses neither liquid nor fused electrolytes NPO-10001	B67-10275	01
Chemical regeneration of emitter surface increases thermionic diode life			Explosive-train initiated through solid		

SUBJECT INDEX

EXTRAPOLATION

bulkhead by pressure cartridge MSC-11395	B67-10589	03	Simulated hailstone fabrication and use in testing weatherability of structures NPO-10783	B68-10552	03
EXPLOSIVE FORMING					
Metal parts hydrosized by explosive force M-FS-289	B65-10170	05	Multiple-mask chemical etching MSC-13114	B69-10221	01
Explosive force of primacord grid forms large sheet metal parts M-FS-316	B66-10014	05	Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03
Epoxy blanket protects milled part during explosive forming M-FS-307	B66-10029	03	EXPULSION		
Strippable grid facilitates removal of grid-surfaced conical workpiece from die M-FS-716	B66-10334	01	Quality control criteria for acceptance testing of cross-wire welds MSC-627	B66-10587	05
Study made to establish parameters and limitations of explosive welding M-FS-13006	B67-10393	05	EXTENSIONS		
High energy forming facility M-FS-14026	B67-10588	05	Square tubing reduces cost of telescoping bridge crane hoist ARG-13	B67-10293	05
Laminated sheet composites reinforced with modular filament sheet M-FS-14575	B68-10146	03	A mechanically extendible boom NFO-11118	B69-10328	05
Tube swaging device uses explosive force LANGLEY-10092	B68-10235	05	Adjustable thermal **tree** MSC-15556	B69-10484	01
Explosive bonding of metal-matrix composites M-FS-20657	B69-10804	05	EXTENSOMETERS		
EXPLOSIVES			Extensometer automatically measures elongation in elastomers M-FS-517	B66-10284	05
Explosive force of primacord grid forms large sheet metal parts M-FS-316	B66-10014	05	Temperature controlled strain gaged extensometer LEWIS-10353	B68-10543	01
Electric arc heater is self starting LANGLEY-208	B66-10230	03	EXTINCTION		
Improved head-controlled TV system produces high-quality remote image ARG-128	B67-10317	01	Blood oxygen saturation determined by transmission spectrophotometry of hemolyzed blood samples MSC-11018	B67-10252	04
High energy forming facility M-FS-14026	B67-10588	05	EXTRACTION		
Exploding bridgewire detonator simulator M-FS-02191	B69-10782	01	Heavy-duty staple remover operated by hand JPL-IT-1004	B63-10292	05
EXPONENTIAL FUNCTIONS			Tool permits damage-free removal of solar cell GSFC-467	B66-10219	05
Synthesis of electro-optic modulators for amplitude modulation of light M-FS-14268	B68-10275	02	Apparatus enables accurate determination of alkali oxides in alkali metals LEWIS-256	B66-10296	03
Simple quasi-exponential slope generator NPO-11130	B69-10439	01	Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels ARG-232	B67-10032	03
EXPOSURE			Effect of preparation procedures on intensity of radioautographic labeling is studied ARG-10032	B67-10500	04
Electromechanically operated camera shutter provides uniform exposure JPL-357	B63-10227	01	Simple colorimetric method determines uranium in tissue ARG-10039	B67-10580	03
Front and back printed circuit layouts presented on single sheet GSFC-93	B63-10596	01	Transplutonium elements processed from rock debris of underground detonations ARG-10222	B69-10054	03
Exposure Value /EV/ system expanded to include filter factors and transmittance LANGLEY-190	B66-10602	02	Apparatus automatically measures soluble residue content of volatile solvents SAN-10032	B69-10292	03
Electronic shutter gates image orthicon on and off HQ-96	B67-10270	01	EXTRAPOLATION		
Coded photographic proof paper could serve as convenient densitometer M-FS-13374	B67-10443	02	Polychart contour plotter enables data extrapolation from multiple plotting charts M-FS-37	B64-10406	05
Training course for radiation safety technicians ARG-216	B67-10477	02	A theoretical model for determining turbine flowmeter sensitivity M-FS-1172	B67-10179	01
Study of corrosion of 1100 aluminum ARG-10045	B67-10578	03	Failure rates for accelerated acceptance testing of silicon transistors ERC-10198	B68-10541	01
			Some numerical methods for integrating		

EXTRATERRESTRIAL LIFE

SUBJECT INDEX

systems of first-order ordinary differential equations
ARG-10308 B69-10204 02

EXTRATERRESTRIAL LIFE
Desert soil collection at the JPL soil science laboratory
NPO-11206 B69-10571 04

Quantitative determination of flavin nucleotide using the bacterial bioluminescent reaction
GSFC-10565 B69-10715 04

EXTRATERRESTRIAL RADIATION
Glancing incidence telescope for far ultraviolet and soft X-rays
GSFC-10052 B67-10508 02

EXTRAVEHICULAR ACTIVITY
Astronaut*s tool for withdrawing/replacing computer cards
M-FS-20453 B69-10183 05

Multi-purpose tool mitten
HQ-10047 B69-10483 05

Measurement of gas flow at extremely low pressures
MSC-13261 B69-10522 03

EXTRUDING
Guide for extrusion dies eliminates straightening operation
LEWIS-152 B64-10014 05

Integral ribs formed in metal panels by cold-press extrusion
M-FS-230 B65-10141 05

Apparatus enables accurate determination of alkali oxides in alkali metals
LEWIS-256 B66-10296 03

Large diameter metal ring seal prevents gas leakage at 5000 psi
M-FS-1064 B66-10422 05

Thermoplastic rubberlike material produced at low cost
JPL-793 B66-10453 03

Ductile mandrel and parting compound facilitate tube drawing
ARG-43 B66-10571 05

Aluminum-titanium hydride-boron carbide composite provides lightweight neutron shield material
NUC-10069 B67-10265 03

Extrusion of small-diameter, thin-wall tungsten tubing
LEWIS-90335 B67-10355 05

Fabrication techniques developed for small-diameter, thin-wall tungsten and tungsten alloy tubing
ARG-10100 B68-10284 05

High strength, superplastic superalloy
LEWIS-10805 B69-10293 03

EYE (ANATOMY)
Infrared viewing permits human iris response studies
ERC-10003 B68-10206 04

EYE MOVEMENTS
Photoelectric sensor output controlled by eyeball movements
M-FS-274 B65-10079 01

Optical projectors simulate human eyes to establish operator*s field of view
WOO-250 B66-10010 02

Oculometer for remote tracking of eye movement
ERC-10114 B69-10444 02

EYE PROTECTION
Thermal protective visor for entering high temperature areas
MSC-10285 B68-10277 05

F

F-1 ROCKET ENGINE
Plastic tubing protects flexible copper hose
M-FS-772 B66-10588 05

Tool facilitates installation of Marmon clamps
M-FS-2039 B67-10105 05

Computer optimization program finds values for several independent variables that minimize a dependent variable
M-FS-13030 B67-10328 06

FABRICATION
Fabrication method produces high-grade alumina crucibles
M-FS-216 B65-10078 05

Integral ribs formed in metal panels by cold-press extrusion
M-FS-230 B65-10141 05

Spray-on technique simplifies fabrication of complex thermal insulation blanket
M-FS-497 B66-10053 03

Reflective insulator layers separated by bonded silica beads
MSC-215 B66-10070 03

Telescoping of instrumentation tubing eliminates swaging
M-FS-546 B66-10116 05

Rotating mandrel speeds assembly of plastic inflatables
LANGLEY-155 B66-10137 05

Argon purge gas cooled by chill box
M-FS-560 B66-10153 02

Pressure vessels fabricated with high-strength wire and electroformed nickel
M-FS-580 B66-10218 05

Solar cell submodule design facilitates assembly of lightweight arrays
JPL-728 B66-10231 02

Radial coolant channels fabricated by simplified method
NU-0070 B66-10267 05

Boron-deoxidized copper withstands brazing temperatures
M-FS-762 B66-10273 03

Tool pre-tensions covers prior to lacing
MSC-631 B66-10301 05

Fiber length and orientation prevent migration in fluid filters
M-FS-541 B66-10319 05

Hollow spherical rotors fabricated by electroplating
JPL-SC-117 B66-10366 05

Composite gaskets are compatible with liquid oxygen, resist compression set
M-FS-455 B66-10395 03

Composite bulkhead fabrication development
M-FS-1264 B66-10582 05

Grit blasting nozzle fabricated from mild tool steel proves satisfactory
M-FS-1420 B66-10597 05

Preformed stiffeners used to fabricate structural components for pressurized tanks

SUBJECT INDEX

FAILURE

M-PS-1796	B66-10688	05	MSC-217	B66-10107	05
Silver plating technique seals leaks in thin wall tubing joints			Microorganisms detected by enzyme-catalyzed reaction		
NU-0090	B66-10703	05	JPL-782	B66-10117	04
Effects of heat input rates on T-1 and T-1A steel welds			Fibers of newly developed refractory ceramics produced by improved process		
M-PS-2475	B67-10163	03	WOO-169	B66-10196	03
Workmanship standards for fusion welding			Modified soldering iron speeds cutting of synthetic materials		
NUC-10050	B67-10200	05	M-PS-725	B66-10246	05
Materials data handbook, Inconel alloy 718			Graphite cloth facilitates vacuum evaporation of silicon monoxide		
M-PS-2348	B67-10282	03	M-PS-14764	B68-10256	03
Method of improving contact bonds in silicon integrated circuits			Glass fabric fire barrier for silicone rubber parts		
M-PS-1753	B67-10335	01	MSC-15555	B69-10629	03
Composite solar cell matrix is reliable, lightweight and flexible			FACSIMILE COMMUNICATION		
NFO-10821	B67-10503	01	Facsimile video enhancement device		
Fabrication techniques developed for small-diameter, thin-wall tungsten and tungsten alloy tubing			GSFC-10185	B68-10207	01
ARG-10100	B68-10284	05	FACTOR ANALYSIS		
Venturi meter with separable diffuser			Estimating reliability by application of matrix representation		
LEWIS-10483	B68-10295	05	HQ-10246	B69-10793	02
Fiber glass reinforced structural materials for aerospace application			FACTORIAL DESIGN		
M-PS-14806	B68-10360	03	Solenoid magnetic fields calculated from superposed semi-infinite solenoids		
Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/			LEWIS-184	B66-10490	01
ARG-10148	B68-10368	03	Data retrieval system provides unlimited hardware design information		
Conditioning flat conductors for flat conductor cable production			MSC-1144	B67-10170	01
M-PS-14914	B68-10429	01	FACULAE		
Low cost techniques for fabricating lobed bearings			Solar activity history model		
LEWIS-10296	B68-10441	05	M-PS-20529	B69-10776	01
Integrated metal transistor leads			FADING		
GSFC-90536	B68-10518	01	Rapid and precise analysis for calcium in blood serum		
Design eliminates radial thermal expansion in turbine stator components			ARG-10246	B69-10160	04
M-PS-18146	B68-10531	05	FAIL-SAFE SYSTEMS		
Simulated hailstone fabrication and use in testing weatherability of structures			Fluid check valve has fail-safe feature		
NPO-10783	B68-10552	03	JPL-0019	B65-10207	05
Multiple-mask chemical etching			Respiratory transfer value has fail-safe feature		
MSC-13114	B69-10221	01	ARC-1	B65-10369	01
Breakaway electrical connector			Modified hydraulic braking system limits angular deceleration to safe values		
NPO-11140	B69-10474	01	GSFC-476	B66-10310	05
A new method for fabrication of flexible vacuum purge jackets			Automatic protective vent has fail-safe feature		
M-PS-12646	B69-10564	03	LANGLEY-218	B66-10369	05
Modification to improve self-isolating transistor arrays			FAILURE		
M-PS-20499	B69-10678	01	Cut-through tester accurately measures insulation failure rates		
Technique for predicting the thermal expansion coefficients of cryogenic metallic alloys			M-PS-12506	B67-10354	03
NUC-10554	B69-10707	02	Analysis of stability-critical orthotropic cylinders subjected to axial compression		
Lateral PNP bipolar transistor with aiding field diffusions			M-PS-12869	B67-10375	03
MSC-13072	B69-10741	01	Conceptual nonorthogonal gyro configuration for guidance and navigation		
Investigation of the development of cracks in solder joints			MSC-11363	B67-10433	01
M-PS-20444	B69-10807	01	Application of a truncated normal failure distribution in reliability testing		
FABRICS			M-PS-14328	B68-10179	02
Mechanism continuously measures static and dynamic cable loads			New method for critical failure prediction of complex systems		
			M-PS-14133	B68-10252	02
			A rapid stress-corrosion test for aluminum alloys		
			M-PS-20175	B68-10536	03

FAILURE ANALYSIS

SUBJECT INDEX

Failure rates for accelerated acceptance testing of silicon transistors ERC-10198	B68-10541	01	Ion chambers simplify absolute intensity measurements in the vacuum ultraviolet ERC-10	B66-10439	01
Fatigue failure in metal bellows due to flow-induced vibrations M-FS-18383	B69-10071	05	FARADAY EFFECT Multiaxial analyzer detects low-energy electrons GSFC-329	B65-10213	01
Coatings decrease metal fatigue failure ARC-10015	B69-10176	03	Nonreciprocal gain control for ring laser M-FS-14041	B67-10653	02
Device for obtaining separation of oxygen LANGLEY-11007	B69-10477	01	Optically exciting a magnetic memory - A feasibility study M-FS-14854	B69-10060	02
FAILURE ANALYSIS Cracks in glass electrical connector headers removed by dry blasting with fine abrasive LEWIS-381	B67-10148	03	FAST NEUTRONS A fast-neutron spectrometer of advanced design M-FS-1664	B66-10555	01
Analytical technique permits comparison of reliability of alternate mechanical designs NUC-10065	B67-10261	06	Procedure developed for reporting fast-neutron exposure ARG-10035	B68-10190	02
Development of reliability prediction technique for semiconductor diodes GSFC-10231	B67-10651	06	Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons ARG-10220	B69-10211	02
Phase plane displays detect incipient failure in servo system testing BQ-10018	B67-10662	01	High-temperature, gas-filled ceramic rectifiers, thyatrons, and voltage-reference tubes LEWIS-90271	B69-10376	01
Tensile and fatigue properties of Inconel 718 at cryogenic temperatures M-FS-18192	B69-10068	03	GAMBIT program NUC-10243	B69-10433	06
Abrasion and fracture testing in a high-pressure hydrogen environment M-FS-18480	B69-10457	03	FASTENERS Heavy-duty staple remover operated by hand JPL-IT-1004	B63-10292	05
Design and sparing techniques to meet specified performance life BQ-10200	B69-10528	02	Buckle joins web straps quickly, adjusts easily LANGLEY-21	B64-10119	05
Application of cryptanalytic techniques to the analysis of NiCd space batteries GSFC-10569	B69-10731	01	Electronic assembly rack panels snap on and off GSFC-59	B64-10121	05
Estimating reliability by application of matrix representation BQ-10246	B69-10793	02	Flexible fastener allows thermal expansion LANGLEY-40	B64-10145	05
Determination of permissible applied load stress in structural elements M-FS-16556	B69-10823	02	Fastener provides cooling and compensates for thermal expansion NU-0003	B65-10038	05
PAIRINGS Pressure transducer 3/8-inch in size can be faired into surface WOO-065	B64-10021	05	Low-cost tool minimizes damage to O-rings during installation MSC-140	B65-10116	05
Colloidal suspension simulates linear dynamic pressure profile WOO-266	B66-10214	05	Coiled spring makes self-locking device for threaded fasteners MSC-149	B65-10135	05
FALLING Calculations enable optimum design of magnetic brake LEWIS-251	B66-10073	05	Galvanic corrosion reduced in aluminum fabrications M-FS-272	B65-10140	03
Liquid oxygen dicting cleaned by falling film method M-FS-11816	B67-10299	03	Burnishing technique improves lubrication of threaded fasteners LEWIS-217	B65-10302	03
FAR FIELDS Noise study of single stage compressor rotor-stator interaction LANGLEY-137	B67-10516	02	Fastener distributes stress evenly from sandwich-panel-hung items MSC-236	B65-10358	05
FAR INFRARED RADIATION Study made of far infrared spectra of silicate minerals M-FS-1811	B67-10075	02	Nickel/tin coating protects threaded fasteners in corrosive environment MSC-253	B65-10398	03
FAR ULTRAVIOLET RADIATION Fresnel zone plate forms images at wavelengths below 1000 angstroms GSFC-231	B65-10171	02	Torque wrench designed for restricted areas LEWIS-246	B66-10011	05
			Compact retractor protects cabling loops M-FS-561	B66-10018	05
			Modified power tool rapidly drives series torque bolts		

SUBJECT INDEX

FATIGUE TESTS

MSC-221	B66-10054	05	FATIGUE TESTING MACHINES			
T-handle wrench has torque-limiting action			Apparatus permits flexure testing of specimens at cryogenic temperatures			
MSC-280	B66-10065	05	M-PS-257	B65-10129	02	
Epoxy-coated containers easily opened by wire band			Fatigue tester achieves true axial motion through flex plates and bars			
M-PS-592	B66-10174	05	NU-0021	B66-10164	01	
Tool pre-tensions covers prior to lacing			Strain gage circuitry provides fatigue testing machine with accurate cycle count			
MSC-631	B66-10301	05	NU-0114	B67-10093	01	
Flexible fastener effects airtight material closure			Fixture tests bellows reliability through repetitive pressure/temperature cycling			
JPL-684	B66-10304	05	MSC-1176	B67-10111	01	
Study made to control depth of potting compound for honeycomb sandwich fasteners			Fractography can be used to analyze failure modes in polytetrafluoroethylene			
LEWIS-370	B66-10677	05	M-PS-20294	B69-10066	03	
Web belt load measuring instrument has excellent stability			FATIGUE TESTS			
MSC-921	B67-10242	01	System measures angular displacement without contact			
Power torque wrench concept for precision torque application			LANGLEY-46	B65-10073	01	
M-PS-13546	B67-10547	05	Apparatus facilitates pressure-testing of metal tubing			
Radiant heat source, vacuum bag, provide portable bonding oven			LEWIS-174	B65-10131	05	
MSC-11342	B67-10570	03	Control of component differential hardness increases bearing life			
Versatile impact hand tool			LEWIS-190	B65-10251	05	
M-PS-20140	B68-10371	05	Infrared shield facilitates optical pyrometer measurements			
Beryllium fastener technology			LANGLEY-133	B65-10272	02	
M-PS-20306	B69-10019	05	Cryostat modified to aid rotating beam fatigue test			
Mechanical properties of a lap joint under uniform clamping pressure			M-PS-435	B66-10083	03	
M-PS-14538	B69-10141	05	Fatigue cracks detected and measured without test interruption			
Technique for anchoring fasteners to honeycomb panels			LEWIS-266	B66-10178	02	
LEWIS-10888	B69-10265	03	Brazing process provides high-strength bond between aluminum and stainless steel			
Quick-release hook-and-loop fastener			M-PS-803	B66-10352	05	
MSC-10950	B69-10388	05	Tester for study of rolling element bearings			
One-handed hammer-spanner for chucks			LEWIS-305	B67-10009	01	
M-PS-18581	B69-10398	05	Tests show that aluminum welds are improved by bead removal			
FATIGUE (MATERIALS)			M-PS-1817	B67-10023	05	
Internal cooling increases range of immersion-type temperature probe			Cryogenic fatigue data developed for Inconel 718			
LEWIS-171	B65-10157	02	M-PS-702	B67-10049	03	
Plugged hollow shaft makes fatigue-resistant shear pin			Chemical milling solution reveals stress corrosion cracks in titanium alloy			
LANGLEY-195	B66-10077	05	LANGLEY-10077	B67-10322	03	
Bellows design features low spring rate and long life			Material fatigue data obtained by card-programmed hydraulic loading system			
MSC-521	B66-10190	05	LANGLEY-10042	B67-10491	03	
Ultrasonics used to measure residual stress			Circuit measures hysteresis loop areas at 30 Hz			
M-PS-12449	B67-10428	02	M-PS-13069	B67-10519	01	
Simple test for physical stability of cryogenic tank insulation			Hydraulic servo system increases accuracy in fatigue testing			
M-PS-12547	B68-10048	03	LANGLEY-217	B67-10637	01	
Fractography can be used to analyze failure modes in polytetrafluoroethylene			High-temperature bearing lubricants			
M-PS-20294	B69-10066	03	LEWIS-10408	B68-10249	05	
Fatigue failure in metal bellows due to flow-induced vibrations			Automatic system nondestructively monitors and records fatigue crack growth			
M-PS-18383	B69-10071	05	LANGLEY-10091	B68-10379	01	
FATIGUE LIFE			Effects of high frequency current in welding aluminum alloy 6061			
Control of component differential hardness increases bearing life			M-PS-18337	B68-10383	05	
LEWIS-190	B65-10251	05	Tensile and fatigue properties of Inconel			
Fluid damping reduces bellows seal fatigue failures						
M-PS-565	B66-10249	05				

FEASIBILITY

SUBJECT INDEX

718 at cryogenic temperatures M-FS-18192	B69-10068	03	M-FS-11980	B67-10336	01
Possible correlation between work-hardening and fatigue-failure ARG-10371	B69-10414	03	Compensation circuit improves operation of inductive coupling transformers M-FS-13801	B68-10129	01
FEASIBILITY			Microelectronic oscillator, 2 GSFC-10387	B69-10063	01
Study indicates fluid digital computation systems are feasible M-FS-520	B67-10181	01	Microelectronic oscillator GSFC-10375	B69-10064	01
Beryllium fastener technology M-FS-20306	B69-10019	05	Automatic leveling and equalizing hoist device M-FS-16549	B69-10514	05
FEED SYSTEMS			FEEDBACK AMPLIFIERS		
Gas pressure feeds film into camera at high speed ARG-97	B66-10474	02	Digital logic elements provide additional functions from analog input MSC-64	B64-10064	01
Welding torch and wire feed manipulator M-FS-13102	B67-10385	05	Voltage variable oscillator has high phase stability LANGLEY-123	B65-10204	01
Metal tube reducer is inexpensive and simple to operate ARG-49	B67-10401	05	Field effect transistor presents high input impedance in ac amplifier JPL-500	B65-10232	01
Dual wire weld feed proportioner M-FS-18037	B68-10332	05	Nonlinear feedback reduces analog-to-digital converter error ARC-46	B65-10277	01
Multi-feed cone for Cassegrainian antenna NPO-10539	B69-10269	01	Digitally controlled pulse-level discriminator operates over wide voltage range GSFC-324	B66-10129	01
Nondestructive evaluation of printed wiring boards by microhm resistance measurements SAN-10034	B69-10272	01	Transducer measures force in vacuum environment LEWIS-218	B66-10161	01
FEEDBACK			Circuit provides accurate four-quadrant multiplication WOO-272	B66-10331	02
Field-effect transistor improves electrometer amplifier ARC-36	B64-10143	01	Low speed, long term tracking electric drive system has zero backlash NPO-10173	B67-10220	01
FM oscillator uses tetrode transistor JPL-82	B65-10055	01	Light-controlled resistors provide quadrature signal rejection for high-gain servo systems WSO-340	B67-10552	01
Variable voltage supply uses Zener diode as reference GSFC-262	B65-10097	01	Improved compensation circuit for direct-coupled amplifiers MSC-11148	B68-10133	01
Simple circuit functions as frequency discriminator for PFM signals GSFC-267	B65-10102	01	Millivolt signal limiter LEWIS-90297	B69-10015	01
Auxiliary circuit enables automatic monitoring of EKG's MSC-106	B65-10142	01	Remote control thermal actuator LEWIS-10873	B69-10307	01
Sensitive electrometer features digital output GSFC-288	B65-10206	01	Pulse-height analyzer with digital readout ARG-10503	B69-10640	01
Simple BCD circuit accurately counts to 24 GSFC-317	B65-10225	01	FEEDBACK CIRCUITS		
Magnetic-shift-register circuit controls step motor operation GSFC-340	B65-10226	01	Increased performance reliability obtained with dual /redundant/ oscillator system GSFC-36	B63-10027	01
Electrostatically driven dynamic capacitor employs capacitive feedback JPL-771	B65-10293	01	Simplified electrometer has excellent operating characteristics JPL-413	B65-10125	01
Simple circuit provides reliable multiple signal average and reject capability NU-0069	B66-10282	01	Voltage controlled oscillator is easily aligned, has low phase noise JPL-510	B65-10223	01
Transistor circuit increases range of logarithmic current amplifier NU-0018	B66-10350	01	Electromechanical flowmeter accurately monitors fluid flow GSFC-357	B65-10273	01
Bipolar current driver for memory circuits GSFC-213	B66-10469	01	Hybrid circuit achieves pulse regeneration with low power drain GSFC-382	B65-10314	01
Study made of application of stereoscopic display system to analog computer simulation M-FS-1263	B66-10590	01	Phase inverter provides variable reference		
Device enables calibration of microphones at high sound pressure levels					

SUBJECT INDEX

FEEDBACK FREQUENCY

SUBJECT INDEX

filter prevents conduction of signals along high-impedance leads	fluid film -FS-541	push-pull output HQ-23	B66-10344	01	station M-FS-893
high-pressure gas static electrical treatment with NPO-10062	Study made of fracture of HQ-10035	Feedback loop compensates for rectifier nonlinearity M-FS-384	B66-10382	01	Control circuit maintains unity power of reactive load MSC-192
le filter prevents ceramic component M-FS-13991	Laminated sheet modular film M-FS-14575	Preregulator feedback circuit utilizes Light Actuated Switch M-FS-1180	B66-10542	01	Quick-response servo amplifies small hydraulic pressure differences ARG-99
lters permit wide range of frequencies	Method of making components XNP-09745	Subminiature deflection circuit operates integrated sweep circuits in TV camera MSC-1263	B67-10155	01	Digital system provides superregulation nanosecond amplifier-discriminator ARG-61
leaning restores original shape	New rapid-curing polymers with thermal stability LEWIS-10576	Solar X-ray spectrum reproduced in vacuum MSC-228	B67-10164	02	Polarimeter provides transient response in nanosecond range JPL-890
or modulate a signal of high intensity	PICKS EQUATION Metallic diffusion Knudsen technique HQ-10145	Limit circuit prevents overdriving of operational amplifier NUC-10082	B67-10343	01	System maintains constant penetration during fusion welding M-FS-937
memory circuit for digital storage	FIELD COILS Magnetic field compensated GSFC-294	High power dc/dc and dc/ac electrical power conversion techniques developed M-FS-13227	B67-10390	01	Design concepts using ring lasers for frequency stabilization M-FS-2448
er processing of data	Thermionic source of emitter JPL-SC-177	Light-controlled resistors provide quadrature signal rejection for high-gain servo systems WSO-340	B67-10552	01	Voltage regulator/amplifier is self-compensating MSC-1240
amplifier removes surface irregularities	Concept to control GSFC-10222	Analysis and design of a class-D amplifier M-FS-14803	B68-10313	01	Electrometer amplifier operates over dynamic range of five orders of magnitude ARC-75
em facilitate electronic measurements	Two-step rocket concept MSC-10951	Method for reducing snap in magnetic amplifiers LEWIS-10388	B68-10388	01	A modal combination computer program for dynamic analysis of structures NPO-10129
s-velocity of flow	FIELD EFFECT TRANSISTOR Field-effect transistor amplifier ARC-36	Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01	Low speed, long term tracking electronic drive system has zero backlash NPO-10173
rganism sampling	Field effect transistor controlled M-FS-174	FEEDBACK CONTROL Igniting system for mercury lamps protects transistorized sustaining supply JPL-421	B63-10262	01	Absolute frequency stabilization of oscillator against laser amplifier M-FS-2559
computer program for digital filter	Logarithmic amplifier JPL-509	Unmanned seismometer levels self, corrects drift errors GSFC-100	B63-10551	01	Signal generator converts direct current to multiphase supplies MSC-11043
ethod produced in isotope	Field effect transistor impedance in JPL-500	Apparatus measures very small thrusts WOO-048	B64-10284	05	General frequency response program for frequency response of system, open specified element M-FS-12817
ly measurement	Field-effect transistor GSFC-351	Feedback oscillator functions as low-level pulse stretcher GSFC-261	B65-10069	01	Automatic, nondestructive test monitoring in-process weld quality M-FS-14996
phase-locked loop	FET comparator without load M-FS-503	Variable frequency transistor inverters use multiple core transformers GSFC-183	B65-10119	01	Temperature or pressure controller LEWIS-10297
ze alleviates	MOSFET analog duration signal M-FS-860	High-gain amplifier has excellent stability and low power consumption GSFC-272	B65-10138	01	Low-cost, fast-response drive circuit electromagnetic torque motors LEWIS-10143
differences	Equivalent circuit transistor simulation M-FS-1752	Pressure transducer system is force-balanced, has digital output M-FS-154	B65-10174	05	Corrosion reduction of aluminum alloy flowing high-temperature water ARG-10244
sampling of metals	Thermal and bimetallic device ERC-48	Ball and socket joints provide accurate biaxial gimbal JPL-658	B65-10205	05	Magnetically coupled emission regulator GSFC-10056
s theory		Photoresistance analog multiplier has wide range GSFC-360	B65-10287	01	Special purpose computer provides programmable digital filter for spacecraft control systems M-FS-20290
limited in antenna		Noncontacting vibration transducer has constant sensitivity LANGLEY-99	B65-10392	01	Self-sustained hydrodynamic oscillator a natural-circulation two-phase-flow boiling loop ARG-10461
		Human transfer functions used to predict system performance parameters LANGLEY-203	B66-10379	01	Pulse-code-modulation baseline correction for low signal-to-noise ratios MSC-13268
		Closed loop operation eliminates need for auxiliary gas in high pressure pumping			FEEDBACK FREQUENCY MODULATION Voltage regulator/amplifier is self-compensating

FILAMENTS

Buckling strength of filament-wound cylinders under axial compression investigated
HQ-10032

Solid state high-voltage pulser oper with low supply voltage
M-FS-14034

Analysis of filament reinforced metal pressure vessels
LEWIS-10352

Adhesive for cryogenic temperature applications
LEWIS-10264

FILAMENTS

Radiant heater for vacuum furnaces structural rigidity, low heat loss
LEWIS-39

Precision gage measures ultrahigh levels
GSFC-114

Lamp automatically switches to new on burnout
M-FS-498

Hot-wire detector for chemically active materials used in gas chromatography
MSC-269

Mechanism facilitates coating of internal surfaces of metal cylinders
GSFC-515

Electron beam parallel X-ray generator
MSC-11022

Application of the solid lubricant molybdenum disulfide by sputtering
LEWIS-10544

Fiber glass reinforced structural material for aerospace application
M-FS-14806

Electrothermal linear actuator
NPO-10637

Concept for improved vacuum pressure measuring device
M-FS-20172

Flexible high-voltage supply for experimental electron microscope
ARG-10482

Solar activity history model
M-FS-20529

FILLERS

Inorganic paint is durable, fireproof to apply
GSFC-366

Aluminum oxide filler prevents obstruction in tubing during welding
MSC-222

Brazing process using Al-Si filler reliably bonds aluminum parts
MSC-448

Thermoplastic rubberlike material at low cost
JPL-793

Composite weld rod corrects individual filler weaknesses
M-FS-1923

Static electricity of polymers reduced treatment with iodine
NPO-10062

Closed circuit TV system monitors

FINS

LEWIS-10280

FINS

Program computes zero lift wave drag of entire aircraft
LANGLEY-10079

Solving nonlinear heat transfer constant area fin problems
M-FS-14851

FIRE CONTROL

Dispersion of borax in plastic is excellent fire-retardant heat insulator
ARG-5

FIRE EXTINGUISHERS

Fire extinguisher control system provides reliable cold weather operation
M-FS-13031

Fire retardant foams developed to suppress fuel fires
ARC-10098

FIRE PREVENTION

Saran film is fire-retardant in oxygen atmosphere
MSC-11604

Ambient temperature catalyst for hydrogen ignition
LEWIS-10551

Technique for assessing potential fire hazards
HQ-10279

Improved fire resistant radio frequency anechoic materials
M-FS-16600

FIREPROOFING

Inorganic paint is durable, fireproof, easy to apply
GSFC-366

Glass fabric fire barrier for silicone rubber parts
MSC-15555

FIRES

Infrared television used to detect hydrogen fires
M-FS-654

Hydrogen fire detection system features sharp discrimination
M-FS-643

Emergency escape system protects personnel from explosion and fire
KSC-66-12

FIRING (IGNITING)

Computer program provides steady state analysis for liquid propellant propulsion systems
MSC-10064

Preparation of silver-activated zinc sulfide thin films
GSFC-10687

FIRST AID

Buoyant Stokes litter assembly used for sea rescue operations
MSC-131

Miniature oxygen resuscitator
KSC-10398

FISHES

Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna
ARG-10345

Inhibition of browning in foodstuffs

SUBJECT

HQ-10177

Airborne Fraunhofer Line
MSC-13146

Discrimination of fish oil slicks on sea water
HQ-10412

FISSION

Portable, high intensity source provides increased accuracy
ARG-90250

FISSION PRODUCTS

Separation technique provides quantitative determination in irradiated nuclear
NUC-10047

Computer program predicts transients experienced of-flow accident
NUC-10054

Computer program FPIP-RE fission product inventory
NUC-10089

Low scatter lightweight constructed for biological
ARG-10094

Abrasion and resistant developed
ARG-10219

Study of fluoride corrosion
ARG-10224

Transplutonium elements rock debris of underground
ARG-10222

Fuel element concept for power nuclear reactors
LEWIS-10309

Tungsten thermal neutron
LEWIS-10880

FISSIONABLE MATERIALS

Niobium-uranium alloys with predetermined size and
ARG-10490

Handbook explaining the nuclear and atomic physics
NUC-10330

FITTING

Tool repairs tube components
MSC-15348

Flared-tube fittings with inserts
MSC-15372

FITTINGS

Self sealing disconnect seal after breakaway
JPL-354

Special pliers connect under pressure
JPL-IT-1003

Inexpensive check valve standard AN fittings
JPL-2A

Strainer fits inside flange
LANGLEY-180

O-ring tube fittings form hydraulic systems
M-FS-481

SUBJECT INDEX

FLANGES

Telescoping of instrumentation tubing eliminates swaging M-FS-546	B66-10116	05	KSC-10388	B69-10716	02
Seal surfaces protected during assembly NU-0067	B66-10266	05	FLAME SPRAYING Ceramic-coated boat is chemically inert, provides good heat transfer LANGLEY-90	B65-10063	05
Portable fixture facilitates pressure testing of instrumentation fittings M-FS-2032	B67-10121	03	Hydrogen-atmosphere induction furnace has increased temperature range LEWIS-153	B66-10055	05
Computer program performs rectangular fitting stress analysis M-FS-13010	B67-10520	06	Reflective insulator layers separated by bonded silica beads MSC-215	B66-10070	03
Determining gas leakage from bubble formations M-FS-14841	B68-10393	05	Aluminum core structures brazed without use of flux M-FS-659	B66-10360	05
Hand-tightened, high-pressure seal M-FS-18416	B68-10417	05	Multilayer refractory nozzles produced by plasma-spray process WOO-318	B66-10611	05
Teflon-packed flexible joint LEWIS-90252	B69-10049	03	Metal flame spray coating protects electrical cables in extreme environment NUC-10077	B67-10351	03
FIXED WINGS Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds LANGLEY-10191	B67-10666	06	Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01
FIXING Technique for abrasive cutting of thick-film conductors for hybrid circuits MSC-13242	B69-10235	03	FLAMES Magnetic field controls carbon arc tail flame MSC-139	B65-10108	01
FIXTURES Jig and fixture aid fabrication of tungsten rivets LEWIS-185	B65-10101	05	An infrared television system for hydrogen flame detection KSC-10368	B69-10354	01
Multisurface fixture permits easy grinding of tool bit angles M-FS-586	B66-10171	05	FLAMMABILITY Improved head-controlled TV system produces high-quality remote image ARG-128	B67-10317	01
Vacuum test fixture improves leakage rate measurements MSC-271	B66-10286	01	Thermal protective visor for entering high temperature areas MSC-10285	B68-10277	05
Nonwoven glass fiber mat reinforces polyurethane adhesive M-FS-2309	B67-10113	03	Testing the flammability of materials exposed to arcs MSC-15225	B69-10531	03
Cable clamp bolt fixture facilitates assembly in close quarters KSC-67-80	B67-10244	05	Burn-rate testing apparatus MSC-10947	B69-10740	03
Fixture facilitates soldering operations M-FS-14456	B68-10573	05	FLAMMABLE GASES Sniffer used as portable hydrogen leak detector M-FS-846	B66-10356	01
Tape reading fixture M-FS-14146	B69-10008	05	Infrared television used to detect hydrogen fires M-FS-654	B66-10363	01
FLARE EFFECT Determination of the absolute contours of optical flats ARG-10352	B69-10209	05	Hydrogen fire detection system features sharp discrimination M-FS-643	B66-10368	01
FLAKING Simple test indicates degree of cure of polyimide coatings MSC-15487	B69-10330	03	Design concept for nonarcing electrical connector M-FS-14937	B68-10404	01
Improved nickel plating of Inconel X-750 M-FS-18604	B69-10463	05	Heat-shrinkable jacket holds fluid in contact with tensile test specimen MSC-13195	B69-10495	05
FLAME DEFLECTORS Process produces chlorinated aromatic isocyanate in high yield M-FS-1658	B66-10646	03	FLANGES Flange on microwave antenna subreflector cuts ground noise JPL-362	B63-10229	01
FLAME HOLDERS Mounting facilitates removal and installation of flame-detector rods M-FS-555	B66-10150	05	Pressure transducer 3/8-inch in size can be faired into surface WOO-065	B64-10021	05
FLAME IONIZATION Chromatographic detection and analysis of traces of hydrocarbons			Connector seals fluid lines at cryogenic temperatures and high vacuums GSFC-253	B64-10327	05

FLARED BODIES

SUBJECT INDEX

Metal parts hydrosized by explosive force M-FS-289	B65-10170	05	seal M-FS-14004	B68-10162	05
Diaphragm eliminates leakage in cryogenic fluid duct coupling WOO-142	B65-10227	05	Shock-absorbing caster wheel is simple and compact SAN-10019	B68-10266	05
O-ring tube fittings form leakproof seal in hydraulic systems M-FS-481	B66-10020	05	Electron beam selectively seals porous metal filters LEWIS-10162	B68-10331	05
Lifting clamp positively grips structural shapes M-FS-593	B66-10176	05	Determining gas leakage from bubble formations M-FS-14841	B68-10393	05
Pressure seal ring may be effective over wide temperature range M-FS-486	B66-10211	05	Sealing a rubber bladder between two sections of an accumulator M-FS-20403	B69-10355	05
Pressure vessels fabricated with high-strength wire and electroformed nickel M-FS-580	B66-10218	05	Spiral-flow apparatus for measuring permeation of solids by gases M-FS-16517	B69-10357	03
Pressure-welded flange assembly provides leaktight seal at reduced bolt loads M-FS-640	B66-10247	05	Development of structural test articles from magnesium-lithium and beryllium M-FS-14959	B69-10417	03
Diffusion bonding makes strong seal at flanged connector M-FS-637	B66-10250	05	Burst diaphragm leak detector M-FS-14500	B69-10543	03
Radial coolant channels fabricated by simplified method NU-0070	B66-10267	05	Fluid sample collection and storage device MSC-10962	B69-10816	05
Fastener provides for bolt misalignment and quick release of flange NU-0074	B66-10275	05	FLARED BODIES Shaped superconductor cylinder retains intense magnetic field JPL-381	B63-10238	01
Remotely controlled system couples and decouples large diameter pipes NU-0062	B66-10276	05	Strainer fits inside flared-tube fittings LANGLEY-180	B65-10388	05
External linkage tie permits reduction in ducting system flange thickness M-FS-823	B66-10326	05	Forming tool improves quality of tubing flares WOO-231	B66-10001	05
Rubber and alumina gaskets retain vacuum seal in high temperature EMF cell ARG-17	B66-10472	05	O-ring tube fittings form leakproof seal in hydraulic systems M-FS-481	B66-10020	05
Feed-thru flange is useful in vacuum applications to cryogenic temperatures JPL-846	B66-10615	02	High pressure tube coupling requires no threads or flares MSC-600	B66-10285	05
Spherical pipe joint delivers loads equally to mating flange M-FS-807	B66-10665	05	Gage tests tube flares quickly and accurately KSC-66-19	B66-10537	05
Weld procedure produces quality welds for thick sections of Hastelloy-X NUC-10048	B67-10195	05	Mechanical gauge accurately checks tubing flare, roundness, and concentricity M-FS-1822	B66-10656	05
Spherical joint connects axially misaligned flanges M-FS-2238	B67-10273	05	Orbital tube flaring system produces tubing connectors with zero leakage M-FS-2016	B67-10019	05
Static seal concept to accommodate seat tolerances M-FS-1854	B67-10285	05	Ultrasonic wrench produces leaktight connections M-FS-12561	B67-10353	05
Study made to establish parameters and limitations of explosive welding M-FS-13006	B67-10393	05	Flare angles measured with ball gage M-FS-14690	B68-10030	01
Study made of transfer of heat energy through metal joints in vacuum environment M-FS-12534	B67-10465	02	Surface irregularities detected by flare inspection instrument M-FS-20157	B69-10152	01
Lead plated aluminum ring provides static high pressure seal for large diameter pressure vessel NUC-10008	B67-10539	05	Tool repairs tube components in situ MSC-15348	B69-10379	05
Development of helical seal for high temperature /2000 degrees F/ application M-FS-13304	B67-10655	05	Flared-tube fittings with replaceable seat inserts MSC-15372	B69-10519	05
Asbestos and Inconel combined to form hot-gas			FLARES Selective vignetting of Type 1 X-ray telescopes GSFC-10682	B69-10075	02
			FLASH Shortened processing time technique for		

SUBJECT INDEX

FLEXIBILITY

color industrial radiography ARG-10235	B69-10001	02	bending of irregular laterally loaded flat plates NUC-10170	B69-10035	06
FLASH LAMPS					
High-intensity flashing beacon powered by mercury cells LANGLEY-80	B65-10361	01	Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes ARG-10274	B69-10047	02
Small, high-intensity flasher permits continuous close-in photography NU-0043	B66-10119	03	Nozzles for size reclassification of microfog particles LEWIS-10705	B69-10076	05
Occulting-filter method for obtaining flashing-light visibility data MSC-13097	B69-10107	02	Determination of the absolute contours of optical flats ARG-10352	B69-10209	05
Hydrogen flash lamps studied ARG-10419	B69-10411	02	FLAT SURFACES		
High voltage pulse generator MSC-12178	B69-10548	01	Sensitive level sensor made with spirit level, gives electrical output LANGLEY-49	B65-10067	01
FLASHING (VAPORIZING)			Acceleration-compensated pressure transducer has fast response LANGLEY-113	B66-10353	01
Improved process for making thin-film sodium niobate capacitors MSC-11231	B68-10163	01	Portable fixture facilitates pressure testing of instrumentation fittings M-FS-2032	B67-10121	03
FLASKS			Work platform is supported by self-locking blades M-FS-2297	B67-10180	05
Removable well in reaction flask facilitates carbon dioxide collection ARC-47	B65-10316	03	Measuring coplanarity of surfaces MSC-12044	B67-10371	02
Process produces chlorinated aromatic isocyanate in high yield M-FS-1658	B66-10646	03	Crack growth measured on flat and curved surfaces at cryogenic temperatures LEWIS-389	B67-10384	01
Silazane elastomer remains resilient at 400 deg C M-FS-1144	B66-10667	05	Solenoid valve design minimizes vibration and sliding wear problem M-FS-14079	B67-10667	05
Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination ARG-262	B67-10421	03	Countersunk headscrew retainer M-FS-16481	B69-10282	05
Combustion method for assay of biological materials labeled with carbon-14 or tritium, or double-labeled ARG-10331	B69-10208	04	Quick-set temporary bonding clamps NPO-10695	B69-10406	03
Control for maintaining constant level of a cryogenic liquid NPO-11177	B69-10573	05	FLATNESS		
FLAT CONDUCTORS			Ronchi test applied to measurement of surface roughness M-FS-12583	B67-10636	02
Flat cable insulation stripping machine M-FS-13776	B67-10581	05	Folded stick module NPO-10854	B69-10498	01
Tools for applying lead tape to flat conductor cabling for chemical stripping M-FS-20429	B69-10190	05	FLATTENING		
Checking flat conductor cable spacing by means of a moire pattern M-FS-20426	B69-10456	05	Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations ARG-251	B67-10305	04
FLAT LAYERS			FLEXIBILITY		
Improved method of edge coating flat ribbon wire M-FS-902	B66-10684	03	Flexible honeycomb structure can bend to fit compound curves M-FS-13	B63-10385	05
FLAT PLATES			Portable display paneling has wide use, easy take down and assembly ARC-17	B63-10435	05
Transducer senses displacements of panels subjected to vibration ARC-37	B65-10085	01	Illuminated display panel is easily changed MSC-108	B65-10003	05
Aluminum oxide filler prevents obstructions in tubing during welding MSC-222	B66-10125	05	Adhesive for vacuum environments resists shock and vibration MSC-56	B65-10016	03
Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates ARG-151	B66-10601	05	Flexible curtain shields equipment from intense heat fluxes M-FS-48	B65-10044	03
Acoustic wave analysis M-FS-18076	B68-10265	02	Extendible column can be stowed on drum JPL-686	B65-10191	05
General series solution technique for					

FLEXIBLE BODIES

SUBJECT INDEX

Aluminized fiberglass insulation conforms to curved surfaces M-FS-477	B66-10024	03	Encapsulation technique eliminates thermal stresses in welded electronic modules M-FS-14581	B68-10307	01
Flexible protective coatings made from silicon-nitrogen materials M-FS-528	B66-10027	03	Improved electromechanical master-slave manipulator ARG-10027	B68-10372	05
Rubber-coated bellows improves vibration damping in vacuum lines LEWIS-273	B66-10187	02	SPAN C - Terminal sterilization process analysis program NPO-10805	B69-10039	06
Bellows design features low spring rate and long life MSC-521	B66-10190	05	Structural Analysis and Matrix Interpretive System /SAMIS/ NPO-10839	B69-10093	01
Electrical cabling withstands severe environmental conditions M-FS-1585	B66-10427	01	SPAN - Terminal sterilization process analysis program NPO-10804	B69-10104	06
Flexible drive allows blind machining and welding in hard-to-reach areas MSC-524	B66-10428	05	Continuous analysis of nitrogen dioxide in gas streams of plants ARG-10356	B69-10254	03
Metal tube can be folded for compact storage, is self-erecting LEWIS-288	B66-10450	05	TFE-fluorocarbon liners for flexible hoses M-FS-16480	B69-10288	05
Plastic tubing protects flexible copper hose M-FS-772	B66-10588	05	A mechanically extendible boom NPO-11118	B69-10328	05
Pressure probe compensates for dimensional tolerance variations LEWIS-302	B66-10599	01	Shock-absorbent mountings for bearings NPO-10626	B69-10331	05
Film coating permits low-force scribing MSC-990	B66-10609	03	Quick-acting backup tool for welding ducts M-FS-18404	B69-10396	05
Lightweight, all-metal hose assembly has high flexibility and strength over wide range of temperature and pressure M-FS-1831	B66-10635	05	Flexible rivet-set M-FS-20317	B69-10459	05
Teflon sheet permits valve and valve operator to move as a single unit in a cryogenic pipe line NU-0077	B66-10702	05	Improved primer for bonding polyurethane adhesives to metals M-FS-90591	B69-10540	03
Thermocouple-flexible cable connector insulator is highly reliable NU-0082	B66-10709	01	FLEXIBLE BODIES		
Evaluation of high temperature stranded hookup wire M-FS-2478	B67-10122	03	Dispensing system eliminates torsion in deployed hoses MSC-80	B65-10185	05
Transient Analysis Generator /TAG/ simulates behavior of large class of electrical networks NPO-10031	B67-10319	06	Fatigue tester achieves true axial motion through flex plates and bars NU-0021	B66-10164	01
Improved computer program for elastic analysis of highly redundant structural configurations M-FS-13087	B67-10330	06	Flexible arms provide constant force for pressure switch calibration HQ-38	B66-10317	05
Development of technology for hot-drape forming of large torus sections M-FS-12141	B67-10341	05	Bellows joint absorbs torsional deflections in duct system M-FS-882	B66-10332	04
Computerized parts list system coordinates engineering releases, parts control, and manufacturing planning NUC-10073	B67-10348	06	Hydraulically controlled flexible arm can bend in any direction KSC-66-20	B66-10626	05
Scribable coating for plastic films MSC-11194	B67-10409	03	Method for predicting frictional loss in metal bellows and flexible hose M-FS-883	B66-10662	05
Computer program provides steady state analysis for liquid propellant propulsion systems MSC-10064	B67-10414	06	Rigid-body motion extracted from total motion of a flexible body ARC-63	B67-10081	05
Composite solar cell matrix is reliable, lightweight and flexible NPO-10821	B67-10503	01	Suspended chains damp wind-induced oscillations of tall flexible structures LANGLEY-10193	B68-10042	05
Toggle operated double latch MSC-11377	B68-10117	05	Conceptual hermetically sealed elbow actuator M-FS-14710	B68-10300	05
			Development and test of flexible film coupon strips for use as a sampling technique M-FS-20448	B69-10339	03
			Quick-release hook-and-loop fastener MSC-10950	B69-10388	05
			A new method for fabrication of flexible		

SUBJECT INDEX

FLIP-FLOPS

vacuum purge jackets M-FS-12646	B69-10564	03	flight test data correlation MSC-10075	B67-10494	06
FLXING			FLIGHT TIME		
Flexure support system protects thermally and dynamically loaded models LANGLEY-39	B65-10042	05	Advanced mission analysis programs GSFC-10575	B69-10171	06
Apparatus permits flexure testing of specimens at cryogenic temperatures M-FS-257	B65-10129	02	FLIGHT VEHICLES		
Improved fluid control valve extends diaphragm life JPL-345	B65-10147	05	Analysis of space vehicle structures using the transfer-function concept NPO-11162	B69-10337	06
Mount enables precision adjustment of optical-instrumentation mirror MSC-184	B66-10199	02	FLIP-FLOPS		
Fuel and oxidizer valve assembly employs single solenoid actuator MSC-1046	B66-10648	05	Frequency-shift-keyer circuit improves PCM conversion for radio transmission GSFC-80	B63-10511	01
Cracks in glass electrical connector headers removed by dry blasting with fine abrasive LEWIS-381	B67-10148	03	Raster linearity of video cameras calibrated with precision tester GSFC-200	B64-10209	01
Mechanical properties of wire insulation automatically determined MSC-10983	B67-10370	01	Digital cardiometer computes and displays heartbeat rate MSC-93	B64-10258	01
FLIGHT ALTITUDE			Voltage generator sweeps oscillator frequency linearly with time M-FS-219	B64-10320	01
Sextant measures spacecraft altitude without gravitational reference MSC-200	B66-10143	02	Instrument calibrates low gas-rate flowmeters MSC-134	B65-10137	01
Internal velocity factors MSC-15002	B68-10403	06	Logic circuit exhibits optimum performance LANGLEY-129	B65-10193	01
FLIGHT CHARACTERISTICS			Analog-to-digital converter has increased reliability and reduced power consumption GSFC-246	B65-10194	01
Computer graphics data conditioning M-FS-14695	B68-10296	06	Simple BCD circuit accurately counts to 24 GSFC-317	B65-10225	01
FLIGHT CLOTHING			Simple pulse counting circuit computes sum of squares GSFC-391	B65-10260	01
Biological isolation garment MSC-12206	B68-10500	04	Frequency correction device uses digital circuitry GSFC-268	B65-10307	01
FLIGHT CONTROL			Frequency discriminator with binary output eliminates tuned circuits M-FS-376	B65-10349	01
Master control data handling program uses automatic data input M-FS-2259	B67-10280	06	Simple circuit performs binary addition and subtraction GSFC-399	B65-10355	01
Accurate digital technique simulates flight control system M-FS-14787	B68-10569	02	Binary counter uses fluid logic elements M-FS-323	B65-10377	01
FLIGHT INSTRUMENTS			System proportions fluid-flow in response to demand signals GSFC-457	B66-10094	01
Alternating current electromagnetic servo induction meter XFR-03838	B68-10100	01	Ring counter circuit switches multiphase motor direction of rotation JPL-SC-166	B66-10101	01
FLIGHT PATHS			New television camera eliminates vidicon tube M-FS-472	B66-10112	01
Internal velocity factors MSC-15002	B68-10403	06	FET comparator detects analog signal levels without loading analog device M-FS-503	B66-10224	01
FLIGHT RECORDERS			Binary sequence detector uses minimum number of decision elements JPL-673	B66-10264	01
Library of documents compressed into lap-held display kit MSC-125	B65-10030	01	PN acquisition demodulator achieves automatic synchronization of a telemetry channel JPL-612	B66-10271	01
FLIGHT SIMULATION			Pneumatic binary encoder replaces multiple solenoid system M-FS-665	B66-10374	01
Space trajectories program for IBM 7090 NPO-10125	B67-10172	06	System monitors discrete computer inputs		
A phonocardiogram simulator KSC-67-94	B67-10239	01			
Accurate digital technique simulates flight control system M-FS-14787	B68-10569	02			
FLIGHT TEST VEHICLES					
Device measures fluid drag on test vehicles LANGLEY-34	B65-10195	01			
FLIGHT TESTS					
Computer program performs aerothermodynamic					

FLOATING

SUBJECT INDEX

M-FS-1021	B66-10389	01	rescue operations		
Bipolar current driver for memory circuits			MSC-131	B66-10019	05
GSFC-213	B66-10469	01	Self-inflating lifevest stores in small package		
Security warning system monitors up to fifteen remote areas simultaneously			MSC-5A	B66-10184	04
KSC-66-39	B66-10548	01	Device without electrical connections in tank measures liquid level		
Fluid logic control circuit operates nutator actuator motor			W00-235	B66-10198	01
LEWIS-294	B66-10593	05	Resilient bearing supports are gas controlled		
Polarimeter provides transient response in nanosecond range			LEWIS-10109	B67-10364	05
JPL-890	B67-10021	02	Circuit automatically calibrates flowmeter against liquid-level gage reference		
Variable-pulse switching circuit accurately controls solenoid-valve actuations			M-FS-2194	B67-10376	01
M-FS-1895	B67-10022	01	FLOORS		
Digital-to-analog converter operates from low level inputs			Portable flooring protects finished surfaces, is easily moved		
JPL-907	B67-10357	01	M-FS-15	B63-10387	05
Transient sensor development			Work platform is supported by self-locking blades		
M-FS-13370	B67-10471	01	M-FS-2297	B67-10180	05
Blood pressure reprogramming adapter assists signal recording			FLOTATION		
MSC-265	B67-10475	01	Organic reactants rapidly produce plastic foam		
Logic circuit detects both present and missing negative pulses in superimposed wave trains			LANGLEY-37	B65-10288	03
M-FS-12518	B67-10565	01	Proposed gas generation assembly would recover deeply submerged objects		
Unique frequency-shift-keyed demodulation system			SAN-10007	B68-10211	05
GSFC-217	B67-10668	01	Improved gyro-flotation /damping/ fluids		
Self-correcting, synchronizing ring counter using integrated circuit devices			MSC-13217	B69-10360	03
M-FS-13901	B68-10067	01	FLOW CHAMBERS		
Parallel-to-serial biphasic-data converter			Selective tube roughening increases heat transfer capability		
MSC-11600	B68-10241	01	M-FS-599	B66-10610	05
Fluidic-thermochromic display device			FLOW CHARACTERISTICS		
ERC-10031	B68-10350	01	Oil-smeared models aid wind tunnel measurements		
Closed circuit TV system automatically guides welding arc			LANGLEY-4	B63-10311	03
M-FS-20084	B68-10357	01	Probe measures characteristics of hot gas stream		
Integrated circuit with multiple collector current source			M-FS-240	B65-10133	02
M-FS-20177	B69-10126	01	Matching flow characteristics of standard shutoff valves eliminates need for custom fabricated valves		
Highly linear, sensitive analog-to-digital converter			M-FS-1069	B66-10416	05
MSC-13110	B69-10230	01	Computer program simplifies transient and steady-state temperature prediction for complex body shapes		
Pneumatic analog-to-pulse frequency converter			MSC-989	B66-10619	01
LEWIS-10345	B69-10276	02	Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates		
Circuit counts pulses and indicates time of occurrence of slow pulses			NPO-10316	B67-10418	05
XNP-06234	B69-10313	01	Pump simulator provides variable pressure-flow characteristics		
Phase-locked-loop phase modulator with high modulation index, low distortion			LEWIS-10122	B67-10453	05
MSC-12247	B69-10487	01	Program computes equilibrium normal shock and stagnation point solutions for arbitrary gas mixtures		
Load current sensor for a pulse width modulator power regulator			LANGLEY-10090	B67-10509	06
GSFC-10656	B69-10578	01	Computer program calculates peripheral water injection cooling of axisymmetric subsonic diffuser		
FLOATING			NUC-10541	B67-10543	06
Compact assembly generates plastic foam, inflates flotation bag			Prediction of performance of centrifugal pumps during starts under pressure		
LANGLEY-96	B65-10090	05	LEWIS-10900	B69-10263	05
Proposed method of rotary dynamic balancing by laser			Restricted-flow junction between liquids		
M-FS-12422	B67-10452	02	NPO-10682	B69-10332	02
FLOATS					
Buoyant stokes litter assembly used for sea					

SUBJECT INDEX

FLOW REGULATORS

Pneumatic flow comparator M-FS-18373	B69-10400	05	through turbines LEWIS-236	B66-10496	01
Self-sustained hydrodynamic oscillations in a natural-circulation two-phase-flow boiling loop ARG-10461	B69-10620	02	Geometry and design point performance of axial flow turbines LEWIS-10471	B69-10111	06
Flow properties of suspensions rich in solids ARG-10481	B69-10622	02	FLOW MEASUREMENT Fluid-pressure meter can be calibrated without removal from flow line M-FS-98	B63-10502	05
FLOW CHARTS FORTRAN program flow chart is automatically produced M-FS-369	B66-10062	01	Field-effect transistor improves electrometer amplifier ARC-36	B64-10143	01
Detection system ensures positive alarm activation in digital message loss WOO-208	B66-10287	01	Ball bearing used in design of rugged flowmeter LEWIS-159	B64-10170	05
Computer program calculates monotonic maximum likelihood estimates using method of reversals M-FS-1516	B67-10136	01	Probe measures characteristics of hot gas stream M-FS-240	B65-10133	02
Vis-A-Plan /visualize a plan/ management technique provides performance-time scale KSC-10073	B67-10240	06	Instrument calibrates low gas-rate flowmeters MSC-134	B65-10137	01
Computer program developed for flowsheet calculations and process data reduction ARG-10134	B69-10023	06	Inexpensive check valve is installed in standard AN fittings JPL-2A	B65-10222	05
Visual task analysis /VISTA/ M-FS-14716	B69-10394	06	Electromechanical flowmeter accurately monitors fluid flow GSFC-357	B65-10273	01
FLOW DIRECTION INDICATORS Flow direction measurement with fixed probes LEWIS-11044	B69-10714	02	Magnetic fluid readily controlled in zero gravity environment LEWIS-126	B65-10335	03
FLOW DISTRIBUTION Oil-smeared models aid wind tunnel measurements LANGLEY-4	B63-10311	03	Flowmeter measures low gas-flow rates M-FS-215	B66-10036	01
Fluid logic control circuit operates nutator actuator motor LEWIS-294	B66-10593	05	Wide-range instrument monitors flow rates of chemically active fluids MSC-186	B66-10205	01
Predicting surface heating rates and pressures resulting from hot exhaust gases MSC-971	B66-10633	05	Studies reveal effects of pipe bends on fluid flow cavitation M-FS-516	B66-10228	05
Study of hot wire techniques in low density flows with high turbulence levels M-FS-1269	B66-10687	01	Positive displacement cylinder measures corrosive liquid volume MSC-1038	B66-10589	05
Problem of oscillating cone in supersonic flow is solved by small perturbation techniques M-FS-869	B66-10700	02	Study of hot wire techniques in low density flows with high turbulence levels M-FS-1269	B66-10687	01
Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds LANGLEY-10191	B67-10666	06	Local measurements in turbulent flows through cross correlation of optical signals M-FS-1268	B67-10030	01
Large-amplitude inviscid fluid motion in an accelerating container MSC-11560	B68-10170	02	Instrument continuously measures density of flowing fluids LEWIS-309	B67-10080	01
Dynamically stable check valve concept for wide flow range M-FS-14579	B68-10247	05	Braze joint quality tested electromagnetically M-FS-12795	B67-10333	01
Fluorescent particles enable visualization of gas flow M-FS-14583	B68-10259	02	Low friction servo valve LEWIS-10574	B68-10440	05
Geometry and design point performance of axial flow turbines LEWIS-10471	B69-10111	06	A mass flux probe for measurement in a supersonic stream LEWIS-10695	B68-10533	02
Bell nozzle kernel analysis program M-FS-18456	B69-10146	06	FLOW REGULATORS Level of super-cold liquids automatically maintained by levelometer JPL-397	B63-10250	01
FLOW GEOMETRY Computer program performs flow analysis			Flow control valve is independent of pressure drop JPL-WOO-039	B65-10121	05
			Electromechanical flowmeter accurately monitors fluid flow GSFC-357	B65-10273	01

FLOW RESISTANCE

SUBJECT INDEX

High-pressure, low temperature electrical connector makes no-leak seal MSC-276	B66-10079	02	System automatically supplies precise analytical samples of high-pressure gases M-FS-1814	B67-10090	01
System proportions fluid-flow in response to demand signals GSFC-457	B66-10094	01	FLOW THEORY Computer program provides steady state analysis for liquid propellant propulsion systems MSC-10064	B67-10414	06
Dual regulator controls two gases from a single reference MSC-227	B66-10167	05	FLOW VELOCITY Elastic orifice automatically regulates gas bearings JPL-135	B63-10123	05
Pneumatic shutoff and time-delay valve operates at controlled rate M-FS-602	B66-10189	05	Ball bearing used in design of rugged flowmeter LEWIS-159	B64-10170	05
Flow ring valve is simple, quick-acting M-FS-752	B66-10255	05	Apparatus measures concentration of suspended droplets in gas streams LANGLEY-31	B64-10237	01
Concept for passive system to control gas flow independently of temperature M-FS-982	B66-10343	05	Nitrogen dioxide produced by self-sustained pyrolysis of nitrous oxide LANGLEY-32	B65-10074	05
Diaphragm valve for corrosive and high temperature fluid flow control has unique features LEWIS-304	B66-10365	05	Improved strain-wire flowmeter has fast response time LEWIS-241	B65-10304	01
Concept of planetary gear system to control fluid mixture ratio M-FS-1785	B66-10477	05	Volumetric system calibrates meters for large flow rates WOO-130	B65-10323	05
Quick-response servo amplifies small hydraulic pressure differences ARG-99	B66-10498	05	Unique gear design provides self-lubrication JPL-SC-079	B65-10366	03
Internal machining accomplished at constant radii M-FS-1573	B66-10546	05	Flowmeter measures low gas-flow rates M-FS-215	B66-10036	01
Check valve installation in pilot operated relief valve prevents reverse pressurization M-FS-1925	B66-10655	05	System proportions fluid-flow in response to demand signals GSFC-457	B66-10094	01
Solenoid valve design has one moving part NPO-10039	B67-10219	05	Binary fluid amplifier solves stability and load problems ERC-15	B66-10177	01
Temperature responsive valve withstands high impact loading NPO-10186	B67-10225	05	Pneumatic shutoff and time-delay valve operates at controlled rate M-FS-602	B66-10189	05
Dual photochemical replenisher system reduces chemical losses KSC-67-111	B67-10485	02	Wide-range instrument monitors flow rates of chemically active fluids MSC-186	B66-10205	01
Butterfly valve with metal seals controls flow of hydrogen from cryogenic through high temperatures NUC-10034	B67-10567	05	Studies reveal effects of pipe bends on fluid flow cavitation M-FS-516	B66-10228	05
Ferromagnetic core valve gives rapid action on minimum energy LEWIS-10135	B67-10623	05	Computer program determines gas flow rates in piping systems M-FS-443	B66-10300	01
Solenoid hammer valve developed for quick-opening requirements LEWIS-10134	B67-10639	05	Concept for passive system to control gas flow independently of temperature M-FS-982	B66-10343	05
Dynamically stable check valve concept for wide flow range M-FS-14579	B68-10247	05	Rotary valve controls multiple hydraulic leveling cylinders M-FS-361	B66-10402	05
Dynamic-reservoir lubricating device M-FS-14652	B68-10261	05	Labyrinth-type valve seat increases valve life by decreasing fluid velocity M-FS-1051	B66-10424	05
A method for using surface tension to determine the size of holes in hardware MSC-15194	B69-10595	03	Rotating magnetic poles used to pump mercury LEWIS-276	B66-10434	05
FLOW RESISTANCE System automatically supplies precise analytical samples of high-pressure gases M-FS-1814	B67-10090	01	Concept of planetary gear system to control fluid mixture ratio M-FS-1785	B66-10477	05
FLOW STABILITY Binary fluid amplifier solves stability and load problems ERC-15	B66-10177	01	Experimental investigation of megawatt dc arc heating of nitrogen LEWIS-313	B66-10508	02
			Device accurately measures and records low		

SUBJECT INDEX

FLOWMETERS

gas-flow rates
M-FS-1077 B66-10569 01

Laser Doppler flowmeter measures gas velocity
M-FS-1747 B66-10693 02

Low rate flow switch can be used for gas or liquid
JPL-867 B66-10696 01

Aspirator increases relief valve poppet stroke
HQ-77 B67-10154 05

A theoretical model for determining turbine flowmeter sensitivity
M-FS-1172 B67-10179 01

Water cooled anode increases life of high temperature arc lamp
NPO-10180 B67-10247 02

High impact pressure regulator withstands impacts of over 15,000 g
NPO-10175 B67-10274 01

Computer program predicts thermal and flow transients experienced in a reactor loss-of-flow accident
NUC-10054 B67-10281 06

Reaction of steam with molybdenum is studied
ARG-295 B67-10502 03

Flow liner extends operating life of high-angulation bellows
M-FS-12023 B67-10512 05

Analysis of dynamic systems with DAP4H computer program
M-FS-13999 B67-10523 06

Equation relates flow at free jet to flow downstream
M-FS-13789 B67-10612 06

Dynamic-reservoir lubricating device
M-FS-14652 B68-10261 05

Two-fluid, impinging-sheet injector
NPO-10547 B68-10338 05

Cooled miniature pressure transducers effective at high temperatures
LEWIS-10401 B68-10370 01

Multiple-orifice throttle valve
XNP-09698 B69-10030 05

Ultra-high-flux heat exchanger
M-FS-18135 B69-10201 02

TFE-fluorocarbon liners for flexible hoses
M-FS-16480 B69-10288 05

Automatic filter-blowback systems used with sintered-metal filters
ARG-10324 B69-10342 05

Automatic calorimetry system monitors RF power
NPO-11033 B69-10384 01

Method for predicting pump cavitation performance
LEWIS-10916 B69-10446 02

Flow properties of suspensions rich in solids
ARG-10481 B69-10622 02

Pulse-height analyzer with digital readout
ARG-10503 B69-10640 01

Natural gas flow through critical nozzles
LEWIS-11031 B69-10712 02

FLOW VISUALIZATION

Oil-smeared models aid wind tunnel measurements
LANGLEY-4 B63-10311 03

Fluorescent particles enable visualization of gas flow
M-FS-14583 B68-10259 02

Computer program analyzes and designs supersonic wing-body combinations
ARC-10141 B68-10335 06

FLOWMETERS

Meter accurately measures flow of low-conductivity fluids
JPL-0021 B63-10280 01

Ball bearing used in design of rugged flowmeter
LEWIS-159 B64-10170 05

Electromechanical flowmeter accurately monitors fluid flow
GSFC-357 B65-10273 01

Improved strain-wire flowmeter has fast response time
LEWIS-241 B65-10304 01

Volumetric system calibrates meters for large flow rates
WOO-130 B65-10323 05

Optical output enhances flowmeter accuracy
M-FS-482 B65-10395 02

Flowmeter measures low gas-flow rates
M-FS-215 B66-10036 01

Segmented ball valve is easy to open and close
WOO-248 B66-10195 05

Wide-range instrument monitors flow rates of chemically active fluids
MSC-186 B66-10205 01

Bearing puller facilitates removal and replacement of bearing assemblies
M-FS-1538 B66-10418 05

Flowmeter measures flow rates of high temperature fluids
LEWIS-328 B66-10521 01

Positive displacement cylinder measures corrosive liquid volume
MSC-1038 B66-10589 05

Laser Doppler flowmeter measures gas velocity
M-FS-1747 B66-10693 02

Low rate flow switch can be used for gas or liquid
JPL-867 B66-10696 01

A theoretical model for determining turbine flowmeter sensitivity
M-FS-1172 B67-10179 01

Automated microsyringe is highly accurate and reliable
NPO-10142 B67-10203 01

Circuit automatically calibrates flowmeter against liquid-level gage reference
M-FS-2194 B67-10376 01

Flowmeter determines mix ratio for viscous adhesives
M-FS-2308 B67-10378 01

Performance of turbine-type flowmeters in liquid hydrogen
LEWIS-10137 B67-10506 01

Calibration technique for electromagnetic flowmeters

FLUENCE

SUBJECT INDEX

LEWIS-10328	B67-10554	01	Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06
Air sampler collects and protects minute particles HQ-10037	B67-10661	01	Acceleration insensitive fluid expansion compensator ERC-10152	B68-10559	01
High-pressure gas facilitates calibration of turbine flowmeters for liquid hydrogen LEWIS-10402	B68-10145	01	Hydrodynamics of a new concept of primary containment by energy absorption ARG-10242	B69-10046	05
Computer program developed for flowsheet calculations and process data reduction ARG-10134	B69-10023	06	Fatigue failure in metal bellows due to flow-induced vibrations M-FS-18383	B69-10071	05
Computer program for off-design performance of radial inflow turbines LEWIS-10764	B69-10267	06	Computer simulation of high-frequency combustion instability and its suppression HQ-10391	B69-10368	06
Automatic calorimetry system monitors RF power NPO-11033	B69-10384	01	FLUID FILTERS		
Natural gas flow through critical nozzles LEWIS-11031	B69-10712	02	Process reduces pore diameters to produce superior filters WOO-093	B66-10037	03
Chromatographic detection and analysis of traces of hydrocarbons KSC-10388	B69-10716	02	Fiber length and orientation prevent migration in fluid filters M-FS-541	B66-10319	05
Biomedical bulk data processing program FRC-10015	B69-10720	06	Valve effectively controls amount of contaminant in flow stream M-FS-1771	B66-10683	05
Dynamic calibration of turbine flowmeters LEWIS-11014	B69-10764	01	Electron beam selectively seals porous metal filters LEWIS-10162	B68-10331	05
FLUENCE			Hydrostatic testing of porous assemblies M-FS-18298	B68-10439	05
Neutron detector simultaneously measures fluence and dose equivalent ARG-10071	B67-10597	02	Replacement of fluid-filter elements without interruption of flow MSC-15499	B69-10245	05
FLUES			Automatic filter-blowback systems used with sintered-metal filters ARG-10324	B69-10342	05
Magnetic field controls carbon arc tail flame MSC-139	B65-10108	01	FLUID FLOW		
FLUID AMPLIFIERS			Vented piston seal prevents fluid leakage between two chambers JPL-179	B63-10141	05
Binary counter uses fluid logic elements M-FS-323	B65-10377	01	Meter accurately measures flow of low-conductivity fluids JPL-0021	B63-10280	01
Queueing register uses fluid logic elements M-FS-317	B66-10100	05	Pressure transducer 3/8-inch in size can be faired into surface WOO-065	B64-10021	05
Binary fluid amplifier solves stability and load problems ERC-15	B66-10177	01	Ball bearing used in design of rugged flowmeter LEWIS-159	B64-10170	05
Improved fluid control circuit operates on low power input LEWIS-325	B67-10042	01	Two-part valve acts as quick coupling JPL-478	B64-10223	05
Experimental scaling study of fluid amplifier elements M-FS-1882	B67-10088	02	Fluid pressure used to test turbopump bearings NU-0001	B65-10024	03
Study indicates fluid digital computation systems are feasible M-FS-520	B67-10181	01	Nonresonant support facilitates vibration testing of structures M-FS-224	B65-10039	05
Review of research and development in fluid logic elements M-FS-420	B67-10438	01	Flow control valve is independent of pressure drop JPL-WOO-039	B65-10121	05
Fluidic transducer gives pressure output as function of temperature ERC-10093	B68-10537	05	Quick-disconnect coupling safe transfer of hazardous fluids LEWIS-125	B65-10202	01
Fluidic analog amplifier ERC-10102	B68-10538	05	Fluid check valve has fail-safe feature JPL-0019	B65-10207	05
FLUID DYNAMICS			Electromechanical flowmeter accurately monitors fluid flow GSFC-357	B65-10273	01
A theoretical model for determining turbine flowmeter sensitivity M-FS-1172	B67-10179	01	Computer program NCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid NUC-10042	B67-10456	06

SUBJECT INDEX

FLUID FLOW CONT

Coaxial capacitor used to determine fluid density LEWIS-232	B65-10296	02	Study made of thin-walled pipe response to turbulent fluids M-FS-1321	B67-10518	05
Improved strain-wire flowmeter has fast response time LEWIS-241	B65-10304	01	Analysis of dynamic systems with DAP4H computer program M-FS-13999	B67-10523	06
Pressure responsive seal handles static and dynamic loads GSFC-441	B65-10327	05	Lead plated aluminum ring provides static high pressure seal for large diameter pressure vessel NUC-10008	B67-10539	05
Improved poppet valve provides positive damageproof seal M-FS-293	B65-10346	05	Dynamic captive plastic seal M-FS-12988	B67-10600	03
System proportions fluid-flow in response to demand signals GSFC-457	B66-10094	01	Flow tube used to cool solar-pumped laser MSC-11026	B68-10010	02
Pneumatic shutoff and time-delay valve operates at controlled rate M-FS-602	B66-10189	05	Dual rate pressure relief valve MSC-11606	B68-10237	05
Wide-range instrument monitors flow rates of chemically active fluids MSC-186	B66-10205	01	Fluorescent particles enable visualization of gas flow M-FS-14583	B68-10259	02
Fluid damping reduces bellows seal fatigue failures M-FS-565	B66-10249	05	Dynamic-reservoir lubricating device M-FS-14652	B68-10261	05
Diaphragm valve for corrosive and high temperature fluid flow control has unique features LEWIS-304	B66-10365	05	Concept to convert electrical power GSFC-10222	B68-10321	01
Rotary valve controls multiple hydraulic leveling cylinders M-FS-361	B66-10402	05	Electron beam selectively seals porous metal filters LEWIS-10162	B68-10331	05
Concept of planetary gear system to control fluid mixture ratio M-FS-1785	B66-10477	05	Analysis of annular combustors LEWIS-10399	B68-10356	06
Quick-response servo amplifies small hydraulic pressure differences ARG-99	B66-10498	05	Low friction servo valve LEWIS-10574	B68-10440	05
Monitoring circuit accurately measures movement of solenoid valve M-FS-1829	B66-10568	01	Computer program TRACK performs transient and/or steady state thermal analysis with coupled fluid flow and heat conduction NUC-10189	B68-10450	06
Computer program simplifies transient and steady-state temperature prediction for complex body shapes MSC-989	B66-10619	01	Fluidic analog amplifier ERC-10102	B68-10538	05
Method for predicting frictional loss in metal bellows and flexible hose M-FS-883	B66-10662	05	Multiple-orifice throttle valve INP-09698	B69-10030	05
Photographic method measures particle size and velocity in fluid stream M-FS-1536	B66-10668	01	Instabilities encountered during heat transfer to a supercritical fluid ARG-10266	B69-10042	02
Variable-pulse switching circuit accurately controls solenoid-valve actuations M-FS-1895	B67-10022	01	Flow angle sensor and readout system LEWIS-90298	B69-10050	01
Flow-test device fits into restricted access passages MSC-1078	B67-10074	01	Torsion system for creep testing with multiple stress reversals HQ-10039	B69-10147	03
Solenoid valve design has one moving part NFO-10039	B67-10219	05	Ultra-high-flux heat exchanger M-FS-18135	B69-10201	02
Segmented, arch-bound carbon seal is pressure loaded M-FS-12777	B67-10325	05	Replacement of fluid-filter elements without interruption of flow MSC-15499	B69-10245	05
Fuel cell life improved by metallic sinter activation after electrode assembly welding MSC-10965	B67-10436	03	Thermal radiation shields for piping in vacuum environments LEWIS-10899	B69-10262	03
Pump simulator provides variable pressure-flow characteristics LEWIS-10122	B67-10453	05	Hermetically sealed pump LEWIS-10837	B69-10320	05
			Flared-tube fittings with replaceable seat inserts MSC-15372	B69-10519	05
			A new method for the determination of particulate contamination levels for surface cleanliness of fluid systems KSC-10267	B69-10520	02
			Cryogenic fluid flow instabilities in heat		

FLUID INJECTION

SUBJECT INDEX

exchangers M-FS-20438	B69-10541	02	voltage GSFC-119	B63-10599	01
FLUID INJECTION			Positive displacement cylinder measures corrosive liquid volume MSC-1038	B66-10589	05
Filler device for handling hot corrosive materials MSC-85	B64-10166	03	Design concept for pressure switch calibrator HQ-36	B66-10598	01
Study of vortex valve for medium temperature solid propellants LANGLEY-204	B66-10524	01	Fluidic-thermochromic display device ERC-10031	B68-10350	01
Two-fluid, impinging-sheet injector NPO-10547	B68-10338	05	FLUID TRANSMISSION LINES		
FLUID JETS			Safety restrainer prevents whipping of ruptured high-pressure hose LEWIS-99	B64-10348	05
Fluid power-transmitting gas bearing ERC-10097	B68-10503	05	Device disconnects several couplings simultaneously JPL-226	B65-10163	05
FLUID LOGIC			Sensor detects hydrocarbon oil contaminants in fluid lines M-FS-522	B66-10068	01
Binary counter uses fluid logic elements M-FS-323	B65-10377	01	Radioactive tracer system detects oil contaminants in fluid lines M-FS-512	B66-10090	03
Queueing register uses fluid logic elements M-FS-317	B66-10100	05	Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons LEWIS-263	B66-10104	03
FLUID MECHANICS			Cryogenic trap valve has no moving parts M-FS-487	B66-10136	05
Studies reveal effects of pipe bends on fluid flow cavitation M-FS-516	B66-10228	05	Portable power tool machines weld joints in field M-FS-258	B66-10145	05
Computer program determines gas flow rates in piping systems M-FS-443	B66-10300	01	Remotely controlled system couples and decouples large diameter pipes NU-0062	B66-10276	05
Stationary device produces homogeneous mixture of fluids M-FS-525	B66-10570	05	Vacuum test fixture improves leakage rate measurements MSC-271	B66-10286	01
Temperature-sensed cryogenic bleed maintains liquid state in transfer line M-FS-12681	B67-10424	01	Inexpensive insulation is effective for cryogenic transfer lines MSC-618	B66-10348	02
Fluid behavioral patterns found in subscale geysering study M-FS-13582	B67-10462	02	High pressure cryogenic liquid flow sight assembly provides streamlined flow for easy observation LEWIS-310	B66-10394	01
Acoustic wave analysis M-FS-18076	B68-10265	02	Leak locator for vacuum jacketed pipelines eliminates need for removal of outer jacket M-FS-888	B66-10412	01
Axisymmetric reacting gas nonequilibrium performance program MSC-11781	B68-10377	06	Metal tube can be folded for compact storage, is self-erecting LEWIS-288	B66-10450	05
An investigation of particle mixing in a gas-fluidized bed ARG-10182	B68-10407	05	Tool facilitates installation of Marmon clamps M-FS-2039	B67-10105	05
A mass flux probe for measurement in a supersonic stream LEWIS-10695	B68-10533	02	Improved cryogenic refrigeration system JPL-731	B67-10128	02
Combination probe for airflow measurements LEWIS-10281	B68-10558	01	Line adapter provides quick disconnect under moderate side loading M-FS-2159	B67-10256	05
Channel-wall limitations in the magnetohydrodynamic induction generator ARG-10128	B69-10255	02	Inexpensive cryogenic insulation replaces vacuum jacketed line NUC-10061	B67-10264	02
Flow direction measurement with fixed probes LEWIS-11044	B69-10714	02	Accumulator isolator prevents malfunctioning of faulty hydraulic system M-FS-1415	B67-10528	05
FLUID POWER			Lead plated aluminum ring provides static high pressure seal for large diameter pressure vessel		
Pickup device reads pressures from ports in rotating mechanisms LEWIS-158	B65-10021	05			
Fluid pressure used to test turbopump bearings NU-0001	B65-10024	03			
Fluid-pressure measurement apparatus uses short-length manometer tubes LEWIS-28	B65-10027	05			
Fluid power-transmitting gas bearing ERC-10097	B68-10503	05			
FLUID SWITCHING ELEMENTS					
Liquid switch is remotely operated by low dc					

SUBJECT INDEX

FLUORIDES

NUC-10008	B67-10539	05	LEWIS-294	B66-10593	05
Feed-thru conduit minimizes heat pickup JPL-847	B67-10619	05	FLUORESCENCE		
Reconnect mechanism M-FS-12968	B67-10670	05	Oil-smeared models aid wind tunnel measurements LANGLEY-4	B63-10311	03
Synchronized circuit improves accuracy of fluid transfer measurements MSC-11167	B68-10057	05	Instrument accurately measures extremely low air densities M-FS-193	B65-10221	01
Fluid sample collection and storage device MSC-10962	B69-10816	05	Distant objects detected visually with optical filters LANGLEY-166	B65-10252	02
FLUIDICS			Sensor detects hydrocarbon oil contaminants in fluid lines M-FS-522	B66-10068	01
Negative feedback system reduces pump oscillations M-FS-1852	B67-10064	05	Microorganisms detected by enzyme-catalyzed reaction JPL-782	B66-10117	04
Fluidic-thermochromic display device ERC-10031	B68-10350	01	Circular, explosion-proof lamp provides uniform illumination MSC-382	B66-10156	02
Fluid power-transmitting gas bearing ERC-10097	B68-10503	05	Sea dye marker provides visibility for 20 hours MSC-714	B66-10313	03
Fluidic analog amplifier ERC-10102	B68-10538	05	Fluorescent particles enable visualization of gas flow M-FS-14583	B68-10259	02
Effect of interparticle forces on the fluidization of fine particles ARG-10264	B69-10195	03	Optimetric system facilitates colorimetric and fluorometric measurements MPO-10233	B68-10316	01
Pneumatic analog-to-pulse frequency converter LEWIS-10345	B69-10276	02	Microprobe investigation of brittle segregates in aluminum MIG and TIG welds M-FS-14720	B68-10334	03
Piezoelectric linear actuator MSC-13194	B69-10469	02	Ceric and ferrous dosimeters show precision for 50-5000 rad range ARG-10173	B68-10426	02
FLUIDIZED BED PROCESSORS			Fluorescent photography of spray droplets using a laser light source LEWIS-10777	B69-10122	02
Characteristics of fluidized-packed beds ARG-10049	B68-10278	03	Mossbauer vibration calibration systems evaluated M-FS-20014	B69-10125	01
An investigation of particle mixing in a gas-fluidized bed ARG-10182	B68-10407	05	A prototype high power portable lamp M-FS-20229	B69-10189	02
Abrasion and resistant discharge valve developed ARG-10219	B69-10044	05	Recent development in organic scintillators ARG-10344	B69-10198	03
Direct indication of particle size in fluidized beds ARG-10130	B69-10083	05	The Quantasyn, an improved quantum detector ERC-10148	B69-10443	01
Automatic filter-blowback systems used with sintered-metal filters ARG-10324	B69-10342	05	Airborne Fraunhofer Line Discriminator MSC-13146	B69-10594	02
Surface-renewal models for heat-transfer between walls and fluidized beds ARG-10372	B69-10772	02	FLUORIDES		
FLUIDS			Composites of porous metal and solid lubricants increase bearing life LEWIS-307	B67-10007	03
Improved fluid control valve extends diaphragm life JPL-345	B65-10147	05	Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels ARG-232	B67-10032	03
Closed fluid system without moving parts controls temperature LEWIS-222	B65-10331	02	Xenon fluoride solutions effective as fluorinating agents ARG-217	B67-10133	03
Magnetic fluid readily controlled in zero gravity environment LEWIS-126	B65-10335	03	Xenon fluorides show potential as fluorinating agents ARG-113	B67-10185	03
Three-dimensional wire-mesh capacitor system measures fluid density WOO-194	B65-10379	01	Pure xenon hexafluoride prepared for thermal properties studies ARG-10056	B67-10577	03
Optical output enhances flowmeter accuracy M-FS-482	B65-10395	02			
Electrically heated diaphragm eliminates use of pyrotechnics MSC-241	B65-10400	01			
Fluid logic control circuit operates nutator actuator motor					

FLUORINATION

SUBJECT INDEX

Characteristics of fluidized-packed beds ARG-10049	B68-10278	03	FLUORO COMPOUNDS High-energy, high-power, long-life battery LEWIS-10724	B69-10131	01
Study of actinide chemistry in saturated potassium fluoride solution ARG-10204	B69-10004	03	FLUOROCARBONS Metals plated on fluorocarbon polymers JPL-544	B63-10612	03
A new solid lubricant LEWIS-10812	B69-10250	03	Machine tests crease durability of sheet materials JPL-604	B64-10178	05
FLUORINATION Special tool seals conductors with combination of plastic sleeves M-FS-579	B66-10209	05	Low-cost seal compensates for surface irregularities NU-0016	B65-10160	05
Vapor diffusion electrode improves fuel cell operation LEWIS-187	B66-10281	03	Electronic modules easily separated from heat sink MSC-142	B65-10186	02
Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels ARG-232	B67-10032	03	Composite gaskets are compatible with liquid oxygen, resist compression set M-FS-455	B66-10395	03
Xenon fluoride solutions effective as fluorinating agents ARG-217	B67-10133	03	Film coating permits low-force scribing MSC-990	B66-10609	03
Xenon fluorides show potential as fluorinating agents ARG-113	B67-10185	03	Fluorocarbon seal replaces metal piston ring in low density gas environment LEWIS-10277	B67-10591	05
Experiments shed new light on nickel-fluorine reactions ARG-10008	B67-10397	03	High-temperature bearing lubricants LEWIS-10408	B68-10249	05
Characteristics of fluidized-packed beds ARG-10049	B68-10278	03	Evaluation of a fluorocarbon plastic used in cryogenic valve seals M-FS-18189	B68-10523	03
Abrasion and resistant discharge valve developed ARG-10219	B69-10044	05	Novel terminal strips for transformers NPO-10842	B69-10246	01
Preparation of high purity copper fluoride by fluorinating copper hydroxyfluoride LEWIS-10794	B69-10136	03	TFE-fluorocarbon liners for flexible hoses M-FS-16480	B69-10288	05
Effect of interparticle forces on the fluidization of fine particles ARG-10264	B69-10195	03	FLUOROHYDROCARBONS Organic reactants rapidly produce plastic foam LANGLEY-37	B65-10288	03
FLUORINE Quick-disconnect coupling safe transfer of hazardous fluids LEWIS-125	B65-10202	01	Corrosion of aluminum alloys by chlorinated hydrocarbon/methanol mixtures MSC-11365	B67-10442	03
Soft-seal valve holds hazardous fluids safely LEWIS-275	B66-10216	05	FLUOROSCOPY Detection of entrapped moisture in honeycomb sandwich structures MSC-1103	B67-10116	01
One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06	Thermal neutron image intensifier tube provides brightly visible radiographic pattern ARG-120	B67-10296	02
One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06	FLUSHING Rock bit requires no flushing medium to maintain drilling speed JPL-W00-031	B65-10109	05
Axisymmetric reacting gas nonequilibrium performance program MSC-11781	B68-10377	06	Vibrator improves spark erosion cutting process NU-0071	B66-10333	01
FLUORINE COMPOUNDS Xenon forms stable compound with fluorine ARG-4	B66-10467	03	Traveling wire electrode increases productivity of Electrical Discharge Machining /EDM/ equipment ARG-136	B67-10238	05
Study of fluoride corrosion of nickel alloys ARG-10224	B69-10048	03	Vibration damping composition has flush-away feature M-FS-597	B67-10432	03
Refractory-metal compound impregnation of polytetrafluoroethylene LEWIS-10733	B69-10072	03	Two systems developed for purifying inert atmospheres ARG-10234	B69-10026	03
FLUORINE ORGANIC COMPOUNDS Synthesis of polyethers of hexafluorobenzene and hexafluoropentanediol M-FS-14962	B69-10636	03	FLUTTER Air-cushion lift pad M-FS-14685	B69-10448	05

SUBJECT INDEX

FOAMS

FLUTTER ANALYSIS

System measures angular displacement without contact
LANGLEY-46 B65-10073 01

Analysis of flutter in tape transport systems
M-FS-11970 B68-10027 01

FLUX

Metallic diffusion measured by a modified Knudsen technique
HQ-10145 B69-10309 03

FLUX (BATE)

Multiaxial analyzer detects low-energy electrons
GSFC-329 B65-10213 01

Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations
NUC-10052 B67-10345 06

Neutron irradiation of Am-241 effectively produces curium
ARG-10030 B67-10501 03

Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes
NUC-10143 B67-10665 06

Low scatter lightweight fission spectrometer constructed for biological research
ARG-10094 B68-10174 02

Portable, high intensity isotopic neutron source provides increased experimental accuracy
ARG-90250 B68-10243 02

Method for reducing snap in magnetic amplifiers
LEWIS-10388 B68-10388 01

Daughter growth in freshly separated Ra-226, Ac-227 and U-232
ARG-10226 B69-10003 02

Dewpoint temperature inversions analyzed
ARG-10316 B69-10057 02

Miniaturization of magnetic logic circuitry
LANGLEY-10037 B69-10148 06

Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems
M-FS-14447 B69-10158 06

Fungsten thermal neutron dosimeter
LEWIS-10880 B69-10249 02

The Quantasyn, an improved quantum detector
ERC-10148 B69-10443 01

Cryogenic fluid flow instabilities in heat exchangers
M-FS-20438 B69-10541 02

A polar graphic method for determining the attitude of rocket vehicles
GSFC-10860 B69-10591 02

FLUX DENSITY

Shaped superconductor cylinder retains intense magnetic field
JPL-381 B63-10238 01

Auxiliary silver electrode eliminates two-step voltage discharge characteristic of silver-zinc cells
GSFC-169 B64-10114 01

Computer programs simplify optical system analysis
GSFC-306 B65-10093 01

High permeability semiconductors permit close-tolerance soldering
GSFC-319 B65-10134 05

High-reluctance rotor rings improve homopolar generator performance
ARG-104 B66-10543 01

Crystal microbalance measures condensable molecular fluxes
JPL-845 B67-10012 03

A power-spectral-density computer program
NPO-10126 B67-10160 01

High power dc/dc and dc/ac electrical power conversion techniques developed
M-FS-13227 B67-10390 01

Zinc-oxygen primary cell yields high energy density
M-FS-14661 B68-10218 01

Detection sensitivities in 3-8 Mev neutron activation
ARG-10210 B68-10298 02

High-energy, high-power, long-life battery
LEWIS-10724 B69-10131 01

Preparation of high purity copper fluoride by fluorinating copper hydroxyfluoride
LEWIS-10794 B69-10136 03

Studies of cycles for liquid-metal magnetohydrodynamic generation of power
ARG-10250 B69-10194 02

An improved atomic hydrogen frequency and time standard
GSFC-10706 B69-10341 02

Synchronizing redundant power oscillators
XGS-09377 B69-10546 01

Cryogenic flux-concentrator
ARG-10494 B69-10654 02

Optical frequency waveguide and ion transmission system
HQ-10541 B69-10746 01

FLUXES

Aluminum core structures brazed without use of flux
M-FS-659 B66-10360 05

Ultrasonics permits brazing complex stainless steel assembly without flux
NU-0115 B67-10094 05

Preparation of thorium magnesium-zinc reduction
ARG-10245 B69-10079 03

FM/FM (MODULATION)

Pocket-sized tone-modulated FM transmitter
NPO-11180 B69-10725 01

FOAMS

Compact assembly generates plastic foam, inflates flotation bag
LANGLEY-96 B65-10090 05

Organic reactants rapidly produce plastic foam
LANGLEY-37 B65-10288 03

Soluble undercoating facilitates removal of foamed-in-place insulation
LEWIS-193 B65-10344 03

Argon purge gas cooled by chill box
M-FS-560 B66-10153 02

Silazane polymers show promise for high-temperature application
M-FS-466 B66-10194 03

Mill profiler machines soft materials accurately H-FS-692	B66-10254	05	presented on single sheet GSFC-93	B63-10596	01
Improved thermal insulation materials made of foamed refractory oxides H-FS-735	B66-10288	03	Metallic diffusion measured by a modified Knudsen technique HQ-10145	B69-10309	03
Impact and puncture resistant material protects parts from damage HSC-747	B66-10375	05	FOLDING Screw locking cups quickly and neatly crimped NU-0009	B65-10049	05
Newly developed foam ceramic body shows promise as thermal insulation material at 3000 deg F H-FS-11968	B67-10441	03	Thermocouple-to-instrumentation connector features quick assembly NU-0022	B65-10246	05
Blast deflector traps smoke and debris from explosive trains HSC-11241	B68-10105	03	Junction connectors permit strategic placement of television cameras KSC-66-22	B66-10391	01
High-temperature bearing lubricants LEWIS-10408	B68-10249	05	FOLDING STRUCTURES Interior servicing platform simplifies maintenance of storage tanks H-FS-1300	B66-10425	05
FOCI Fresnel cup reflector directs maximum energy from light source JPL-424	B63-10263	03	FOOD Food products for space applications MSC-11697	B68-10324	04
Aerial-image enables diagrams and animation to be inserted in motion pictures ARG-165	B67-10398	02	FORCE Gage measures electrical connector pin retention force JPL-SC-071	B65-10034	03
FOCUSING Light ray modulation controls optical system alignment GSFC-171	B65-10211	02	System measures unidirectional forces, excludes extraneous forces LEWIS-170	B65-10154	05
Ballpoint probe gives optimum results in ultrasonic testing H-FS-13590	B67-10620	01	Hole saw drill attachment has zero force reaction MSC-543	B66-10604	05
Electron beam deflected to determine focal point location H-FS-14107	B67-10649	01	Gage accurately controls force for placing chips on substrates H-FS-1941	B66-10675	01
Digital laser-beam deflection sensor H-FS-14785	B68-10525	01	FORCE DISTRIBUTION New package for Belleville spring permits rate change, easy disassembly JPL-392	B63-10247	05
Laser microprobe facility used in the elemental analysis of small feature of a sample ARG-10359	B69-10165	02	Design of valve permits sealing even if the stem is misaligned LEWIS-38	B63-10341	05
Spherical ion source KXP-08898	B69-10186	01	Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates ARG-151	B66-10601	05
Method of directing a laser beam with very high accuracy NPO-11087	B69-10508	02	Deflection circuit monitors force on object under water NUC-10147	B68-10147	01
FOG Fogging technique used to coat magnesium with plastic LEWIS-10316	B67-10584	03	Computer program analyzes and designs supersonic wing-body combinations ARC-10141	B68-10335	06
Nozzles for size reclassification of microfog particles LEWIS-10705	B69-10076	05	Improved electromechanical master-slave manipulator ARG-10027	B68-10372	05
Cryogenic fluid flow instabilities in heat exchangers H-FS-20438	B69-10541	02	Helical tape forming device GSFC-10830	B69-10137	05
FOIL BEARINGS Foil bearing support for high-speed rotor HQ-10315	B69-10661	05	Effect of interparticle forces on the fluidization of fine particles ARG-10264	B69-10195	03
FOILS Practical new method of measuring thermal-neutron fluence NUC-10086	B67-10352	02	Improved design of item in high speed rotating machinery H-FS-18441	B69-10373	05
Crack growth measured on flat and curved surfaces at cryogenic temperatures LEWIS-389	B67-10384	01	FORCED CONVECTION Instabilities encountered during heat transfer to a supercritical fluid ARG-10266	B69-10042	02
FOILS (MATERIALS) Front and back printed circuit layouts			FORCED VIBRATION Four pi-recoil proportional counter used as		

SUBJECT INDEX

FORTRAN

neutron spectrometer ARG-10101	B68-10326	02	M-FS-12141	B67-10341	05
FORECASTING			Precision metal molding M-FS-13305	B67-10423	05
Probabilistic approach to long range planning of manpower MSC-11524	B67-10510	06	Magnetic forming studies M-FS-14217	B68-10186	02
Computerized Schedule Effectiveness Technique /SET/ determines present and future schedule position M-FS-13012	B67-10522	06	Optical frequency waveguide and ion transmission system HQ-10541	B69-10746	01
FOREIGN BODIES			FORMS (PAPER)		
Tool samples subsurface soil free of surface contaminants MSC-10988	B67-10473	05	Improved system for documenting measurement data M-FS-18269	B69-10513	01
FORGING			FORMULAS (MATHEMATICS)		
Upsetting butt edge increases weld-joint strength M-FS-175	B64-10164	05	Minimum permissible leakage resistance established for instrumentation systems M-FS-848	B66-10397	01
Jig and fixture aid fabrication of tungsten rivets LEWIS-185	B65-10101	05	Thermal resistances of solder-boss/potting compound combinations MSC-12074	B68-10157	01
Study made of procedures for externally loading and corrosion testing stress corrosion specimens M-FS-12064	B67-10451	03	FORTRAN		
Training manuals for nondestructive testing using magnetic particles M-FS-20187	B68-10391	03	FORTRAN program flow chart is automatically produced M-FS-369	B66-10062	01
Hot-cracking studies of Inconel 718 weld- heat-affected zones M-FS-18211	B69-10052	05	Computer program simplifies selection of structural steel columns NU-0044	B66-10097	01
FORKS			Computer program determines gas flow rates in piping systems M-FS-443	B66-10300	01
Hoisting frame facilitates handling of large objects M-FS-16166	B68-10575	05	New computer system simplifies programming of mathematical equations M-FS-441	B66-10361	01
FORNATES			New computer program solves wide variety of heat flow problems M-FS-421	B66-10404	01
High-energy, high-power, long-life battery LEWIS-10724	B69-10131	01	Subroutine allows easy computation in extended precision arithmetic M-FS-1136	B66-10504	01
Primary radical yields in pulse irradiated alkaline aqueous solution ARG-10322	B69-10167	02	Computer program determines inventory size M-FS-1135	B66-10506	01
FORMING TECHNIQUES			Computer routine adds plotting capabilities to existing programs GSFC-490	B66-10511	01
Integral ribs formed in metal panels by cold- press extrusion M-FS-230	B65-10141	05	Computer programs perform spectral analyses of up to seven time series M-FS-1133	B66-10539	01
Metal parts hydrosized by explosive force M-FS-289	B65-10170	05	Computer program simplifies transient and steady-state temperature prediction for complex body shapes MSC-989	B66-10619	01
Fiber glass dies speed forming of large metal sheets M-FS-214	B65-10210	05	Computer program determines chemical composition of physical system at equilibrium MSC-1119	B66-10670	01
Angular glass tubing drawn from round tubing HQ-20	B65-10235	05	Computer program determines chemical equilibria in complex systems LEWIS-281	B66-10671	01
Die and telescoping punch form convolutions in thin diaphragm JPL-SC-135	B65-10393	05	Computer program simulates design, test, and analysis phases of sensitivity experiments M-FS-1496	B67-10077	01
Forming tool improves quality of tubing flares WOO-231	B66-10001	05	Computer program reduces calculation time of normal response functions M-FS-1517	B67-10108	01
Coiled sheet metal strip opens into tubular configuration GSFC-425	B66-10009	03	Computer program calculates monotonic maximum likelihood estimates using method of reversals M-FS-1516	B67-10136	01
Rotating mandrel speeds assembly of plastic inflatables LANGLEY-155	B66-10137	05			
Process sequence produces strong, lightweight reflectors of excellent quality LEWIS-331	B67-10010	05			
Development of technology for hot-drape forming of large torus sections					

FORTRAN CONT

SUBJECT INDEX

A power-spectral-density computer program NPO-10126	B67-10160	01	subroutines for contour plotting NPO-10127	B67-10323	06
Study of dynamic response of elastic space stations NPO-10124	B67-10169	06	Multiple correlation computer program determines relationships between several independent and dependent variables M-FS-13024	B67-10327	06
Structural Analysis and Matrix Interpretive System /SAMIS/ NPO-10130	B67-10171	01	Computer optimization program finds values for several independent variables that minimize a dependent variable M-FS-13030	B67-10328	06
Space trajectories program for IBM 7090 NPO-10125	B67-10172	06	Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries M-FS-1910	B67-10329	06
Linear circuit analysis program for IBM 1620 Monitor 2, 1311/1443 data processing system /CIRCS/ NPO-10131	B67-10173	06	General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-FS-13094	B67-10331	06
Computer program simulates physical systems by solving the simultaneous differential equations describing the systems NPO-10019	B67-10193	06	Computer subroutine ISUDS accurately solves large system of simultaneous linear algebraic equations NUC-10051	B67-10344	06
A modal combination computer program for dynamic analysis of structures NPO-10129	B67-10217	06	Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations NUC-10052	B67-10345	06
Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter NUC-10044	B67-10222	06	Saturn S-2 Automatic Software System /SASS/ M-FS-1741	B67-10405	06
Calculation of resonance neutron absorption in two-region problems /the GAROL code/ NUC-10045	B67-10223	06	Computer program for network synthesis by frequency response fit M-FS-12686	B67-10406	06
Computer program calculates steady-state temperature distribution within plane or axisymmetric solids NUC-10049	B67-10224	06	Earth orbit rendezvous evaluation program M-FS-13016	B67-10407	06
Land landing couch dynamics computer program MSC-1210	B67-10233	06	Computer program generates averaged value data tapes M-FS-12728	B67-10411	06
Computer program simplifies design of rotating components of turbomachinery NUC-10046	B67-10235	06	Computer program provides steady state analysis for liquid propellant propulsion systems MSC-10064	B67-10414	06
Computer program samples digital data for CRT display MSC-999	B67-10249	01	Computer program analyzes generalized environmental control and life support systems MSC-1157	B67-10415	06
CINDA - Chrysler Improved Numerical Differencing Analyzer computer program M-FS-2298	B67-10278	06	Computer program FPIP-REV calculates fission product inventory for U-235 fission NUC-10089	B67-10450	06
Computer program for determination of natural frequencies of closed spherical sandwich shells MSC-1246	B67-10279	06	Computer program MCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid NUC-10042	B67-10456	06
Master control data handling program uses automatic data input M-FS-2259	B67-10280	06	Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid NUC-10043	B67-10457	06
Computer program predicts thermal and flow transients experienced in a reactor loss- of-flow accident NUC-10054	B67-10281	06	Computer program conducts facilities utilization and occupancy survey NPO-10326	B67-10476	06
Computer program provides linear sampled- data analysis for high order systems M-FS-12821	B67-10287	06	KOPE /Kalendar Oriented Program Efforts/ provides data for management decisions M-FS-12331	B67-10478	06
Computer program determines thermal environment and temperature history of lunar orbiting space vehicles M-FS-12916	B67-10307	06	Fortran 4 program for two-impulse rendezvous analysis M-FS-13971	B67-10479	06
Computer program for mass optional solutions of some endpoint trajectory problems M-FS-12976	B67-10310	06			
Transient Analysis Generator /TAG/ simulates behavior of large class of electrical networks NPO-10031	B67-10319	06			
Computer program utilizes FORTRAN 4					

SUBJECT INDEX

FORTRAN CONT

Numerical least-square method for resolving complex pulse height spectra GSFC-10142	B67-10480	06	Digital computer program predicts effects of local pressure transients on deformation and stresses in cylindrical ducts M-FS-13058	B67-10631	06
Computer program uses characteristics method for free-jet investigation LANGLEY-10117	B67-10490	06	Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes NUC-10143	B67-10665	06
Computer program reduces and provides profile plot of surface plate calibration data M-FS-13866	B67-10492	06	Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds LANGLEY-10191	B67-10666	06
Computer program performs aerothermodynamic flight test data correlation MSC-10075	B67-10494	06	Computer program /P1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas NUC-10141	B67-10678	06
Multidimensional reaction kinetic ablation program /REKAP/ MSC-10079	B67-10495	06	MOP /Matrix Operation Programs system/ NPO-10429	B68-10005	06
Computer programs for antenna feed system design and analysis NPO-10359	B67-10504	06	Computer program for calculation of ideal gas thermodynamic data LEWIS-10254	B68-10025	06
Program computes equilibrium normal shock and stagnation point solutions for arbitrary gas mixtures LANGLEY-10090	B67-10509	06	Computer programs for thermodynamic and transport properties of hydrogen NUC-10537	B68-10150	06
Computer program performs rectangular fitting stress analysis M-FS-13010	B67-10520	06	HICOV - Newton-Raphson calculus of variation with automatic transversalities M-FS-14468	B68-10232	06
General frequency response program calculates frequency response of system, open at any specified element M-FS-12817	B67-10521	06	Computer program analyzes and designs supersonic wing-body combinations ARC-10141	B68-10335	06
Computerized Schedule Effectiveness Technique /SET/ determines present and future schedule position M-FS-13012	B67-10522	06	FORTRAN optical lens design program NPO-10603	B68-10354	06
Analysis of dynamic systems with DAP4H computer program M-FS-13999	B67-10523	06	Analysis of annular combustors LEWIS-10399	B68-10356	06
DYANA - An advanced programming system for large classes of dynamic and equivalent systems M-FS-12084	B67-10524	06	Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06
Program computes zero lift wave drag of entire aircraft LANGLEY-10079	B67-10530	06	Axisymmetric two-phase perfect gas performance program MSC-11774	B68-10374	06
Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles LANGLEY-10093	B67-10531	06	One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06
N-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program NUC-10126	B67-10536	06	One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06
SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield NUC-10142	B67-10537	06	Axisymmetric reacting gas nonequilibrium performance program MSC-11781	B68-10377	06
Computer program calculates peripheral water injection cooling of axisymmetric subsonic diffuser NUC-10541	B67-10543	06	Internal velocity factors MSC-15002	B68-10403	06
Computer program for optical systems ray tracing FRC-10017	B67-10549	06	Analysis of filament reinforced metal-shell pressure vessels LEWIS-10352	B68-10405	06
Computer program ETC improves computation of elastic transfer matrices of Legendre polynomials P/0/ and P/1/ NUC-10070	B67-10566	06	CIRCUS--A digital computer program for transient analysis of electronic circuits M-FS-15002	B68-10416	06
Propellant tank pressurization analysis program M-FS-1506	B67-10625	06	Computer program for machine design of Cassegrain feed systems NPO-10588	B68-10421	06
			Generalized Newton-Raphson trajectory optimization-generator 1 M-FS-15020	B68-10422	06
			Symbolic reduction of block diagrams using FORMAC LEWIS-10409	B68-10423	06

FORTRAN CONT

SUBJECT INDEX

GERT EXCLUSIVE-OR combining paths and loops of electrical networks ERC-10206	B68-10435	06	SPAN - Terminal sterilization process analysis program NPO-10804	B69-10104	06
Modified Multhopp mean camber computer program LANGLEY-10376	B68-10446	06	Midcourse maneuver operations program NPO-10735	B69-10105	06
Plume radiation program M-FS-13202	B68-10447	06	Geometry and design point performance of axial flow turbines LEWIS-10471	B69-10111	06
Performance analysis of electrical circuits /PANE/ M-FS-15001	B68-10448	06	MAGNTY - Program for calculating velocities in magnified region of turbomachines LEWIS-10789	B69-10132	06
Single degree of freedom antenna pointing program /ANTENA/ NPO-10756	B68-10449	06	Mass spectograph analysis MSC-13239	B69-10134	06
Computer program TRACK performs transient and/or steady state thermal analysis with coupled fluid flow and heat conduction NUC-10189	B68-10450	06	VICAR-DIGITAL image processing system NPO-10770	B69-10139	06
A request-oriented information selection program LEWIS-10255	B68-10451	06	Bell nozzle kernel analysis program M-FS-18456	B69-10146	06
Modified Multhopp lifting surface loading program LANGLEY-10375	B68-10452	06	Performance statistics of the FORTRAN 4 /H/ library for the IBM system/360 ARG-10299	B69-10157	06
Computer program for parameter optimization ARC-10168	B68-10453	06	Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems M-FS-14447	B69-10158	06
GERT simulation program for GERT network analysis ERC-10209	B68-10457	06	Encode/Decode facility for FORTRAN 4 ARG-10335	B69-10169	06
Digital computer technique for setup and checkout of an analog computer M-FS-13969	B68-10576	06	Advanced mission analysis programs GSFC-10575	B69-10171	06
Propellant tank pressurization analysis program M-FS-12623	B69-10007	06	Computer programs for axial flow compressor design LEWIS-10765	B69-10174	06
The compatible conversion system M-FS-15010	B69-10031	06	JFLIP-JPL FORTRAN language with interval pre-processor NPO-10835	B69-10187	06
Computer program analyzes whirl critical speeds and bearing loads for shafts coupled by nonlinear springs to machine housing NUC-10308	B69-10034	06	FORTRAN 4 program calculates velocities and streamlines in a tandem blade turbomachine LEWIS-10743	B69-10219	06
General series solution technique for bending of irregular laterally loaded flat plates NUC-10170	B69-10035	06	Computer program for high pressure real gas effects LEWIS-10820	B69-10222	06
Computer program calculates the effective temperature for a crystalline solid /DETS/ NUC-10161	B69-10036	06	A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voigt line profile ARC-10221	B69-10232	06
Monte Carlo direct view factor and generalized radiative heat transfer programs M-FS-15051	B69-10038	06	Finite element analysis of compressible solids with nonlinear material properties NUC-10342	B69-10238	06
SPAN C - Terminal sterilization process analysis program NPO-10805	B69-10039	06	Thermal Network Analyzer Program NUC-10540	B69-10239	06
Ratio matching of half-bridge weldable strain gages, computer program FRC-10032	B69-10040	06	Thermophysical properties of sodium ARG-10363	B69-10240	03
Weight Control System M-FS-15028	B69-10041	06	Computer program for off-design performance of radial inflow turbines LEWIS-10764	B69-10267	06
Structural Analysis and Matrix Interpretive System /SAMIS/ NPO-10839	B69-10093	01	Buckling Of Shells Of Revolution /BOSOR/ with various wall constructions LANGLEY-10441	B69-10300	06
ABTRAJ on-site tracking prediction program NPO-10836	B69-10103	06	LM lookangle program MSC-13179	B69-10370	06
			Sonic boom propagation in stratified atmosphere LANGLEY-10480	B69-10391	06
			Visual task analysis /VISTA/ M-FS-14716	B69-10394	06

SUBJECT INDEX

FRAMES

GANBIT program NUC-10243	B69-10433	06	Long range holographic contour mapping concept HQ-10350	B69-10700	02
Fast Fourier Transform Spectral Analysis Program M-FS-15062	B69-10434	06	FRACTOGRAPHY Fractography can be used to analyze failure modes in polytetrafluoroethylene M-FS-20294	B69-10066	03
Water-glycol system volume calculation MSC-15193	B69-10563	02	Tensile and fatigue properties of Inconel 718 at cryogenic temperatures M-FS-18192	B69-10068	03
System for computing operational probability equations M-FS-16410	B69-10566	06	Technique for pinpointing submicron particles in the electron microprobe HQ-10043	B69-10465	01
Spacecraft Thermal Radiation Environment Computer Program M-FS-15054	B69-10574	06	FRACTURE MECHANICS Study made of mechanics of deformation and fracture of fibrous composites HQ-10035	B67-10660	03
IBM-1620 monitor 2-D disk-storage subroutines ARG-10376	B69-10618	01	Nondestructive testing of welds on thin-walled tubing M-FS-18144	B69-10402	01
Biomedical bulk data processing program FRC-10015	B69-10720	06	FRACTURE STRENGTH Pressure molding of powdered materials improved by rubber mold insert WOO-100	B64-10270	03
Engineering thermal analyzer /BETA 2/ M-FS-15055	B69-10760	06	Crack growth measured on flat and curved surfaces at cryogenic temperatures LEWIS-389	B67-10384	01
FOUNDATIONS Simple transducer measures low heat-transfer rates JPL-466	B64-10122	01	Survey of fracture toughness test methods LEWIS-10379	B68-10046	03
Post-stressed concrete foundation may reduce machinery vibration ARG-130	B67-10237	05	Weld joint strength and mechanical properties in 2219-T81 aluminum alloy LEWIS-10479	B68-10561	03
Improved mouse cage provides versatility and ease in handling laboratory mice MSC-12250	B69-10124	04	Abrasion and fracture testing in a high-pressure hydrogen environment M-FS-18480	B69-10457	03
FOUNDRIES Epoxy-resin patterns speed shell-molding of aluminum parts M-FS-303	B65-10177	05	Optimum structural design based on reliability and proof-load testing NPO-11228	B69-10723	31
FOURIER ANALYSIS Unique construction makes interferometer insensitive to mechanical stresses JPL-725	B65-10295	02	FRACTURES (MATERIALS) Fatigue zones in metals identified by polarized light photography WOO-286	B67-10082	02
One-dimensional Coulomb-damped wave motion in prismatic bars M-FS-14815	B68-10548	02	Polarized light reveals stress in machined laminated plastics LEWIS-10018	B67-10383	03
Fast Fourier Transform Spectral Analysis Program M-FS-15062	B69-10434	06	Study made of ductility limitations of aluminum-silicon alloys M-FS-12524	B67-10392	03
Aerodynamic forces of fluttering cylindrical and/or planar structures M-FS-20497	B69-10781	02	Fractography can be used to analyze failure modes in polytetrafluoroethylene M-FS-20294	B69-10066	03
FOURIER-BESSEL TRANSFORMATIONS Calculations enable optimum design of magnetic brake LEWIS-251	B66-10073	05	FRAGMENTATION Break-up of metal tube makes one-time shock absorber, bars rebound LANGLEY-1A	B63-10304	05
FOURIER LAW Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid NUC-10043	B67-10457	06	FRAME PHOTOGRAPHY Simple circuit positions film frames in projector JPL-508	B65-10132	02
FOURIER TRANSFORMATION DYANA - An advanced programming system for large classes of dynamic and equivalent systems M-FS-12084	B67-10524	06	Beam splitter used in dual filming technique M-FS-501	B66-10072	02
Improvement in recording and reading holograms ERC-10151	B68-10347	02	Scan rate converter for tape recording and playback of TV pictures NPO-10166	B67-10676	01
Frequency domain analysis and synthesis of lumped parameter systems using nonlinear least squares techniques M-FS-15033	B69-10577	02	FRAMES Apparatus alters position of objects to facilitate demagnetization GSFC-234	B64-10277	05

FRAMING CAMERAS

SUBJECT INDEX

Leaf-spring suspension provides accurate parallel displacements JPL-480	B65-10104	05	alkaline aqueous solution ARG-10322	B69-10167	02
Universal transloader moves delicate equipment without stress MSC-654	B66-10384	05	Gas chromatograph injection port protective device M-FS-18585	B69-10788	03
Test device prevents weld joint damage by eliminating axial pin forces on unpotted modules LEWIS-10201	B67-10359	01	FREE VIBRATION Study of dynamic response of elastic space stations NPO-10124	B67-10169	06
Computer program generates averaged value data tapes M-FS-12728	B67-10411	06	Computer program for determination of natural frequencies of closed spherical sandwich shells MSC-1246	B67-10279	06
Burn-rate testing apparatus MSC-10947	B69-10740	03	Shock and vibration response of multistage structure M-FS-14972	B68-10353	05
FRAMING CAMERAS High-speed camera synchronization M-FS-18062	B68-10282	02	FREEZING A technique for making animal restraints ARC-25	B63-10564	05
Fast framing cameras provide high-speed multi-channel data recording ARG-10252	B69-10102	02	Freon provides heat transfer for solid CO2 calibration standard M-FS-644	B66-10257	02
FRAUNHOFER LINES Fresnel diffraction plates are simple and inexpensive M-FS-12731	B67-10297	02	Fire extinguisher control system provides reliable cold weather operation M-FS-13031	B67-10622	05
Airborne Fraunhofer Line Discriminator MSC-13146	B69-10594	02	A method for predicting interfacial freezing of a liquid flowing over a cold surface LEWIS-10813	B69-10321	02
FREE CONVECTION Instabilities encountered during heat transfer to a supercritical fluid ARG-10266	B69-10042	02	FREEON Freon provides heat transfer for solid CO2 calibration standard M-FS-644	B66-10257	02
FREE ELECTRONS Thin carbon film serves as UV bandpass filter ERC-8	B66-10060	02	Corrosion of aluminum alloys by chlorinated hydrocarbon/methanol mixtures MSC-11365	B67-10442	03
FREE ENERGY Computer program determines chemical composition of physical system at equilibrium MSC-1119	B66-10670	01	Diffusion of trace gases for leak detection - A study M-FS-20254	B69-10067	03
Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique ARG-277	B67-10324	03	Freon, T-B1 cutting fluid MSC-11486	B69-10485	05
The thermodynamic properties of the wustite phase are studied ARG-10200	B68-10408	03	FREQUENCIES Pressure transducers dynamically tested with sinusoidal pressure generator LEWIS-268	B66-10031	01
FREE FALL Calculations enable optimum design of magnetic brake LEWIS-251	B66-10073	05	Neon isotopes cancel errors in gas laser M-FS-1476	B66-10583	02
Low level accelerometer test methods are investigated M-FS-908	B66-10510	01	Amplitude and frequency readout overlay GSFC-10183	B68-10054	01
FREE FLOW Blade valve isolates compartment in pipe, opens to allow free flow JPL-585	B64-10188	05	Microelectronic oscillator, 2 GSFC-10387	B69-10063	01
Averaging probe reduces static-pressure sensing errors LANGLEY-36	B65-10114	05	Microelectronic oscillator GSFC-10375	B69-10064	01
FREE JETS Computer program uses characteristics method for free-jet investigation LANGLEY-10117	B67-10490	06	Tunable bandpass filter with variable selectivity ARC-10191	B69-10130	01
Equation relates flow at free jet to flow downstream M-FS-13789	B67-10612	06	Analysis of space vehicle structures using the transfer-function concept NPO-11162	B69-10337	06
FREE RADICALS Primary radical yields in pulse irradiated			An improved atomic hydrogen frequency and time standard GSFC-10706	B69-10341	02
			Energy-storage of a prescribed impedance ARG-10428	B69-10431	02
			Damping of thermoelastic structures M-FS-20002	B69-10467	02

SUBJECT INDEX

FREQUENCY DISTRIBUTION

Shaker slip-plate adapter M-FS-14063	B69-10785	05	M-FS-14988	B69-10099	02
FREQUENCY ANALYZERS			Magnetron tuner has locking feature XNP-09771	B69-10119	05
A calibration means for spectrum analyzers MSC-10987	B67-10254	01	FREQUENCY CONVERTERS		
Oscilloscope used as X-Y plotter or two-dimensional analyzer LEWIS-311	B67-10269	01	Frequency-shift-keyer circuit improves PCM conversion for radio transmission GSFC-80	B63-10511	01
Improved computer program for elastic analysis of highly redundant structural configurations M-FS-13087	B67-10330	06	Circuit converts AM signals to FM for magnetic recording GSFC-227	B65-10001	01
Computer program performs frequency analysis of nonuniform turbine disk subjected to temperature gradients NUC-10301	B68-10006	06	Traveling-wave tube circuit simplifies microwave relay GSFC-299	B65-10127	01
Dynamic linearity measurement technique KSC-10186	B68-10290	01	Electronic ampere-hour integrator is accurate to one percent GSFC-203	B65-10308	01
Cryogenic liquid level measuring probe ARG-10138	B68-10291	01	Frequency discriminator with binary output eliminates tuned circuits M-FS-376	B65-10349	01
Survey of man-made electrical noise affecting radio broadcasting HQ-10290	B69-10308	01	Optical superheterodyne receiver uses laser for local oscillator M-FS-1605	B66-10584	01
FREQUENCY CONTROL			Fast-response frequency-to-analog converter M-FS-709	B67-10257	01
Transistorized trigger circuit is frequency- controllable GSFC-111	B63-10553	01	Transistor biased amplifier minimizes diode discriminator threshold attenuation ARG-163	B67-10311	01
FM oscillator uses tetrode transistor JPL-82	B65-10055	01	SiC/Si diode trigger circuit provides automatic range switching for log amplifier M-FS-1879	B67-10314	01
Simple circuit functions as frequency discriminator for PFM signals GSFC-267	B65-10102	01	Ultrasonic wrench produces leaktight connections M-FS-12561	B67-10353	05
Variable frequency transistor inverters use multiple core transformers GSFC-183	B65-10119	01	Blood pressure reprogramming adapter assists signal recording MSC-265	B67-10475	01
Variable frequency magnetic multivibrator generates stable square-wave output GSFC-AB-21	B65-10124	01	Improved circuit for measuring capacitive and inductive reactances M-FS-13083	B67-10513	01
Frequency offset in linear FM/CW transponder eliminates clutter M-FS-249	B65-10146	01	Regulated dc-to-dc converter features low power drain GSFC-03429	B68-10017	01
Frequency correction device uses digital circuitry GSFC-268	B65-10307	01	Automatic patient respiration failure detection system with wireless transmission ARC-10174	B68-10365	01
Hybrid circuit achieves pulse regeneration with low power drain GSFC-382	B65-10314	01	System converts optical phase changes to RF phase changes M-FS-20091	B68-10430	01
Zener diode controls switching of large direct currents MSC-188	B65-10350	01	Linear voltage-to-frequency converter GSFC-10546	B69-10220	01
Design concepts using ring lasers for frequency stabilization M-FS-2448	B67-10143	01	Pneumatic analog-to-pulse frequency converter LEWIS-10345	B69-10276	02
Digital voltage-controlled oscillator GSFC-512	B67-10449	01	FREQUENCY DISTRIBUTION		
Apparatus makes klystron operating frequency adjustable from remote point NPO-09831	B67-10514	01	Increased performance reliability obtained with dual /redundant/ oscillator system GSFC-36	B63-10027	01
Phase-lock loop frequency control and the dropout problem M-FS-13948	B68-10130	01	Computer determines high-frequency phase stability GSFC-113	B63-10555	01
Communication system features dual mode range acquisition plus time delay measurement M-FS-14323	B68-10306	01	Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01
Active frequency control system for argon FM laser			Astronaut space suit communication antenna MSC-12101	B68-10238	01
			One hundred MHz voltage-controlled oscillator		

FREQUENCY DIVIDERS

SUBJECT INDEX

NPO-11004	B69-10133	01	Deep space FM system, a concept MSC-11825	B68-10289	01
FREQUENCY DIVIDERS			Dynamic linearity measurement technique KSC-10186	B68-10290	01
Unijunction frequency divider is free of backward loading JPL-W00-010	B65-10112	01	Automatic patient respiration failure detection system with wireless transmission ARC-10174	B68-10365	01
Frequency divider is free of spurious outputs GSFC-308	B65-10334	05	System converts optical phase changes to RF phase changes M-FS-20091	B68-10430	01
Interference effects eliminated in random oriented space station antenna system MSC-11004	B67-10435	01	Technique for tuning antenna systems producing negligible signal radiation KSC-10060	B69-10215	01
Improved frequency divider employs transistor avalanche effect NPO-10008	B67-10575	01	New passive telemetry system HQ-10214	B69-10312	01
Parallel-to-serial biphasic-data converter MSC-11600	B68-10241	01	Optimum FM pre-emphasis KSC-10151	B69-10359	01
FREQUENCY MEASUREMENT			FREQUENCY MULTIPLIERS		
Small foamed polystyrene shield protects low-frequency microphones from wind noise M-FS-123	B63-10579	01	Phase detector circuit synthesizes own reference signal M-FS-247	B65-10080	01
Nonresonant support facilitates vibration testing of structures M-FS-224	B65-10039	05	Circuit provides accurate four-quadrant multiplication W00-272	B66-10331	02
Hydrogen maser as a highly stable frequency reference M-FS-2437	B67-10146	01	Efficient millimeter wave 1140 GHz/ diode for harmonic power generation HQ-61	B67-10166	01
FREQUENCY MODULATION			Experimental coherent fractional frequency multiplier at S-band M-FS-2427	B67-10250	01
Subminiature biotelemetry unit permits remote physiological investigations ARC-39	B64-10171	01	FREQUENCY RANGES		
Voltage generator sweeps oscillator frequency linearly with time M-FS-219	B64-10320	01	Photoresistance analog multiplier has wide range GSFC-360	B65-10287	01
Tunnel-diode circuit features zero-level clipping GSFC-241	B65-10002	01	Damping technique gives accelerometer flat frequency response M-FS-471	B66-10293	01
FM oscillator uses tetrode transistor JPL-82	B65-10055	01	Solid-state switch increases switching speed W00-298	B66-10430	01
Traveling-wave tube circuit simplifies microwave relay GSFC-299	B65-10127	01	Single-sideband modulator accurately reproduces phase information in 2-Mc signals M-FS-664	B66-10437	01
Circuit reduces distortion of FM modulator GSFC-257	B65-10152	01	Continuous wave detector has wide frequency range M-FS-1849	B67-10386	01
Voltage variable oscillator has high phase stability LANGLEY-123	B65-10204	01	Analysis and design of a class-D amplifier M-FS-14803	B68-10313	01
FM/CW system measures aircraft attitude M-FS-276	B65-10290	01	Power consumption in acoustic amplifiers under conditions of maximum stable gain GSFC-10067	B68-10327	01
Miniature bioelectric device accurately measures and telemeters temperature ARC-52	B66-10057	01	Study of optimum discrete estimators in measurement analysis M-FS-14915	B68-10348	02
FM carrier deviation measured by differential probability method M-FS-2166	B67-10213	01	Frequency domain analysis and synthesis of lumped parameter systems using nonlinear least squares techniques M-FS-15033	B69-10577	02
Experimental coherent fractional frequency multiplier at S-band M-FS-2427	B67-10250	01	Deposition monitor and control NPO-10706	B69-10722	01
Absolute frequency stabilization of laser oscillator against laser amplifier M-FS-2559	B67-10255	01	FREQUENCY RESPONSE		
Multichannel pulse height analyzer is inexpensive, features low power requirements HQH-10020	B67-10258	01	Simple device produces accelerometer calibration pulse M-FS-363	B65-10269	01
X-Y plotter adapter developed for SDS-930 computer NPO-10220	B67-10654	06	Device detects unbonded areas in plastic laminates W00-206	B65-10380	01

SUBJECT INDEX

FREQUENCY SYNTHESIZERS

Remote preamplifier circuit maintains stability over wide temperature range WOO-278	B66-10432	01			
Miniature capacitive accelerometer is especially applicable to telemetry ARC-72	B66-10491	01			
Miniature piezoelectric triaxial accelerometer measures cranial accelerations ARC-71	B66-10534	01			
Computer programs perform spectral analyses of up to seven time series M-FS-1133	B66-10539	01			
Pressure probe compensates for dimensional tolerance variations LEWIS-302	B66-10599	01			
High frequency wide-band transformer uses coax to achieve high turn ratio and flat response ARG-107	B66-10600	01			
Local measurements in turbulent flows through cross correlation of optical signals M-FS-1268	B67-10030	01			
Voltage regulator/amplifier is self-regulated MSC-1240	B67-10156	01			
Computer program for network synthesis by frequency response fit M-FS-12686	B67-10406	06			
General frequency response program calculates frequency response of system, open at any specified element M-FS-12817	B67-10521	06			
DYANA - An advanced programming system for large classes of dynamic and equivalent systems M-FS-12084	B67-10524	06			
Cardiotachometer with linear beat-to-beat frequency response ARC-10033	B67-10598	01			
VICAR-DIGITAL image processing system NPO-10770	B69-10139	06			
New type pressure transducer for severe thermal environments M-FS-20208	B69-10652	01			
FREQUENCY SHIFT					
An investigation of phase-lock loop swept-frequency synchronization M-FS-656	B66-10423	01			
Plotter design simplifies determination of image sensor transfer characteristic NPO-10164	B67-10206	01			
FM carrier deviation measured by differential probability method M-FS-2166	B67-10213	01			
Concept for automatic Doppler compensation in two-way communication systems GSFC-10213	B67-10643	01			
Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02			
Data processing method for a weak, moving telemetry signal NPO-11003	B69-10639	01			
FREQUENCY SHIFT KEYING					
Frequency-shift-keyer circuit improves PCM conversion for radio transmission GSFC-80	B63-10511	01			
Unique frequency-shift-keyed demodulation system GSFC-217	B67-10668	01			
FREQUENCY STABILITY					
Temperature-sensitive network drives astable multivibrator GSFC-137	B63-10609	01			
Oscillator circuit measures liquid level in tanks M-FS-245	B65-10209	01			
Electronic phase-locked-loop speed control system is stable JPL-SC-084	B66-10232	01			
Damping technique gives accelerometer flat frequency response M-FS-471	B66-10293	01			
Dielectrometer design permits measurement in vacuum under irradiation M-FS-359	B66-10401	01			
TV synchronization system features stability and noise immunity JPL-915	B67-10118	01			
Design concepts using ring lasers for frequency stabilization M-FS-2448	B67-10143	01			
Hydrogen maser as a highly stable frequency reference M-FS-2437	B67-10146	01			
Glow discharge density sensor probe life is extended M-FS-1707	B67-10229	01			
Absolute frequency stabilization of laser oscillator against laser amplifier M-FS-2559	B67-10255	01			
Apparatus makes klystron operating frequency adjustable from remote point NPO-09831	B67-10514	01			
General frequency response program calculates frequency response of system, open at any specified element M-FS-12817	B67-10521	06			
Highly stable microwave delay line NPO-09828	B67-10642	01			
Simple, accurate automatic frequency control circuit KSC-10393	B69-10323	01			
FREQUENCY STANDARDS					
Hydrogen maser as a highly stable frequency reference M-FS-2437	B67-10146	01			
Electronic frequency discriminator M-FS-2434	B67-10151	01			
Highly stable microwave delay line NPO-09828	B67-10642	01			
Improved atomic resonance gas cell for use in frequency standards MSC-11666	B68-10230	01			
FREQUENCY SYNCHRONIZATION					
TV synchronization system features stability and noise immunity JPL-915	B67-10118	01			
FREQUENCY SYNTHESIZERS					
Phase shift frequency synthesizer is efficient, small in size M-FS-250	B65-10169	01			
An improved nuclear magnetic resonance spectrometer JPL-762	B67-10234	01			
Oscillator circuit operates as digitally controlled frequency synthesizer GSFC-570	B67-10447	01			

FRESNEL DIFFRACTION

SUBJECT INDEX

Dynamic linearity measurement technique KSC-10186	B68-10290	01	flowmeter sensitivity M-FS-1172	B67-10179	01
FRESNEL DIFFRACTION Fresnel diffraction plates are simple and inexpensive M-FS-12731	B67-10297	02	FRICTION FACTOR Coiled spring makes self-locking device for threaded fasteners MSC-149	B65-10135	05
FRESNEL INTEGRALS Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01	Friction loading device enables accurate testing of brittle materials NU-0051	B66-10345	05
A theoretical study of radar backscatter from distributed targets with emphasis on polarization dependence M-FS-13775	B69-10560	02	Method for predicting frictional loss in metal bellows and flexible hose M-FS-883	B66-10662	05
FRESNEL REFLECTORS Fresnel cup reflector directs maximum energy from light source JPL-424	B63-10263	03	Stress-corrosion-induced property changes in aluminum alloys M-FS-20209	B68-10568	03
Wide-aperture solar energy collector is light in weight JPL-SC-055	B65-10046	02	FRICTION MEASUREMENT Machine tests slow-speed sliding friction in high vacuum M-FS-12341	B67-10379	05
FRESNEL REGION Fresnel zone plate forms images at wavelengths below 1000 angstroms GSPC-231	B65-10171	02	FRICTION REDUCTION Bearing transmits rotary and axial motion LANGLEY-27	B64-10130	05
FRETTING Thin plastic sheet eliminates need for expensive plating M-FS-1896	B66-10681	03	Gallium alloy films investigated for use as boundary lubricants LEWIS-245	B66-10165	03
FRICTION Frictional wedge shock mount is inexpensive, has good damping characteristics JPL-IT-1001	B63-10289	05	Intermediate rotating ring improves reliability of dynamic shaft seal M-FS-575	B66-10197	05
Buckle joins web straps quickly, adjusts easily LANGLEY-21	B64-10119	05	Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics LEWIS-320	B66-10373	03
Friction brake cushions acceleration and vibration loads MSC-715	B66-10608	05	Air bearing provides friction-free support for shaker system slip table NU-0086	B66-10708	05
Ultrasonic wrench produces leaktight connections M-FS-12561	B67-10353	05	Rolanite - A new mechanical design concept SAN-10001	B67-10611	05
Computer program MCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid NUC-10042	B67-10456	06	Capacitance-coupled wiper increases potentiometer life ARC-10060	B68-10175	01
Application of the solid lubricant molybdenum disulfide by sputtering LEWIS-10544	B68-10340	03	Dynamic-reservoir lubricating device M-FS-14652	B68-10261	05
A new solid lubricant LEWIS-10812	B69-10250	03	Improved gyro-flotation /damping/ fluids MSC-13217	B69-10360	03
Study of high temperature bearing materials LEWIS-10829	B69-10252	03	FRICTIONLESS ENVIRONMENTS Fuel and oxidizer valve assembly employs single solenoid actuator MSC-1046	B66-10648	05
Study of high-speed angular-contact ball bearings under dynamic load M-FS-20562	B69-10367	05	Cryogenic pressure transducer M-FS-14909	B69-10601	01
Automatic sample rotator for metallographic polishing NPO-11015	B69-10596	03	FRIT Glass formulation has high coefficient of thermal expansion NU-0084	B66-10705	03
Optimum structural design based on reliability and proof-load testing NPO-11228	B69-10723	31	FROZEN EQUILIBRIUM FLOW One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06
FRICTION DRAG Friction device damps linear motion of rotating shaft WOO-214	B66-10030	05	One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06
A theoretical model for determining turbine			Axisymmetric reacting gas nonequilibrium performance program MSC-11781	B68-10377	06
			FRUSTUMS Strippable grid facilitates removal of grid-surfaced conical workpiece from die M-FS-716	B66-10334	01

SUBJECT INDEX

FUELS

Device enables calibration of microphones at high sound pressure levels M-FS-11980	B67-10336	01	LEWIS-10309	B69-10154	03
Flow liner extends operating life of high-angulation bellows M-FS-12023	B67-10512	05	Two-step rocket engine bipropellant valve concept MSC-10951	B69-10280	05
FUEL-AIR RATIO Test instrumentation evaluates electrostatic hazards in fluid system M-FS-2277	B67-10145	01	FUEL INJECTION Development of detonation reaction engine M-FS-14020	B67-10652	01
FUEL CELLS Fuel cell serves as oxygen level detector JPL-SC-072	B65-10066	01	Two-fluid, impinging-sheet injector NPO-10547	B68-10338	05
Wire bundle formed into grids with minute interstices WOO-089	B65-10372	03	FUEL PUMPS Pressure probe compensates for dimensional tolerance variations LEWIS-302	B66-10599	01
Resilient clamp holds fuel cell stack through resilient clamp holds fuel cell stack through thermal cycle MSC-313	B66-10035	05	Negative feedback system reduces pump oscillations M-FS-1852	B67-10064	05
New energy storage concept uses tapes LEWIS-239	B66-10098	02	Between-bearing shaft seal, a concept M-FS-18179	B68-10286	05
Vapor diffusion electrode improves fuel cell operation LEWIS-187	B66-10281	03	FUEL SYSTEMS Fuel transfer system permits rapid coupling M-FS-91326	B68-10039	05
Low input voltage converter/regulator minimizes external disturbances GSFC-527	B66-10689	01	FUEL TANK PRESSURIZATION Gas diffuser facilitates withdrawal of cryogenic liquids from tanks M-FS-915	B66-10342	05
Fuel cell life improved by metallic sinter activation after electrode assembly welding MSC-10965	B67-10436	03	Closed loop operation eliminates need for auxiliary gas in high pressure pumping station M-FS-893	B66-10408	05
Improved fuel-cell-type hydrogen sensor M-FS-14656	B68-10263	01	Propellant tank pressurization analysis program M-FS-12623	B69-10007	06
Improved inorganic ion exchange membranes LEWIS-10737	B69-10451	03	FUEL TANKS Magnets position X-ray film for weld inspection M-FS-253	B65-10110	05
Device separates hydrogen from solution in water at ambient temperatures MSC-13335	B69-10635	03	Automatic fluid separator supplies own driving power WOO-085	B66-10008	02
FUEL COMBUSTION Fire retardant foams developed to suppress fuel fires ARC-10098	B68-10358	03	Control system maintains selected liquid level M-FS-470	B66-10039	01
FUEL CONTAMINATION Fiber length and orientation prevent migration in fluid filters M-FS-541	B66-10319	05	In-tank shutoff valve is provided with maximum blast protection M-FS-1529	B66-10514	05
Valve effectively controls amount of contaminant in flow stream M-FS-1771	B66-10683	05	Test instrumentation evaluates electrostatic hazards in fluid system M-FS-2277	B67-10145	01
Trace hydrazines in aqueous solutions accurately determined by gas chromatography MSC-11222	B67-10290	03	A new method for fabrication of flexible vacuum purge jackets M-FS-12646	B69-10564	03
FUEL FLOW Combustion chamber inlet manifold separates vapor from liquid M-FS-531	B66-10052	05	FUEL VALVES Fuel and oxidizer valve assembly employs single solenoid actuator MSC-1046	B66-10648	05
Fiber length and orientation prevent migration in fluid filters M-FS-541	B66-10319	05	Two-step rocket engine bipropellant valve concept MSC-10951	B69-10280	05
Valve effectively controls amount of contaminant in flow stream M-FS-1771	B66-10683	05	FUELS Study of hydrogen slush-hydrogen gel utilization M-FS-13068	B67-10413	02
Ferromagnetic core valve gives rapid action on minimum energy LEWIS-10135	B67-10623	05	Study made of large amplitude fuel sloshing M-FS-12381	B67-10439	03
Fuel element concept for long life high power nuclear reactors			Single-element coaxial injector for rocket fuel NPO-11095	B69-10547	05

FUNCTION GENERATORS

SUBJECT INDEX

Control jet placement on spacecraft MSC-13365	B69-10671	01	NU-0027	B66-10084	01
FUNCTION GENERATORS			Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons LEWIS-263	B66-10104	03
Zener diode function generator requires no external reference voltage JPL-0031	B65-10013	01	Mounting facilitates removal and installation of flame-detector rods M-PS-555	B66-10150	05
Function generator eliminates necessity of series summation GSFC-214	B66-10351	01	High-speed furnace uses infrared radiation for controlled brazing NU-0047	B66-10268	02
One-shot pulse shaper circuit XGS-11379	B68-10012	01	Tungsten insulated susceptor cup for high temperature induction furnace eliminates contamination LEWIS-283	B66-10538	03
Synthesis of electro-optic modulators for amplitude modulation of light M-PS-14268	B68-10275	02	Laboratory arc furnace features interchangeable hearths ARG-125	B67-10052	05
Two devices for analysis of nystagmus HQ-10273	B69-10224	01	Radial furnace shows promise for growing straight boron carbide whiskers HQ-50	B67-10070	03
Reducing quantizer deadband with a **range switching** digital filter M-PS-20419	B69-10259	01	Neutron diffractometer allows both magnetic and crystallographic analyses ARG-191	B67-10131	02
Simple quasi-exponential slope generator NPO-11130	B69-10439	01	Weld procedure produces quality welds for thick sections of Hastelloy-X NUC-10048	B67-10195	05
FUNCTIONAL ANALYSIS			Measuring thermal expansion of multiple specimens at high temperature NUC-10153	B68-10122	05
Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06	Silicon solar cell monitors high temperature furnace operation NUC-10163	B68-10148	01
FUNCTIONS (MATHEMATICS)			Ignition of binary alloys of uranium ARG-10057	B68-10280	01
Computer program utilizes FORTRAN 4 subroutines for contour plotting NPO-10127	B67-10323	06	Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide ARG-10154	B68-10293	02
Computer program for calculation of ideal gas thermodynamic data LEWIS-10254	B68-10025	06	Preparation of thorium magnesium-zinc reduction ARG-10245	B69-10079	03
Deep gamma ray penetration in thick shields M-PS-14388	B68-10143	02	Coordination chemistry in fused-salt solutions ARG-10469	B69-10423	03
Solution of differential equations by application of transformation groups M-PS-14802	B68-10276	02	FUSELAGES		
FORTRAN optical lens design program NPO-10603	B68-10354	06	Program computes zero lift wave drag of entire aircraft LANGLEY-10079	B67-10530	06
FUNGI			FUSES		
Cytology is advanced by studying effects of deuterium environment ARG-205	B67-10304	04	Cam-operated limit switch features safe fuse replacement MSC-218	B65-10322	01
FURNACES			FUSES (ORDNANCE)		
Removable preheater elements improve oxide induction furnace JPL-288	B63-10193	01	Splice plate design assures structural separation by mild explosive MSC-137	B65-10166	05
Rapid billet loader aids extrusion of refractory metals LEWIS-50	B63-10354	05	Clamp for detonating fuze M-PS-13399	B68-10072	05
New sintering process adjusts magnetic value of ferrite cores GSFC-129	B63-10606	01	FUSION (MELTING)		
Lead oxide ceramic makes excellent high-temperature lubricant LEWIS-144	B64-10116	03	Cesium iodide crystals fused to vacuum tube faceplates GSFC-67	B63-10476	03
Refractory metal shielding /insulation/ increases operating range of induction furnace LEWIS-202	B65-10188	02	Circuit reliability boosted by soldering pins of disconnect plugs to sockets JPL-447	B64-10002	01
Hydrogen-atmosphere induction furnace has increased temperature range LEWIS-153	B66-10055	05	Fibers of newly developed refractory ceramics produced by improved process WOO-169	B66-10196	03
Auxiliary coil controls temperature of RF induction heater GSFC-428	B66-10067	01			
Refractory coating protects intricate graphite elements from high-temperature hydrogen					

SUBJECT INDEX

GALVANOMETERS

Braze alloys used as temperature indicators
NU-0063 B66-10274 01

Composite weld rod corrects individual
filler weaknesses
M-FS-1923 B67-10107 05

Effect of welding position on porosity
formation in aluminum alloy welds
M-FS-2318 B67-10177 05

Weld procedure produces quality welds for
thick sections of Hastelloy-X
NUC-10048 B67-10195 05

Rhodium-plated barrier against
high-temperature fusion bonding
M-FS-92155 B69-10544 05

Analysis of secondary cells with
lithium anodes and immobilized
fused-salt electrolytes
ARG-10452 B69-10613 01

FUSION WELDING

Upsetting butt edge increases weld-joint
strength
M-FS-175 B64-10164 05

Thermocouples easily installed in hard-to-
get-to places
M-FS-1946 B66-10653 01

System maintains constant penetration
during fusion welding
M-FS-937 B67-10091 01

Clamp provides efficient connection for
high-density currents
M-FS-2417 B67-10140 01

Continuous internal channels formed in
aluminum fusion welds
M-FS-2399 B67-10183 05

Workmanship standards for fusion welding
NUC-10050 B67-10200 05

Portable machine welding head automatically
controls arc
M-FS-12763 B67-10272 05

Welding, brazing, and soldering handbook
M-FS-20504 B69-10264 05

G

GADOLINIUM

Simplified technique demonstrates magnetic
domain switching
M-FS-13153 B67-10342 02

GALERKIN METHOD

Aerodynamic forces of fluttering cylindrical
and/or planar structures
M-FS-20497 B69-10781 02

GALLIUM

Gallium useful bearing lubricant in
high-vacuum environment
LEWIS-12 B63-10337 03

Environmental study of miniature slip rings
M-FS-2443 B67-10210 05

Infrared radiometer
M-FS-13373 B67-10422 01

Liquid gallium rotary electric contract
LEWIS-10828 B69-10138 03

An integrated circuit switch
NPO-11073 B69-10326 01

GALLIUM ALLOYS

Gallium alloy films investigated for use
as boundary lubricants
LEWIS-245 B66-10165 03

GALLIUM ARSENIIDE LASERS

Solid-state laser transmitter is amplitude
modulated
MSC-121 B65-10238 01

Electro-optic modulator for infrared laser
using gallium arsenide crystal
GSFC-10686 B68-10255 02

GALLIUM ARSENIDES

New method used to fabricate gallium arsenide
photovoltaic device
WOO-062 B64-10019 01

Economical fabrication process produces high
quality junction transistors
JPL-SC-065 B64-10330 01

Thermocompression bonding produces efficient,
surface-barrier diode
JPL-SC-066 B65-10007 05

Optical arrangement increases useful light
output of semiconductor diodes
JPL-SC-064 B65-10020 05

Laser beam transmits electric power
GSFC-293 B65-10158 01

Selenium bond decreases ON resistance of
light-activated switch
JPL-SC-101 B65-10324 01

Cuprous selenide and sulfide form improved
photovoltaic barriers
WOO-212 B66-10025 01

Optically driven switch turn-off time reduced
by opaque coatings
JPL-SC-107 B66-10141 01

Single-crystal semiconductor films grown on
foreign substrates
WOO-076 B66-10225 01

Electrically controlled optical latch and
switch requires less current
JPL-SC-111 B66-10414 01

Efficient millimeter wave 1140 GHz/ diode
for harmonic power generation
HQ-61 B67-10166 01

Improved method of fabricating planar gallium
arsenide diodes
INP-04235 B69-10271 01

GALLIUM PHOSPHIDES

System measures response time of
photomultiplier tubes
LEWIS-10437 B68-10382 01

GALVANIC SKIN RESPONSE

Improved conductive paste secures biomedical
electrodes
MSC-107 B65-10015 03

Improved electrode paste provides reliable
measurement of galvanic skin response
MSC-146 B66-10049 04

GALVANOMAGNETIC EFFECTS

Electromotive series established for metals
used in aerospace technology
M-FS-18327 B68-10385 03

GALVANOMETERS

System measures angular displacement without
contact
LANGLEY-46 B65-10073 01

Light-sensitive potentiometer measures
product of two variables
GSFC-240 B65-10076 01

Improved strain-wire flowmeter has fast
response time
LEWIS-241 B65-10304 01

GAMMA FUNCTION

SUBJECT INDEX

Improved electrode paste provides reliable measurement of galvanic skin response MSC-146 B66-10049	04	two-material nuclear shield NUC-10142 B67-10537	06
Monitoring circuit accurately measures movement of solenoid valve M-FS-1829 E66-10568	01	Compilation of detection sensitivities in thermal-neutron activation ARG-10068 B67-10641	03
Instrument accurately measures small temperature changes on test surface LANGLEY-174 B66-10637	01	Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes NUC-10143 B67-10665	06
Use of color-coded sleeve shutters accelerates oscillograph channel selection KSC-10092 B67-10382	01	Deep gamma ray penetration in thick shields M-FS-14388 B68-10143	02
Precision bolometer bridge MSC-11473 B68-10156	01	Steady-state differential calorimeter measures gamma heating in reactor ARG-10120 B68-10182	01
Nondestructive method for measuring residual stresses in metals, a concept KSC-10237 B68-10378	03	Four pi-reccil proportional counter used as neutron spectrometer ARG-10101 B68-10326	02
Method for measuring alternator voltage transients LEWIS-10373 B68-10513	01	High resolution Ge/Li/ spectrometer reduces rate-dependent distortions at high counting rates ARG-10144 B68-10420	01
GAMMA FUNCTION Independent doubly truncated gamma variables M-FS-20143 B68-10345	02	Ge-diode detector combined with crystal-diffraction spectrometer permits high-resolution gamma ray spectroscopy ARG-10190 B69-10005	02
GAMMA RAY BEAMS N-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program NUC-10126 B67-10536	06	The response of monoenergetic gamma rays in finite media are investigated ARG-10295 B69-10080	02
Detection sensitivities in 3-8 MeV neutron activation ARG-10210 B68-10298	02	Mossbauer vibration calibration systems evaluated M-FS-20014 B69-10125	01
GAMMA RAYS Mount makes liquid nitrogen-cooled gamma ray detector portable LEWIS-259 B66-10103	01	Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems M-FS-14447 B69-10158	06
Dielectrometer design permits measurement in vacuum under irradiation M-FS-359 B66-10401	01	Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons ARG-10220 B69-10211	02
A fast-neutron spectrometer of advanced design M-FS-1664 B66-10555	01	Multichannel analyzers at high rates of input ARG-10355 B69-10214	02
Ion exchange determines iodine-131 concentration in aqueous samples ARG-208 B67-10129	04	Remote balance weighs accurately amid high radiation ARG-10387 B69-10242	05
Radiation counting technique allows density measurement of metals in high-pressure/high-temperature environment ARG-124 B67-10316	02	Dual-mode operation of a neutron source, a concept HQ-10106 B69-10248	02
Low-energy gamma ray inspection of brazed aluminum joints MSC-1189 B67-10337	02	New shield for gamma-ray spectrometry ARG-10388 B69-10344	02
Vibration analysis utilizing Mossbauer effect M-FS-11974 B67-10339	01	Improved pulse shape discriminator for fast neutron-gamma ray detection system HQ-10151 B69-10481	01
Metal flame spray coating protects electrical cables in extreme environment NUC-10077 B67-10351	03	Direct determination of lead-210 by liquid-scintillation counting ARG-10462 B69-10611	03
Computer program FPIP-REV calculates fission product inventory for U-235 fission NUC-10089 B67-10450	06	Manganese-56 coincidence-counting facility precisely measures neutron-source strength ARG-90261 B69-10621	01
Training course for radiation safety technicians ARG-216 B67-10477	02	Gamma radiation characteristics of plutonium dioxide fuel NFO-11220 B69-10733	02
Numerical least-square method for resolving complex pulse height spectra GSFC-10142 B67-10480	06	Production of crystalline polymers via liquid crystal monomers HQ-10235 B69-10744	03
SOC-DS computer code provides tool for design evaluation of homogeneous		Pulse-height defect due to electron interaction in dead layers of Ge/Li/ gamma-ray detectors	

SUBJECT INDEX

GAS DENSITY

ARG-10362	B69-10767	02	Squeeze-film gas bearing technology M-FS-14821	B68-10180	05
GANTRY CRANES			Low friction servo valve LEWIS-10574	B68-10440	05
Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates NPO-10316	B67-10418	05	Low cost techniques for fabricating lobed bearings LEWIS-10296	B68-10441	05
Proposed technique for vertical alignment of a crane's cable M-FS-16496	B69-10202	05	Fluid power-transmitting gas bearing ERC-10097	B68-10503	05
GAPS			Electronic visualization of gas bearing behavior LEWIS-10711	B69-10073	01
Spherical electrode eliminates high-voltage breakdown LEWIS-155	B65-10139	01	Journal gas bearing for curved surfaces M-FS-20423	B69-10182	05
Shrinkable sleeve eliminates shielding gap in RF cable WOO-207	B65-10387	01	High temperature coatings for gas bearings LEWIS-10793	B69-10200	03
Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01	Foil bearing support for high-speed rotor HQ-10315	B69-10661	05
Journal gas bearing for curved surfaces M-FS-20423	B69-10182	05	GAS CHROMATOGRAPHY		
GARNETS			Hot-wire detector for chemically active materials used in gas chromatography MSC-269	B66-10139	03
Simplified technique demonstrates magnetic domain switching M-FS-13153	B67-10342	02	Subminiaturized gas chromatograph gives fast, efficient analysis JPL-735	B66-10182	01
GAS ANALYSIS			Cold trap increases sensitivity of gas chromatography M-FS-1617	B66-10517	03
Rapid helium-air analyzer can measure other binary gas mixtures LANGLEY-16	B63-10557	03	Gas chromatographic column enables analysis of propellant hydrazines MSC-1161	B66-10586	03
Plastic bags in evacuated chamber make lightweight gas sampling system FRC-31	B65-10264	01	System automatically supplies precise analytical samples of high-pressure gases M-FS-1814	B67-10090	01
Hot-wire detector for chemically active materials used in gas chromatography MSC-269	B66-10139	03	Analytical technique characterizes all trace contaminants in water MSC-11032	B67-10243	03
Subminiaturized gas chromatograph gives fast, efficient analysis JPL-735	B66-10182	01	Trace hydrazines in aqueous solutions accurately determined by gas chromatography MSC-11222	B67-10290	03
System automatically supplies precise analytical samples of high-pressure gases M-FS-1814	B67-10090	01	Effects of surface preparation on quality of aluminum alloy weldments M-FS-13152	B68-10302	03
GAS BAGS			Two systems developed for purifying inert atmospheres ARG-10234	B69-10026	03
Vapor pressure measured with inflatable plastic bag GSPC-281	B65-10136	03	Spiral-flow apparatus for measuring permeation of solids by gases M-FS-16517	B69-10357	03
GAS BEARINGS			Gas chromatograph injection port protective device M-FS-18585	B69-10788	03
Elastic orifice automatically regulates gas bearings JPL-135	B63-10123	05	GAS COMPOSITION		
Pneumatic power is transmitted through air bearing MSC-8	B64-10141	05	Bell nozzle kernel analysis program M-FS-18456	B69-10146	06
Slit feeds reduce unbalanced torques in gas-lubricated bearings JPL-264	B65-10099	05	GAS COOLING		
Air brake-dynamometer accurately measures torque LEWIS-163	B65-10312	05	High-temperature, high-pressure spherical segment valve provides quick opening ARC-13	B63-10431	05
Electron beam seals outer surfaces of porous bodies M-FS-562	B66-10033	03	Improved cryogenic refrigeration system JPL-731	B67-10128	02
A conceptual design for squeeze film bearings M-FS-573	B66-10226	05	GAS DENSITY		
Simulator effects partial gravity conditions MSC-152	B66-10339	05	Instrument accurately measures extremely low air densities M-FS-193	B65-10221	01
Air bearing provides friction-free support for shaker system slip table NU-0086	B66-10708	05	Propellant tank pressurization analysis		

GAS DETECTORS

SUBJECT INDEX

program M-FS-1506	B67-10625	06	Thermodynamic properties related to expansion of two-component gas MSC-1133	B67-10112	03
Magnetohydrodynamic generators using two-phase liquid-metal flows ARG-10168	B69-10162	01	Development of detonation reaction engine M-FS-14020	B67-10652	01
GAS DETECTORS			Axisymmetric two-phase perfect gas performance program MSC-11774	B68-10374	06
Hot-wire detector for chemically active materials used in gas chromatography MSC-269	B66-10139	03	One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06
Subminiaturized gas chromatograph gives fast, efficient analysis JPL-735	B66-10182	01	Liquid-metal-piston MHD generator ARG-10500	B69-10771	02
Sniffer used as portable hydrogen leak detector M-FS-846	B66-10356	01	GAS EXPLOSIONS		
Portable detector set discloses helium leak rates M-FS-1733	B67-10065	01	Test instrumentation evaluates electrostatic hazards in fluid system M-FS-2277	B67-10145	01
Portable fixture facilitates pressure testing of instrumentation fittings M-FS-2032	B67-10121	03	GAS FLOW		
Quartz crystals detect gas contaminants during vacuum chamber evacuation NPO-10144	B67-10205	01	Elastic orifice automatically regulates gas bearings JPL-135	B63-10123	05
New shield for gamma-ray spectrometry ARG-10388	B69-10344	02	High-pressure regulating system prevents pressure surges JPL-231	B63-10170	05
GAS DISCHARGE TUBES			Low-cost insulation system for cryostats eliminates need for a vacuum LEWIS-64	B63-10365	03
Neon isotopes cancel errors in gas laser M-FS-1476	B66-10583	02	Connector for vacuum-jacketed lines cuts tubing system cost LEWIS-66	B63-10367	05
Design concepts using ring lasers for frequency stabilization M-FS-2448	B67-10143	01	Fine-particle filter prevents damage to vacuum pumps LEWIS-106	B63-10489	05
Uranium isotopes quantitatively determined by modified method of atomic absorption spectrophotometry ARG-210	B67-10236	03	Miniature oxygen-hydrogen cutting torch constructed from hypodermic needle JPL-545	B63-10517	05
GAS DISCHARGES			Modified gas bearing is adjustable to optimum stiffness ratio M-FS-145	B64-10050	05
Concept for cryogenic liquid reclamation system NPO-10322	B67-10420	02	Blade valve isolates compartment in pipe, opens to allow free flow JPL-585	B64-10188	05
Two-fluid, impinging-sheet injector NPO-10547	B68-10338	05	Apparatus measures concentration of suspended droplets in gas streams LANGLEY-31	B64-10237	01
Axisymmetric two-phase perfect gas performance program MSC-11774	B68-10374	06	Gas diffusion cell removes carbon dioxide from occupied airtight enclosures MSC-118	B64-10319	03
Rapid-response, light-exposure control system NPO-10238	B68-10502	01	Nitrogen dioxide produced by self-sustained pyrolysis of nitrous oxide LANGLEY-32	B65-10074	05
GAS DYNAMICS			Slit feeds reduce unbalanced torques in gas-lubricated bearings JPL-264	B65-10099	05
Advances in light-gas gun technology M-FS-14270	B68-10288	05	Instrument calibrates low gas-rate flowmeters MSC-134	B65-10137	01
Computer simulation of high-frequency combustion instability and its suppression HQ-10391	B69-10368	06	Fluid check valve has fail-safe feature JPL-0019	B65-10207	05
GAS EVOLUTION			Spiraled channels improve heat transfer between fluids JPL-694	B65-10291	02
Plated nickel wire mesh makes superior catalyst bed MSC-216	B65-10321	03	Flowmeter measures low gas-flow rates M-FS-215	B66-10036	01
A method for observing gas evolution during plastic laminate cure MSC-15592	B69-10530	03	Radioactive tracer system detects oil contaminants in fluid lines M-FS-512	B66-10090	03
GAS EXPANSION					
Splice plate design assures structural separation by mild explosive MSC-137	B65-10166	05			
Volume-ratio calibration system for vacuum gages LEWIS-303	B66-10640	01			

SUBJECT INDEX

GAS INJECTION

Tool provides constant purge during tube welding M-FS-547	B66-10093	05	flow M-FS-13757	B67-10455	03
Oxygen-hydrogen torch is a small-scale steam generator NU-0042	B66-10120	03	Computer program uses characteristics method for free-jet investigation LANGLEY-10117	B67-10490	06
High temperature thermocouple operates in reduction atmosphere NU-0046	B66-10134	01	High temperature thermocouple design provides gas cooling without increasing overall size of unit NUC-10515	B67-10497	01
Dual regulator controls two gases from a single reference MSC-227	B66-10167	05	Analysis of dynamic systems with DAP4H computer program M-FS-13999	B67-10523	06
Subminiaturized gas chromatograph gives fast, efficient analysis JPL-735	B66-10182	01	Study made of heat transfer and pressure drop through tubes with internal interrupted fins LEWIS-10280	B67-10555	05
Quick-closing valve is actuated by explosive discharge ARC-55	B66-10233	05	Eddy current disk valve LEWIS-10123	B67-10638	05
Flow ring valve is simple, quick-acting M-FS-752	B66-10255	05	Solenoid hammer valve developed for quick-opening requirements LEWIS-10134	B67-10639	05
O-rings with mylar back-up provide high-pressure cryogenic seal M-FS-603	B66-10278	05	Device provides controlled gas leaks NPO-10298	B68-10142	03
Computer program determines gas flow rates in piping systems M-FS-443	B66-10300	01	Dynamically stable check valve concept for wide flow range M-FS-14579	B68-10247	05
Gas diffuser facilitates withdrawal of cryogenic liquids from tanks M-FS-915	B66-10342	05	Fluorescent particles enable visualization of gas flow M-FS-14583	B68-10259	02
Concept for passive system to control gas flow independently of temperature M-FS-982	B66-10343	05	Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02
Brazing retort manifold design concept may minimize air contamination and enhance uniform gas flow M-FS-707	B66-10371	05	Precise doping of metals by small gas flows LEWIS-10444	B68-10526	03
Miniature valve accurately controls small volume fluid flow ARG-66	B66-10473	05	Plasma-heating by induction LEWIS-10528	B69-10185	02
Device accurately measures and records low gas-flow rates M-FS-1077	B66-10569	01	Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456	B69-10192	03
Gas chromatographic column enables analysis of propellant hydrazines MSC-1161	B66-10586	03	Improved liquid-level sensor for cryogenics ARG-10162	B69-10210	02
Laser Doppler flowmeter measures gas velocity M-FS-1747	B66-10693	02	Report on a cryogenic gyroscope NPO-11200	B69-10504	02
Low rate flow switch can be used for gas or liquid JPL-867	B66-10696	01	Measurement of gas flow at extremely low pressures MSC-13261	B69-10522	03
System automatically supplies precise analytical samples of high-pressure gases M-FS-1814	B67-10090	01	Natural gas flow through critical nozzles LEWIS-11031	B69-10712	02
Toroidal ring prevents gas ignition at vent stack outlet M-FS-2042	B67-10098	05	Controlled substrate cooling improves reproducibility of vapor deposited semiconductor composites ERC-10161	B69-10732	01
Liquid hydrogen densitometer utilizes open-ended microwave cavity LEWIS-390	B67-10115	01	A simple electrometer for measuring small photoelectric currents GSFC-10603	B69-10734	01
Quartz crystals detect gas contaminants during vacuum chamber evacuation NPO-10144	B67-10205	01	GAS GENERATORS Resilient bearing supports are gas controlled LEWIS-10109	B67-10364	05
High impact pressure regulator withstands impacts of over 15,000 g NPO-10175	B67-10274	01	Study made of acoustical monitoring for mechanical checkout M-FS-13372	B67-10430	02
A method of determining combustion gas			Proposed gas generation assembly would recover deeply submerged objects SAN-10007	B68-10211	05
			GAS INJECTION Gas-injection valve operates at high speed		

GAS IONIZATION

SUBJECT INDEX

HQ-49	B66-10381	05	Xenon forms stable compound with fluorine		
Elimination of rocket engine asymmetric loads during tests at sea level			ARG-4	B66-10467	03
M-FS-1730	B66-10674	05	Thermodynamic properties related to expansion of two-component gas	MSC-1133	B67-10112 03
Diffusion of trace gases for leak detection - A study			Lamp enables measurement of oxygen concentration in presence of water vapor	MSC-10043	B67-10387 01
M-FS-20254	B69-10067	03	Program computes equilibrium normal shock and stagnation point solutions for arbitrary gas mixtures	LANGLEY-10090	B67-10509 06
GAS IONIZATION			GAS PIPES		
Ionization vacuum gage starts quickly, is unaffected by spurious currents	JPL-304	B65-10036 02	Simple device facilitates inert-gas welding of tubes	M-FS-558	B66-10155 05
Vacuum gage system for radiation environment	LEWIS-10797	B69-10156 01	Silver plating technique seals leaks in thin wall tubing joints	NU-0090	B66-10703 05
GAS LASERS			Torsional tubular disconnect	NPO-10704	B69-10499 05
Neon isotopes cancel errors in gas laser	M-FS-1476	B66-10583 02	GAS POCKETS		
Laser Doppler flowmeter measures gas velocity	M-FS-1747	B66-10693 02	Negative feedback system reduces pump oscillations	M-FS-1852	B67-10064 05
System enables more complete calibrations of dynamic-pressure transducers	M-FS-2063	B67-10099 01	GAS PRESSURE		
Fresnel diffraction plates are simple and inexpensive	M-FS-12731	B67-10297 02	Precision gage measures ultrahigh vacuum levels	GSFC-114	B63-10597 01
Improved gas ring laser	MSC-11584	B68-10304 02	Apparatus measures concentration of suspended droplets in gas streams	LANGLEY-31	B64-10237 01
Repetitively pulsed, wavelength-selective carbon dioxide laser	ERC-10178	B68-10564 02	Quick-disconnect coupling safe transfer of hazardous fluids	LEWIS-125	B65-10202 01
Active frequency control system for argon FM laser	M-FS-14988	B69-10099 02	Electromechanical flowmeter accurately monitors fluid flow	GSFC-357	B65-10273 01
Rectangular-bore, high-gain laser plasma tube	HQ-10234	B69-10193 02	Centrifugal device separates liquid from gas	MSC-282	B65-10394 05
Two-color holography	HQ-10349	B69-10662 02	Cold cathode ionization gage has rigid metal housing	GSFC-445	B66-10041 01
GAS-LIQUID INTERACTIONS			Rod and dish cathode improves penning-type vacuum gage	GSFC-447	B66-10082 01
Mixer conditions temperature of liquified gas streams	M-FS-1784	B66-10565 02	Solid-film lubricant is effective at high temperatures in vacuum	LEWIS-228	B66-10087 03
Temperature-sensed cryogenic bleed maintains liquid state in transfer line	M-FS-12681	B67-10424 01	Control system maintains compartment at constant temperature	JPL-SC-145	B66-10188 05
A rotating, noncapillary heat pipe	LEWIS-10298	B69-10684 05	Modified McLeod gage records automatically	LEWIS-290	B66-10290 02
GAS LUBRICANTS			Inflatable O-ring seal would ease closing of hatch cover plate	MSC-740	B66-10385 05
Journal gas bearing for curved surfaces	M-FS-20423	B69-10182 05	Closed loop operation eliminates need for auxiliary gas in high pressure pumping station	M-FS-893	B66-10408 05
GAS MASERS			Large diameter metal ring seal prevents gas leakage at 5000 psi	M-FS-1064	B66-10422 05
Hydrogen maser as a highly stable frequency reference	M-FS-2437	B67-10146 01	Gas pressure feeds film into camera at high speed	ARG-97	B66-10474 02
An improved atomic hydrogen frequency and time standard	GSFC-10706	B69-10341 02			
GAS METERS					
A radiometer-pyrometer	LEWIS-284	B66-10606 01			
GAS MIXTURES					
Rapid helium-air analyzer can measure other binary gas mixtures	LANGLEY-16	B63-10557 03			
Submicron holes in thin films increase sampling range of mass spectrometers	JPL-SC-097	B66-10380 03			

SUBJECT INDEX

GAS TUNGSTEN ARC WELDING

Modified McLeod pressure gage eliminates measurement errors ARC-62	B66-10481	01	M-FS-2054	B67-10208	03
Gas leak detector is simple and inexpensive M-FS-1206	B66-10669	01	A piezo-bar pressure probe LEWIS-393	B67-10259	01
Hermetically sealed cells protected from internal gas pressure GSFC-555	B66-10692	01	Computer program calculates peripheral water injection cooling of axisymmetric subsonic diffuser NUC-10541	B67-10543	06
Effects of helium and nitrogen as pressurants in nitrogen tetroxide transfer MSC-924	B67-10083	03	High-speed camera synchronization M-FS-18062	B68-10282	02
Fixture facilitates helium leak testing of pipe welds M-FS-2167	B67-10178	05	Continuous analysis of nitrogen dioxide in gas streams of plants ARG-10356	B69-10254	03
Porous mandrels provide uniform deformation in hydrostatic powder metallurgy M-FS-1972	B67-10209	03	Technique for highly efficient recovery of microbiological contaminants MSC-13250	B69-10273	04
Single-source mechanical loading system produces biaxial stresses in cylinders M-FS-12530	B67-10380	05	GAS TRANSPORT Irradiated gases transferred without contamination or dilution LEWIS-278	B67-10044	03
Analysis of dynamic systems with DAP4H computer program M-FS-13999	B67-10523	06	Computer program /P1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas NUC-10141	B67-10678	06
Automatic transducer switching provides accurate wide range measurement of pressure differential NUC-10001	B67-10540	01	GAS TUBES Automatic cryogenic liquid level controller is safe for use near combustible substances LEWIS-195	B66-10482	01
Gas pressure in sealed electrochemical cells measured externally GSFC-10004	B67-10551	03	Grit blasting nozzle fabricated from mild tool steel proves satisfactory M-FS-1420	B66-10597	05
Explosive-train initiated through solid bulkhead by pressure cartridge MSC-11395	B67-10589	03	GAS TUNGSTEN ARC WELDING Refractory metals welded or brazed with tungsten inert gas equipment LEWIS-219	B65-10319	05
Compact monitoring and control console for pressurized gas bottles M-FS-14874	B68-10401	05	Tungsten wire and tubing joined by nickel brazing M-FS-394	B65-10391	05
Hydrogen flash lamps studied ARG-10419	B69-10411	02	Argon purge gas cooled by chill box M-FS-560	B66-10153	02
Calibratable solid-state pressure switch M-FS-20474	B69-10437	05	Large seals fabricated from small segments reduce procurement lead time M-FS-1117	B66-10464	05
GAS-SOLID INTERFACES Characteristics of fluidized-packed beds ARG-10049	B68-10278	03	Closed circuit TV system monitors welding operations MSC-11002	B67-10162	01
GAS SPECTROSCOPY A radiometer-pyrometer LEWIS-284	B66-10606	01	Continuous internal channels formed in aluminum fusion welds M-FS-2399	B67-10183	05
GAS STREAMS Apparatus measures concentration of suspended droplets in gas streams LANGLEY-31	B64-10237	01	Weld procedure produces quality welds for thick sections of Hastelloy-X NUC-10048	B67-10195	05
Probe measures characteristics of hot gas stream M-FS-240	B65-10133	02	Welding of AM350 and AM355 steel M-FS-2314	B67-10292	05
Instrument calibrates low gas-rate flowmeters MSC-134	B65-10137	01	Magnesium-lithium alloys developed for low temperature use M-FS-1541	B67-10365	03
Internal cooling increases range of immersion-type temperature probe LEWIS-171	B65-10157	02	Protected, high-temperature connecting cable LEWIS-10149	B67-10461	01
Submicron holes in thin films increase sampling range of mass spectrometers JPL-SC-097	B66-10380	03	Dual wire weld feed proportioner M-FS-18037	B68-10332	05
Multilayer refractory nozzles produced by plasma-spray process WOO-318	B66-10611	05	Microprobe investigation of brittle segregates in aluminum MIG and TIG welds M-FS-14720	B68-10334	03
Study made of Raney nickel technology			Effects of high frequency current in welding aluminum alloy 6061 M-FS-18337	B68-10383	05

GAS TURBINE ENGINES

SUBJECT INDEX

Weld joint strength and mechanical properties in 2219-T81 aluminum alloy LEWIS-10479	B68-10561	03	semiconductors is fast and precise GSFC-397	B65-10300	01
Welding skate with computerized controls M-FS-20224	B68-10566	01	Gas diffuser facilitates withdrawal of cryogenic liquids from tanks M-FS-915	B66-10342	05
Mixing weld gases offers advantages M-FS-16413	B69-10145	05	Reducing bubbles in glass coatings improves electrical breakdown strength LEWIS-10278	B68-10214	03
Conversion of continuous-direct-current TIG welder to pulse-arc operation M-FS-16411	B69-10393	05	Device separates hydrogen from solution in water at ambient temperatures MSC-13335	B69-10635	03
GAS TURBINE ENGINES			GASEOUS ROCKET PROPELLANTS		
Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03	One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06
GAS TURBINES			GASES		
Analysis of annular combustors LEWIS-10399	B68-10356	06	Filter for high-pressure gases has easy take-down, assembly JPL-373	B63-10234	03
Dual-purpose chamber-cooling system NPO-10467	B68-10506	02	Pulsed plasma accelerator operates repetitively without complex controls LANGLEY-48	B65-10062	01
Properties of air and combustion products of fuels with air LEWIS-11030	B69-10711	03	Special treatment reduces helium permeation of glass in vacuum systems HQ-25	B66-10372	02
GAS VALVES			Selective tube roughening increases heat transfer capability M-FS-599	B66-10610	05
Probe measures characteristics of hot gas stream M-FS-240	B65-10133	02	Between-bearing shaft seal, a concept M-FS-18179	B68-10286	05
Vapor pressure measured with inflatable plastic bag GSFC-281	B65-10136	03	Prediction of friction coefficients for gases LEWIS-10774	B69-10112	02
Quick-closing valve is actuated by explosive discharge ARC-55	B66-10233	05	Mass spectograph analysis MSC-13239	B69-10134	06
Pneumatic binary encoder replaces multiple solenoid system M-FS-665	B66-10374	01	Coatings decrease metal fatigue failure ARC-10015	B69-10176	03
Gas-injection valve operates at high speed HQ-49	B66-10381	05	Handbook for design of containers of fluids and gases for spacecraft M-FS-20502	B69-10279	05
Modified McLeod pressure gage eliminates measurement errors ARC-62	B66-10481	01	Leakage tester for flat conductor cable connector M-FS-20427	B69-10284	05
System automatically supplies precise analytical samples of high-pressure gases M-FS-1814	B67-10090	01	Technique for predicting temperature distribution in gases LEWIS-10918	B69-10329	01
Piezoelectric linear actuator MSC-13194	B69-10469	02	Spiral-flow apparatus for measuring permeation of solids by gases M-FS-16517	B69-10357	03
Chromatographic detection and analysis of traces of hydrocarbons KSC-10388	B69-10716	02	Concept for improved vacuum pressure measuring device M-FS-20172	B69-10421	02
GAS VISCOSITY			High voltage pulse generator MSC-12178	B69-10548	01
Direct indication of particle size in fluidized beds ARG-10130	B69-10083	05	Molecular radiation - Its application in physical measurements and analyses M-FS-14816	B69-10562	02
GAS WELDING			Control for maintaining constant level of a cryogenic liquid NPO-11177	B69-10573	05
Simple device facilitates inert-gas welding of tubes M-FS-558	B66-10155	05	Elimination of dissolved gases in hypergolic engine propellants M-FS-16179	B69-10692	03
Effect of welding position on porosity formation in aluminum alloy welds M-FS-2318	B67-10177	05	GASKETS		
Microprobe investigation of brittle segregates in aluminum MIG and TIG welds M-FS-14720	B68-10334	03	Flexible plastic ring assembly makes durable shaft seal WOO-227	B65-10367	05
GASEOUS DIFFUSION					
Cryogenic filter method produces super-pure helium and helium isotopes JPL-374	B63-10235	03			
Impurity diffusion process for silicon					

SUBJECT INDEX

GATES (CIRCUITS)

Pressure seal ring may be effective over wide temperature range M-FS-486	B66-10211	05	GSFC-399	B65-10355	01
Composite gaskets are compatible with liquid oxygen, resist compression set M-FS-455	B66-10395	03	Queuing register uses fluid logic elements M-FS-317	B66-10100	05
Rubber and alumina gaskets retain vacuum seal in high temperature EMF cell ARG-17	B66-10472	05	Simplified circuit corrects faults in parallel binary information channels JPL-SC-090	B66-10261	01
Combination spacer and gasket provides effective static seal M-FS-1397	B66-10485	05	Exclusive-or logic circuit has useful properties LANGLEY-214	B66-10272	01
Feed-thru flange is useful in vacuum applications to cryogenic temperatures JPL-846	B66-10615	02	Instrument automatically selects peak acceleration signal from several accelerometers JPL-816	B66-10462	01
Silazane elastomer remains resilient at 400 deg C M-FS-1144	B66-10667	05	Solid state circuit controls direction, speed, and braking of dc motor JPL-757	B66-10486	01
Thin plastic sheet eliminates need for expensive plating M-FS-1896	B66-10681	03	Security warning system monitors up to fifteen remote areas simultaneously KSC-66-39	B66-10548	01
Combination double door high-vacuum valve provides access to vacuum chamber JPL-849	B66-10697	05	Monitoring system determines amplitude and time of vibration channel peaks JPL-879	B66-10699	01
Tools made of ice facilitate forming of soft, sticky materials KSC-10262	B69-10199	05	Laboratory pulse modulator uses minority carrier storage diodes M-FS-2442	B67-10226	01
GASOLINE			Improved television signal processing system NPO-10140	B67-10246	01
Inert gas spraying device aids in repair of hazardous systems LEWIS-8B	B65-10115	05	A calibration means for spectrum analyzers MSC-10987	B67-10254	01
GATES (CIRCUITS)			Multichannel pulse height analyzer is inexpensive, features low power requirements HQN-10020	B67-10258	01
Computer circuit will fit on single silicon chip JPL-513	B63-10514	01	Vibration analysis utilizing Mossbauer effect M-FS-11974	B67-10339	01
Novel circuit combines pulse stretcher with NOR gate GSFC-187	B64-10150	01	Signal generator converts direct current to multiphase supplies MSC-11043	B67-10368	01
Variable frequency magnetic multivibrator generates stable square-wave output GSFC-AE-21	B65-10124	01	Stable ac phase and amplitude comparator M-FS-13086	B67-10459	01
Logic circuit exhibits optimum performance LANGLEY-129	B65-10193	01	Logic realization of simple majority voting connectives JPL-727	B67-10511	06
Analog-to-digital converter has increased reliability and reduced power consumption GSFC-246	B65-10194	01	Improved circuit for measuring capacitive and inductive reactances M-FS-13083	B67-10513	01
Sensitive electrometer features digital output GSFC-288	B65-10206	01	Logic circuit detects both present and missing negative pulses in superimposed wave trains M-FS-12518	B67-10565	01
Simple BCD circuit accurately counts to 24 GSFC-317	B65-10225	01	Unique frequency-shift-keyed demodulation system GSFC-217	B67-10668	01
Field effect transistor presents high input impedance in ac amplifier JPL-500	B65-10232	01	Input gate circuit converted for use as linear amplifier M-FS-14265	B68-10015	01
Simple pulse counting circuit computes sum of squares GSFC-391	B65-10260	01	Self-correcting, synchronizing ring counter using integrated circuit devices M-FS-13901	B68-10067	01
Nonlinear feedback reduces analog-to-digital converter error ARC-46	B65-10277	01	Electronic gating circuit and ultraviolet laser excitation permit improved dosimeter sensitivity ARG-10109	B68-10077	02
Field-effect transistor replaces bulky transformer in analog-gate circuit GSFC-351	B65-10284	01	Parallel-to-serial biphasic-data converter MSC-11600	B68-10241	01
Frequency divider is free of spurious outputs GSFC-308	B65-10334	05			
Simple circuit performs binary addition and subtraction					

GATES (OPENINGS)

SUBJECT INDEX

High-speed camera synchronization M-FS-18062	B68-10282	02	Torque wrench designed for restricted areas LEWIS-246	B66-10011	05
Fluidic-thermochromic display device ERC-10031	B68-10350	01	Modified power tool rapidly drives series torque bolts MSC-221	B66-10054	05
Circuitry selectively limits data storage in general purpose computer GSFC-10605	B69-10121	01	Run-in with chemical additive protects gear surface M-FS-548	B66-10069	05
Multichannel analyzers at high rates of input ARG-10355	B69-10214	02	Intermediate rotating ring improves reliability of dynamic shaft seal M-FS-575	B66-10197	05
Linear voltage-to-frequency converter GSFC-10546	B69-10220	01	Compact actuator converts rotary to linear motion JPL-786	B66-10265	05
An electronic circuit for sensing malfunctions in test instrumentation KSC-10209	B69-10392	01	Gear drive automatically indexes rotary table M-FS-753	B66-10383	05
Automatic tuning of hydrogen masers GSFC-10127	B69-10452	01	Concept of planetary gear system to control fluid mixture ratio M-FS-1785	B66-10477	05
Simplified, reliable circuit sorts binary numbers in order of magnitude NPO-10112	B69-10503	01	Positive displacement cylinder measures corrosive liquid volume MSC-1038	B66-10589	05
Pulse-code-modulation baseline correction for low signal-to-noise ratios MSC-13268	B69-10750	01	Fluid logic control circuit operates nutator actuator motor LEWIS-294	B66-10593	05
GATES (OPENINGS)			Hole saw drill attachment has zero force reaction MSC-543	B66-10604	05
Gate value with ceramic-coated base operates at high temperatures ARC-23	B63-10562	03	Welding torch and wire feed manipulator M-FS-13102	B67-10385	05
Low-power transistorized circuit provides staircase waveform GSFC-48	B64-10007	01	Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates NPO-10316	B67-10418	05
GAUSS EQUATION			Improved control system power unit for large parachutes MSC-12052	B67-10677	05
Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations NUC-10052	B67-10345	06	Electromechanical rotary actuator operates over wide temperature range M-FS-18402	B69-10100	05
Conditioning of pulses from aerosol-particle detectors ERC-10250	B69-10691	01	Magnetron tuner has locking feature XNP-09771	B69-10119	05
GEAR			Diffusion bond method of joining steel and a TFE-bronze composite M-FS-20482	B69-10237	03
Chain friction system gives positive, reversible drive ARC-8	B63-10009	05	Precise gimballing mechanism NPO-11057	B69-10270	01
Self-lubricating gear M-FS-14971	B69-10408	05	Automatic leveling and equalizing hoist device M-FS-16549	B69-10514	05
GEAR TEETH			Improved camera for better X-ray powder photographs HQ-10424	B69-10537	01
Device measures curved surface finish on gear teeth WOO-112	B65-10064	05	GEIGER COUNTERS		
Rotating filters permit wide range of optical pyrometry LANGLEY-33	B65-10100	02	Automatic bird watcher ARG-10342	B69-10286	02
Unique gear design provides self-lubrication JPL-SC-079	B65-10366	03	Life detection NPO-10510	B69-10475	04
Gear drive automatically indexes rotary table M-FS-753	B66-10383	05	GELATINS		
GEARS			Gelatin coated electrodes allow prolonged bioelectronic measurements MSC-153	B66-10088	01
Shock absorber protects motive components against overloads WOO-092	B65-10008	05	Rate constants measured for hydrated electron reactions with peptides and proteins ARG-10195	B68-10424	04
Bidirectional torque filter eliminates backlash GSFC-335	B65-10148	05			
Hydraulic drive system prevents backlash JPL-371	B65-10351	05			
Unique gear design provides self-lubrication JPL-SC-079	B65-10366	03			

SUBJECT INDEX

GEOMETRY

Development and test of flexible film coupon strips for use as a sampling technique M-FS-20448	B69-10339	03	Nondispersive X-ray emission analysis for geochemical exploration GSFC-10568	B69-10011	02
GELATION A ceramic composite thermal insulation M-FS-13991	B67-10608	03	Dual-mode operation of a neutron source, a concept HQ-10106	B69-10248	02
GELS Study of hydrogen slush-hydrogen gel utilization M-FS-13068	B67-10413	02	GEODESY Hydrogen maser as a highly stable frequency reference M-FS-2437	B67-10146	01
Study of behavior of sterols at interfaces ARG-10085	B68-10281	03	Theory of a refined earth model M-FS-14679	B68-10228	02
GEMINI FLIGHTS Earth orbit rendezvous evaluation program M-FS-13016	B67-10407	06	GEODETTIC COORDINATES Theory of a refined earth model M-FS-14679	B68-10228	02
GENERATION Study of radiation effects on mammalian cells in vitro ARG-10191	B68-10294	02	GEOGRAPHY Density trace made with computer printout GSFC-322	B65-10200	01
GENERATORS Binary system generates sidereal rate from standard solar rate GSFC-190	B64-10200	01	GEOLOGY Rock bit requires no flushing medium to maintain drilling speed JPL-W00-031	B65-10109	05
Improved technique for localizing electropolishing features novel nozzles W00-101	B64-10271	01	Preparing rock powder specimens of controlled size distribution NPO-10007	B68-10297	05
Digital system accurately controls velocity of electromechanical drive GSFC-287	B65-10096	01	Dual-mode operation of a neutron source, a concept HQ-10106	B69-10248	02
High-reluctance rotor rings improve homopolar generator performance ARG-104	B66-10543	01	Iris-leaf core retainer for a surface drill MSC-11402	B69-10496	05
Transient Analysis Generator /TAG/ simulates behavior of large class of electrical networks NPO-10031	B67-10319	06	Desert soil collection at the JPL soil science laboratory NPO-11206	B69-10571	04
Simple first order data compression processor concept NPO-10338	B67-10553	01	GEOMETRY New backup-bar groove configuration improves heliarc welding of 2014-T6 aluminum MSC-806	B66-10443	05
Studies of cycles for liquid-metal magnetohydrodynamic generation of power ARG-10250	B69-10194	02	Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries M-FS-1910	B67-10329	06
Technique for tuning antenna systems producing negligible signal radiation KSC-10060	B69-10215	01	Braze joint quality tested electromagnetically M-FS-12795	B67-10333	01
GENETIC CODE Study of radiation effects on mammalian cells in vitro ARG-10191	B68-10294	02	Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations NUC-10052	B67-10345	06
GENETICS Cytology is advanced by studying effects of deuterium environment ARG-205	B67-10304	04	Study made of procedures for externally loading and corrosion testing stress corrosion specimens M-FS-12064	B67-10451	03
Study made of relationship between growth and metabolism ARG-10046	B67-10604	04	Computer program analyzes and designs supersonic wing-body combinations ABC-10141	B68-10335	06
Microscopes and computers combined for analysis of chromosomes ARG-10256	B69-10088	04	Radial inflow turbine design charts LEWIS-10720	B68-10567	05
Internal and ancestral controls of cell-generation times ARG-10326	B69-10205	04	Monte Carlo direct view factor and generalized radiative heat transfer programs M-FS-15051	B69-10038	06
Production of solvated electrons ARG-10416	B69-10430	03	Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems M-FS-14447	B69-10158	06
GEOCHEMISTRY Reusable chelating resins concentrate metal ions from highly dilute solutions JPL-758	B66-10451	03	Finite element analysis of compressible solids with nonlinear material properties NUC-10342	B69-10238	06

GERMANIUM

SUBJECT INDEX

Technique for predicting temperature distribution in gases LEWIS-10918	B69-10329	01	foreign substrates WOO-076	B66-10225	01
Determination of quadric equation coefficients describing three-dimensional surfaces, their constraint and skewed planes, and view point areas M-FS-15043	B69-10435	06	GERMANIUM COMPOUNDS Segmented SiGe-PbTe couples GSFC-10746	B69-10233	01
Calibration standard for dynamic evaluation of a profile-plotter M-FS-16476	B69-10458	05	GERMANIUM DIODES High resolution Ge/Li/ spectrometer reduces rate-dependent distortions at high counting rates ARG-10144	B68-10420	01
Optimizing solar-cell grid geometry HQ-10417	B69-10460	01	Ge-diode detector combined with crystal-diffraction spectrometer permits high-resolution gamma ray spectroscopy ARG-10190	B69-10005	02
A biaxial weld strength prediction method M-FS-20019	B69-10471	05	Improved liquid-level sensor for cryogenics ARG-10162	B69-10210	02
A theoretical study of radar backscatter from distributed targets with emphasis on polarization dependence M-FS-13775	B69-10560	02	Multichannel analyzers at high rates of input ARG-10355	B69-10214	02
Self-sustained hydrodynamic oscillations in a natural-circulation two-phase-flow boiling loop ARG-10461	B69-10620	02	GETTERS Ion pump provides increased vacuum pumping speed NEO-13	B65-10239	02
Engineering thermal analyzer /BETA 2/ M-FS-15055	B69-10760	06	Auxiliary titanium sublimation pump produces ultrahigh /10 to the minus 11 torr/ vacuum LANGLEY-212	B66-10388	02
GERMANIUM Economical fabrication process produces high quality junction transistors JPL-SC-065	B64-10330	01	Titanium-nitrogen reaction investigated for application to gettering systems ARG-10208	B68-10414	03
Wedge immersed thermistor bolometer measures infrared radiation GSFC-443	B65-10330	02	GEYSERS Fluid behavioral patterns found in subscale geysering study M-FS-13582	B67-10462	02
Mount makes liquid nitrogen-cooled gamma ray detector portable LEWIS-259	B66-10103	01	GIMBALESS INERTIAL NAVIGATION Improved gas ring laser MSC-11584	B68-10304	02
Circuit protects regulated power supply against overload current GSFC-453	B66-10292	01	GIMBALS Ball and socket joints provide accurate biaxial gimbal JPL-658	B65-10205	05
Resistance thermometer has linear resistance-temperature coefficient at low temperatures WOO-190	B66-10612	01	Simulator effects partial gravity conditions MSC-152	B66-10339	05
Infrared radiometer M-FS-13373	B67-10422	01	Fluid logic control circuit operates nutator actuator motor LEWIS-294	B66-10593	05
Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01	Device measures reaction engine thrust vector deviations JPL-SC-163	B66-10642	05
Hydrogen peroxide etching proves useful for germanium ARG-10170	B68-10454	03	Gimbaled-mirror scanning system capable of spiral pattern GSFC-10170	B67-10609	02
Electron beam recrystallization of amorphous semiconductor materials LEWIS-10443	B68-10556	02	Gimbal angle sensor GSFC-10305	B68-10315	01
Calibration of a resistance thermometer down to 0.04 degrees K ARG-10318	B69-10149	01	Liquid laser cavities GSFC-10592	B69-10234	02
Multichannel analyzers at high rates of input ARG-10355	B69-10214	02	Precise gimbaling mechanism NPO-11057	B69-10270	01
Method for copper staining of germanium crystals ARG-10403	B69-10257	03	Multipurpose binocular scanning apparatus NPO-11002	B69-10311	02
Pulse-height defect due to electron interaction in dead layers of Ge/Li/ gamma-ray detectors ARG-10362	B69-10767	02	Hermetically sealed vibration damper MSC-10959	B69-10634	05
GERMANIUM ALLOYS Single-crystal semiconductor films grown on			GLANDS (SEALS) Soft-seal valve holds hazardous fluids safely LEWIS-275	B66-10216	05
			Vacuum test fixture improves leakage rate measurements		

SUBJECT INDEX

GLASS FIBERS

MSC-271	B66-10286	01	Cracks in glass electrical connector headers removed by dry blasting with fine abrasive	LEWIS-381	B67-10148	03	
Inflatable holding fixture permits X-rays to be taken of inner weld areas	M-FS-856	B66-10327	03	Fast-acting calorimeter measures heat output of plasma gun accelerator	LEWIS-388	B67-10192	01
Lead plated aluminum ring provides static high pressure seal for large diameter pressure vessel	NUC-10008	B67-10539	05	Glass bead shot peening retards stress corrosion failure of titanium tanks	LANGLEY-319	B67-10198	05
GLARE							
One-piece transparent shell improves design of helmet assembly	MSC-187	B66-10390	05	Fused diode provides visual indication of fuse condition	KSC-67-16	B67-10230	01
Panels illuminated by edge-lighted lens technique	MSC-871	B66-10507	02	Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations	ARG-251	B67-10305	04
Antiglare improvement for optical imaging systems	NPO-10337	B68-10090	02	Heat-shrink plastic tubing seals joints in glass tubing	LEWIS-10329	B68-10040	05
GLASS							
Multiple test tubes stirred mechanically	ARC-42	B65-10120	01	Glassy materials investigated for nuclear reactor applications	ARG-10075	B68-10103	03
IR-transmission glasses formed from oxides of bismuth and tellurium	M-FS-279	B65-10190	03	Multichip packaging with thermal insulation	M-FS-14076	B68-10119	02
Thin transparent films formed from powdered glass	GSFC-352	B65-10217	03	Manganese-alumina-ceramic glass eliminates rigid controls necessary in bonding metals to ceramics	SAN-10012	B68-10204	03
Angular glass tubing drawn from round tubing	HQ-20	B65-10235	05	Inspection criteria ensure quality control of parallel gap soldering	M-FS-14530	B68-10257	05
Porous glass makes effective substrate for ozone-sensing reagent	GSFC-388	B65-10364	03	Thermal protective visor for entering high temperature areas	MSC-10285	B68-10277	05
Thin-film semiconductor rectifier has improved properties	MSC-207	B66-10012	01	Optimetric system facilitates colorimetric and fluorometric measurements	NPO-10233	B68-10316	01
High-pressure, low temperature electrical connector makes no-leak seal	MSC-276	B66-10079	02	Indium adhesion provides quantitative measure of surface cleanliness	SAN-10024	B68-10342	01
Split glass tube assures quality in electron beam brazing	M-FS-564	B66-10151	05	Thermal conductivity and dielectric constant of silicate materials	M-FS-14856	B68-10351	03
Thin-film gage measures low heat-transfer rates	LANGLEY 205	B66-10180	01	High dielectric thick films for screened circuit capacitors	LANGLEY-10294	B68-10542	01
Fibers of newly developed refractory ceramics produced by improved process	WOO-169	B66-10196	03	Protective clothing for workers with 5-kW and 20-kW short-arc lamps	NPO-11155	B69-10218	01
Improved thermal insulation materials made of foamed refractory oxides	M-FS-735	B66-10288	03	Restricted-flow junction between liquids	NPO-10682	B69-10332	02
Special treatment reduces helium permeation of glass in vacuum systems	HQ-25	B66-10372	02	Surface-renewal models for heat-transfer between walls and fluidized beds	ARG-10372	B69-10772	02
High pressure cryogenic liquid flow sight assembly provides streamlined flow for easy observation	LEWIS-310	B66-10394	01	GLASS COATINGS			
Mechanism facilitates coating of inner surfaces of metal cylinders	GSFC-515	B66-10698	05	Reducing bubbles in glass coatings improves electrical breakdown strength	LEWIS-10278	B68-10214	03
Metal boot permits fabrication of hermetically sealed splices in metal sheathed instrumentation cables	NU-0083	B66-10704	05	Glass coated single grid for charged particle acceleration	LEWIS-10106	B68-10215	03
Glass formulation has high coefficient of thermal expansion	NU-0084	B66-10705	03	GLASS FIBERS			
				Vacuum-type backup bar speeds weld repairs	M-FS-12	B63-10384	05
				Flexible honeycomb structure can bend to fit compound curves	M-FS-13	B63-10385	05

GLASSWARE

SUBJECT INDEX

Integral coolant channels supply made by melt-out method M-FS-91	B63-10497	05	M-FS-985	B67-10308	05
Flexible curtain shields equipment from intense heat fluxes M-FS-48	B65-10044	03	Warpage eliminated in copper-clad microwave circuit laminates M-FS-13892	B67-10454	03
Fiber glass parts cured during filament winding eliminates oven, saves time M-FS-14	B65-10088	03	Composite solar cell matrix is reliable, lightweight and flexible NPO-10821	B67-10503	01
Fiber glass dies speed forming of large metal sheets M-FS-214	B65-10210	05	Holding a high-density laminate LANGLEY-10051	B68-10092	03
Adhesive-backed terminal board eliminates mounting screws MSC-173	B65-10396	01	Astronaut space suit communication antenna MSC-12101	B68-10238	01
Aluminized fiberglass insulation conforms to curved surfaces M-FS-477	B66-10024	03	Fiber glass reinforced structural materials for aerospace application M-FS-14806	B68-10360	03
Spray-on technique simplifies fabrication of complex thermal insulation blanket M-FS-497	B66-10053	03	Fiber glass prevents cracking of polyurethane foam insulation on cryogenic vessels M-FS-20058	B68-10406	02
Hydrogen-atmosphere induction furnace has increased temperature range LEWIS-153	B66-10055	05	Adhesive for cryogenic temperature applications LEWIS-10264	B69-10074	03
Reflective insulator layers separated by bonded silica beads MSC-215	B66-10070	03	Novel terminal strips for transformers NPO-10842	B69-10246	01
Polytetrafluoroethylene lubricates ball bearings in vacuum environment M-FS-379	B66-10081	03	Handbook for design of containers of fluids and gases for spacecraft M-FS-20502	B69-10279	05
Nylon bit removes cork insulation without damage to substrate MSC-381	B66-10152	05	Automated measurement of thermal conductivity M-FS-20454	B69-10283	03
Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02	Glass fabric fire barrier for silicone rubber parts MSC-15555	B69-10629	03
Fiberglass container shells form contamination-free storage units WOO-275	B66-10217	05	GLASSWARE Method for X-ray study under extreme temperature and pressure conditions MSC-11232	B67-10474	02
Strippable grid facilitates removal of grid-surfaced conical workpiece from die M-FS-716	B66-10334	01	Study of actinide chemistry in saturated potassium fluoride solution ARG-10204	B69-10004	03
Inexpensive insulation is effective for cryogenic transfer lines MSC-618	B66-10348	02	Control for maintaining constant level of a cryogenic liquid NPO-11177	B69-10573	05
Composite gaskets are compatible with liquid oxygen, resist compression set M-FS-455	B66-10395	03	GLAZES Experiments with ceramic coatings M-FS-18150	B68-10355	03
Electrical cabling withstands severe environmental conditions M-FS-1585	B66-10427	01	GLOVES Double gloves reduce contamination of dry box atmosphere LEWIS-211	B65-10117	03
Study made to control depth of potting compound for honeycomb sandwich fasteners LEWIS-370	B66-10677	05	Dispenser leak-tests and sterilizes rubber gloves MSC-285	B66-10166	03
Nonwoven glass fiber mat reinforces polyurethane adhesive M-FS-2309	B67-10113	03	Self-contained clothing system provides protection against hazardous environments M-FS-536	B66-10201	05
Inexpensive cryogenic insulation replaces vacuum jacketed line NUC-10061	B67-10264	02	Protective clothing for workers with 5-kW and 20-kW short-arc lamps NPO-11155	B69-10218	01
Liquid crystals detect voids in fiber glass laminates LEWIS-10104	B67-10286	03	GLOW DISCHARGES Glow discharge density sensor probe life is extended M-FS-1707	B67-10229	01
Improved compression molding process LANGLEY-10027	B67-10302	03	GLUCOSE Large volume continuous counterflow dialyzer has high efficiency HQ-10055	B67-10395	04
Jacketed cryogenic piping is stress relieved					

SUBJECT INDEX

GONIOMETERS

GLUTATHIONE				NUC-10086			
Inhibition of browning in foodstuffs				B67-10352 02			
HQ-10177				Wear studies made of slip rings and gas bearing components			
B69-10493 04				M-FS-12882			
GLYCEROLS				B67-10403 05			
Improved conductive paste secures biomedical electrodes				Improved fuel-cell-type hydrogen sensor			
MSC-107				M-FS-14656			
B65-10015 03				B68-10263 01			
Radiation effects on bacterial cells				Optimetric system facilitates colorimetric and fluorometric measurements			
ARG-10064				NPO-10233			
B68-10169 04				B68-10316 01			
Development and test of flexible film coupon strips for use as a sampling technique				Improved radiographic image amplifier panel			
M-FS-20448				M-FS-14522			
B69-10339 03				B68-10363 02			
GLICOLS				Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons			
Sea dye marker provides visibility for 20 hours				ARG-10220			
MSC-714				B69-10211 02			
B66-10313 03				Electron interaction in matter			
Method for copper staining of germanium crystals				M-FS-14886			
ARG-10403				B69-10674 02			
B69-10257 03				GOLD ALLOYS			
Water-glycol system volume calculation				Braze joint quality tested electromagnetically			
MSC-15193				M-FS-12795			
B69-10563 02				B67-10333 01			
GOGGLES				Measurements of thermoelectric power in annealed and quenched gold-platinum alloys			
Protective clothing for workers with 5-kW and 20-kW short-arc lamps				ARG-10303			
NPO-11155				B69-10206 03			
B69-10218 01				GOLD COATINGS			
GOLD				Coating method enables low-temperature brazing of stainless steel			
Hot-air soldering technique prevents overheating of electrical components				NU-0030			
GSFC-91				B65-10250 03			
B63-10536 01				Titanium diaphragm makes excellent amplatron cathode support			
Thermocompression bonding produces efficient surface-barrier diode				GSFC-394			
JPL-SC-066				B65-10298 01			
B65-10007 05				Plated nickel wire mesh makes superior catalyst bed			
Efficient thin film heating element takes minimum space				MSC-216			
GSFC-289				B65-10321 03			
B65-10123 01				Heat flux sensor design reduces extraneous source effects			
Wedge immersed thermistor bolometer measures infrared radiation				MSC-400			
GSFC-443				B66-10531 01			
B65-10330 02				High-strength braze joints between copper and steel			
Miniature servo accelerometer is force-balanced				M-FS-2519			
JPL-155				B67-10211 05			
B65-10340 01				Soft metal plating enables hard metal seal to operate successfully in low temperature, high pressure environment			
Plastic plus stainless-steel fibers make resilient, impermeable material				NUC-10083			
WOO-246				B67-10350 03			
B65-10374 03				Test device prevents weld joint damage by eliminating axial pin forces on unpotted modules			
Thin-film semiconductor rectifier has improved properties				LEWIS-10201			
MSC-207				B67-10359 01			
B66-10012 01				Infrared radiometer			
Hollow spherical rotors fabricated by electroplating				M-FS-13373			
JPL-SC-117				B67-10422 01			
B66-10366 05				Inspection criteria ensure quality control of parallel gap soldering			
Submicron holes in thin films increase sampling range of mass spectrometers				M-FS-14530			
JPL-SC-097				B68-10257 05			
B66-10380 03				Thermal protective visor for entering high temperature areas			
Undercoat prevents blistering of silver plating at elevated temperatures				MSC-10285			
M-FS-2049				B68-10277 05			
B67-10096 05				Quality-weld parameters for microwelding techniques and equipment			
Thin film process forms effective electrical contacts on semiconductor crystals				M-FS-20484			
M-FS-2343				B69-10303 05			
B67-10142 01				GONIOMETERS			
Substituting gold for silver improves electrical connections				Analog solar system model relates celestial bodies spatially			
M-FS-2390				JPL-195			
B67-10228 03				B66-10413 01			
Method of improving contact bonds in silicon integrated circuits				Neutron diffractometer allows both magnetic and crystallographic analyses			
M-FS-1753				ARG-191			
B67-10335 01				B67-10131 02			
Practical new method of measuring thermal-neutron fluence				Preferred-orientation analysis of			

GORES

SUBJECT INDEX

polycrystalline materials NPO-10604	B69-10336	02	size for slide projection GSFC-409	B65-10339	05
GORES			Modified procedure speeds camera copy layout for offset printing GSFC-424	B65-10373	02
Rotating mandrel speeds assembly of plastic inflatables LANGLEY-155	B66-10137	05	Offset lenses add versatility to phototypesetting machine HQ-9	B66-10173	02
Electrical upsetting of metal sheet forms weld edge M-FS-720	B66-10248	05	Instrument transmits vanishing point to illustration point MSC-267A	B66-10324	01
Composite bulkhead fabrication development M-FS-1264	B66-10582	05	Projection transparencies from printed material M-FS-14608	B68-10112	01
Preformed stiffeners used to fabricate structural components for pressurized tanks M-FS-1796	B66-10688	05	A polar graphic method for determining the attitude of rocket vehicles GSFC-10860	B69-10591	02
GRADIENTS			GRAPHITE		
Radial furnace shows promise for growing straight boron carbide whiskers HQ-50	B67-10070	03	Improved molybdenum disulfide-silver motor brushes have extended life M-FS-64	B63-10479	03
GRAIN BOUNDARIES			Improved conductive paste secures biomedical electrodes MSC-107	B65-10015	03
Effects of high frequency current in welding aluminum alloy 6061 M-FS-18337	B68-10383	05	Metal sheath improves thermocouple using graphite in one leg NU-0011	B65-10051	01
Grain-boundary migration in KCl bicrystals ARG-10181	B68-10455	03	Graphite element serves as radiant heat source M-FS-105	B65-10218	01
Surface profilometer for examining grain-boundary grooves ARG-10290	B69-10345	05	Angular glass tubing drawn from round tubing HQ-20	B65-10235	05
GRAINS			Boron carbide whiskers produced by vapor deposition HQ-24	B65-10261	03
Generation of sonic power during welding M-FS-20339	B69-10404	05	Refractory coating protects intricate graphite elements from high-temperature hydrogen NU-0027	B66-10084	01
GRANITE			Dry film lubricant is effective at extreme loads M-FS-628	B66-10256	03
Air bearing provides friction-free support for shaker system slip table NU-0086	B66-10708	05	Friction loading device enables accurate testing of brittle materials NU-0051	B66-10345	05
Metal flame spray coating protects electrical cables in extreme environment NUC-10077	B67-10351	03	Primary cells utilize halogen-organic charge transfer complex JPL-926	B66-10682	02
GRANULAR MATERIALS			Radioactive method enables determination of surface areas rapidly and accurately NU-0088	B66-10710	03
Improved conductive paste secures biomedical electrodes MSC-107	B65-10015	03	Resistance heating releases structural adhesive M-FS-1607	B67-10045	05
Aluminum oxide filler prevents obstructions in tubing during welding MSC-222	B66-10125	05	Sensing disks for slug-type calorimeters have higher temperature stability M-FS-1867	B67-10161	01
Subminiaturized gas chromatograph gives fast, efficient analysis JPL-735	B66-10182	01	Modified blackbody device emits high-density radiation M-FS-12744	B67-10388	02
Improved thermal insulation materials made of foamed refractory oxides M-FS-735	B66-10288	03	Standard surface grinder for precision machining of thin-wall tubing ARG-10014	B67-10400	05
New weldable high strength aluminum alloy developed for cryogenic service M-FS-737	B66-10613	05	Control apparatus for spectral energy source LEWIS-391	B67-10404	01
Isostatic compression process converts polyaromatics into structural material JPL-892	B67-10168	03	Thoriated tungsten tube provides improved high temperature thermocouple sheath NUC-10145	B67-10627	03
A new method for the determination of particulate contamination levels for surface cleanliness of fluid systems KSC-10267	B69-10520	02			
Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06			
Surface-renewal models for heat-transfer between walls and fluidized beds ARG-10372	B69-10772	02			
GRAPHIC ARTS					
Disk calculator indicates legible lettering					

SUBJECT INDEX

GRAVITATION

Reaction rates of graphite with ozone measured by etch decoration ARG-10086	B68-10101	03	Vis-A-Plan /visualize a plan/ management technique provides performance-time scale KSC-10073	B67-10240	06
Analytical techniques for determining boron in graphite ARG-10087	B68-10102	03	Computer program samples digital data for CRT display MSC-999	B67-10249	01
Graphite cloth facilitates vacuum evaporation of silicon monoxide M-FS-14764	B68-10256	03	Thermodynamic properties of saturated liquid parahydrogen charted for important temperature range NUC-10018	B67-10346	03
Corrosion reduction of aluminum alloys in flowing high-temperature water ARG-10244	B69-10029	03	Computer program reduces and provides profile plot of surface plate calibration data M-FS-13866	B67-10492	06
Carbon offers advantages as implant material in human body M-FS-18207	B69-10087	04	Graphic visualization of program performance aids management review NUC-10011	B67-10568	06
A new solid lubricant LEWIS-10812	B69-10250	03	Analytical drafting curves provide exact equations for plotted data LANGLEY-285	B67-10601	02
High-temperature, gas-filled ceramic rectifiers, thyratrons, and voltage-reference tubes LEWIS-90271	B69-10376	01	Handbook of cryogenic data in graphic form KSC-10009	B67-10610	02
Niobium-uranium alloys with voids of predetermined size and total volume ARG-10490	B69-10641	03	X-Y plotter adapter developed for SDS-930 computer NPO-10220	B67-10654	06
GRAPHS (CHARTS)			Tool reconstructs data input points corresponding to first order output graph M-FS-18003	B68-10154	02
Low-cost tape system measures velocity of acceleration GSFC-85	B63-10512	01	Computer graphics data conditioning M-FS-14695	B68-10296	06
Polychart contour plotter enables data extrapolation from multiple plotting charts M-FS-37	B64-10406	05	Solving nonlinear heat transfer constant area fin problems M-FS-14851	B68-10504	02
Simple scale interpolator facilitates reading of graphs LANGLEY-88	B65-10070	05	Radial inflow turbine design charts LEWIS-10720	B68-10567	05
Contact stresses calculated for miniature slip rings M-FS-280	B65-10098	05	Design of dissipative linear phase filters M-FS-14698	B68-10572	01
Ultrasonic recording scanner used for nondestructive weld inspection M-FS-284	B66-10220	01	Simplified system displays complex curves corresponding to input data HQ-10073	B69-10247	01
Extensometer automatically measures elongation in elastomers M-FS-517	B66-10284	05	Electron interaction in matter M-FS-14886	B69-10674	02
Simple scale interpolator facilitates reading of graphs LEWIS-92	B66-10302	05	Determination of permissible applied load stress in structural elements M-FS-16556	B69-10823	02
Composite filter steepens rejection slopes in microwave application GSFC-480	B66-10393	01	GRATINGS		
Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates ARG-151	B66-10601	05	Simple optical system used to align spectrograph LANGLEY-92	B65-10071	02
Alpha particle backscattering measurements used for chemical analysis of surfaces ARG-116	B67-10186	03	GRATINGS (SPECTRA)		
Solubility data are compiled for metals in liquid zinc ARG-149	B67-10191	03	Ronchi test applied to measurement of surface roughness M-FS-12583	B67-10636	02
Technique for strip chart recorder time notation GSFC-473	B67-10196	01	GRAVITATION		
Electronic circuitry used to automate paper chromatography JPL-840	B67-10201	01	Rapid billet loader aids extrusion of refractory metals LEWIS-50	B63-10354	05
Subroutines GEORGE and DRASFC simplify operation of automatic digital plotter NUC-10044	B67-10222	06	Miniature servo accelerometer is force-balanced JPL-155	B65-10340	01
			Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates ARG-151	B66-10601	05
			Fuel cell life improved by metallic sinter activation after electrode assembly welding MSC-10965	B67-10436	03

GRAVITATIONAL EFFECTS

SUBJECT INDEX

Theory of a refined earth model M-FS-14679	B68-10228	02	Aluminum/steel wire composite plates exhibit high tensile strength M-FS-401	B66-10262	05
Journal gas bearing for curved surfaces M-FS-20423	B69-10182	05	Suppressor plate eliminates undesired arcing during electron beam welding M-FS-1126	B66-10357	05
A mechanically extendible boom NPO-11118	B69-10328	05	Direction indicator system does not require complicated optics WOO-305	B66-10407	01
GRAVITATIONAL EFFECTS			Computer program utilizes FORTRAN 4 subroutines for contour plotting NPO-10127	B67-10323	06
Effect of welding position on porosity formation in aluminum alloy welds M-FS-2318	B67-10177	05	System for measuring spatial distribution of ejected droplets, a concept NPO-10185	B68-10402	01
Improved vacuum deposition apparatus NPO-11009	B69-10365	02	Frangible electrochemical cell and sealing technique XGS-10010	B69-10056	01
Trajectory optimization using regularized variables MSC-13370	B69-10810	02	Electrochemical sintering process for producing electrodes from cadmium felt and a nickel or silver grid GSFC-10764	B69-10227	05
GRAVITATIONAL FIELDS			Optimizing solar-cell grid geometry HQ-10417	B69-10460	01
Sextant measures spacecraft altitude without gravitational reference MSC-200	B66-10143	02	GRINDING (COMMINUTION)		
Low level accelerometer test methods are investigated M-FS-908	B66-10510	01	Submicron metal powders produced by ball milling with grinding aids LEWIS-188	B66-10221	03
Experiments to investigate particulate materials in reduced gravity fields M-FS-13308	B67-10394	02	GRINDING (MATERIAL REMOVAL)		
GREASES			Manual of industrial diamonds plus dressing and grinding criteria for machining superalloys M-FS-14582	B68-10239	05
Lightweight load support serves as vibration damper JPL-661	B65-10144	05	Welded repairs of punctured thin-walled aluminum pressure vessels M-FS-14836	B69-10051	05
Electronic modules easily separated from heat sink MSC-142	B65-10186	02	GRINDING MACHINES		
Degreasing of titanium to minimize stress corrosion LEWIS-382	B67-10147	03	Lathe converted for grinding aspheric surfaces GSFC-115	B63-10556	05
Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04	Self-aligning fixture used in lathe chuck jaw refacing FRC-21	B65-10198	05
Apparatus automatically measures soluble residue content of volatile solvents SAN-10032	B69-10292	03	Rotating holder permits accurate grinding of metallurgical microsamples LEWIS-131	B65-10262	05
Breakaway electrical connector NPO-11140	B69-10474	01	Multisurface fixture permits easy grinding of tool bit angles M-FS-586	B66-10171	05
GREEN FUNCTION			Metallographic holding fixture permits polishing of soft metals on vibratory lapping machine ARG-42	B66-10562	05
Study of lattice defect vibration ARG-10221	B69-10078	02	Standard surface grinder for precision machining of thin-wall tubing ARG-10014	B67-10400	05
GRIDS			Preparing rock powder specimens of controlled size distribution NPO-10007	B68-10297	05
Precision gage measures ultrahigh vacuum levels GSFC-114	B63-10597	01	Compressible sleeve provides automatic centering for grinding or turning of cylinders SAN-10021	B68-10318	05
Fine-mesh screen made by simplified method WOO-104	B64-10282	03	GROOVES		
Radiation-detector optical-imaging device is of simplified construction GSFC-251	B64-10299	01	New package for Belleville spring permits rate change, easy disassembly JPL-392	B63-10247	05
Polychart contour plotter enables data extrapolation from multiple plotting charts M-FS-37	B64-10406	05	Bench vise adapter grips tubing securely and safely MSC-279	B66-10056	05
Forming blocks speed production of strain gage grids LEWIS-182	B65-10009	05			
Simple scale interpolator facilitates reading of graphs LANGLEY-88	B65-10070	05			
Wire bundle formed into grids with minute interstices WOO-089	B65-10372	03			

SUBJECT INDEX

GROWTH

T-handle wrench has torque-limiting action MSC-280	B66-10065	05	GROUND HANDLING	Body-fitted harness provides safe and easy component handling M-FS-533	B66-10202	05
Plugged hollow shaft makes fatigue-resistant shear pin LANGLEY-195	B66-10077	05	GROUND STATE	Vibration analysis utilizing Mossbauer effect M-FS-11974	B67-10339	01
Modified drill permits one-step drilling operation M-FS-559	B66-10169	05		Automatic tuning of hydrogen masers GSFC-10127	B69-10452	01
Flexible coiled spline securely joins mating cylinders WOO-270	B66-10172	05	GROUND STATIONS	Omnidirectional antennas transmit and receive over large bandwidth GSFC-436	B66-10133	01
Pressure seal ring may be effective over wide temperature range M-FS-486	B66-10211	05		An investigation of phase-lock loop swept- frequency synchronization M-FS-656	B66-10423	01
Mill profiler machines soft materials accurately M-FS-692	B66-10254	05		Automatic telemetry checkout system M-FS-12580	B67-10402	01
Versatile machine mills, saws light materials M-FS-827	B66-10364	05		Interference effects eliminated in random oriented space station antenna system MSC-11004	B67-10435	01
Hollow spherical rotors fabricated by electroplating JPL-SC-117	B66-10366	05		Video synchronization processor overcomes poor signal-to-noise ratio KSC-10002	B67-10515	01
New backup-bar groove configuration improves helium welding of 2014-T6 aluminum MSC-806	B66-10443	05		Millimeter-wave atmospheric loss prediction method NPO-11054	B69-10584	01
Valve effectively controls amount of contaminant in flow stream M-FS-1771	B66-10683	05	GROUND SUPPORT EQUIPMENT	Work platform is supported by self-locking blades M-FS-2297	B67-10180	05
Cryogenic seal remains leaktight during thermal displacement ARG-96	B67-10134	02		Tube joint leak repair coupling MSC-15022	B68-10540	05
Continuous internal channels formed in aluminum fusion welds M-FS-2399	B67-10183	05		Programmed schedule holds for improving launch vehicle holds M-FS-14502	B69-10602	03
Static seal concept to accommodate seat tolerances M-FS-1854	B67-10285	05	GROUND SUPPORT SYSTEMS	Assembly, checkout, and operation optimization analysis technique for complex systems M-FS-14105	B68-10222	05
Quick-attach clamp XPR-05421	B68-10250	05	GROUND TESTS	Teflon-packed flexible joint LEWIS-90252	B69-10049	03
Spiral-grooved shaft seals substantially reduce leakage and wear LEWIS-10397	B68-10270	05	GROUND WAVE PROPAGATION	Improved VHF direction finding system M-FS-20439	B69-10378	01
Hermetically sealed pump LEWIS-10837	B69-10320	05	GROWTH	Cytology is advanced by studying effects of deuterium environment ARG-205	B67-10304	04
Surface profilometer for examining grain-boundary grooves ARG-10290	B69-10345	05		Continuous microbial cultures maintained by electronically-controlled device ARG-177	B67-10556	04
Sealing a rubber bladder between two sections of an accumulator M-FS-20403	B69-10355	05		Study made of relationship between growth and metabolism ARG-10046	B67-10604	04
GROOVING				Dynamics of moving bubbles in single and binary component systems M-FS-14845	B68-10339	02
Indexing device ensures proper mating of electrical connectors MSC-155	B65-10263	01		Compound equation developed for postnatal growth of birds and mammals ARG-10192	B68-10427	04
Shallow grooves in journal improve air bearing performance LEWIS-10396	B68-10134	05		Investigation of temperature dependence of development and aging ARG-10145	B69-10022	04
Preparing rock powder specimens of controlled size distribution NPO-10007	B68-10297	05	GROUND EFFECT MACHINES	Air-cushion lift pad M-FS-14685	B69-10448	05
Shock-absorbent mountings for bearings NPO-10626	B69-10331	05				

GUARDS (SHIELDS)

SUBJECT INDEX

GUARDS (SHIELDS)

Key-locked guard prevents accidental switch
actuation
MSC-419 B66-10235 05

GUIDANCE (MOTION)

Visual attitude orientation and alignment
system
MSC-647 B67-10120 02

Earth orbit rendezvous evaluation program
M-FS-13016 B67-10407 06

Conceptual nonorthogonal gyro configuration
for guidance and navigation
MSC-11363 B67-10433 01

Closed circuit TV system automatically
guides welding arc
M-FS-20084 B68-10357 01

GUIDANCE SENSORS

The Quantasyn, an improved quantum
detector
ERC-10148 B69-10443 01

Hermetically sealed vibration damper
MSC-10959 B69-10634 05

Image position sensor
M-FS-14101 B69-10783 02

GUNS (SUBSTANCES)

Sea dye marker provides visibility for 20
hours
MSC-714 B66-10313 03

GUNS

Shoulder adapter steadies spot welding gun
M-FS-321 B66-10076 05

Fingertip current control facilitates use
of arc welding gun
MSC-289 B66-10092 05

GUY WIRES

Oceanborne transponder platform has good
stability
M-FS-171 B65-10035 05

GYPSUM

Epoxy-resin patterns speed shell-molding of
aluminum parts
M-FS-303 B65-10177 05

GYRATION

Study of high-speed angular-contact ball
bearings under dynamic load
M-FS-20562 B69-10367 05

GYRATORS

Gyrator-type circuits replace ungrounded
inductors
IAC-10608 B68-10084 01

Energy-storage of a prescribed impedance
ARG-10428 B69-10431 02

GYROSCOPE FLUIDS

Improved gyro-flotation /damping/ fluids
MSC-13217 B69-10360 03

GYROSCOPES

Slit feeds reduce unbalanced torques in
gas-lubricated bearings
JPL-264 B65-10099 05

Electron beam seals outer surfaces of porous
bodies
M-FS-562 B66-10033 03

Developmental instrument supplies accurate
attitude and attitude-rate data
HQ-57 B66-10607 01

Conceptual nonorthogonal gyro configuration
for guidance and navigation
MSC-11363 B67-10433 01

Stable ac phase and amplitude comparator
M-FS-13086 B67-10459 01

Squeeze-film gas bearing technology
M-FS-14821 B68-10180 05

Laser system used for dynamic balancing of
gyros
M-FS-12218 B68-10225 05

Improved gas ring laser
MSC-11584 B68-10304 02

Compensation of pulse-rebalanced inertial
instruments
MSC-13098 B69-10216 01

H

HAFNIUM

High-strength tungsten alloy with improved
ductility
LEWIS-10257 B67-10340 03

HAFNIUM ALLOYS

New tungsten alloy has high strength
at elevated temperatures
LEWIS-336 B66-10551 03

HAFNIUM OXIDES

Protective coating withstands high temperature
in oxidizing atmosphere
M-FS-529 B66-10044 03

HAIL

Simulated hailstone fabrication and use in
testing weatherability of structures
NFO-10783 B68-10552 03

HALIDES

Welding, bonding, and sealing of refractory
metals by vapor deposition
LEWIS-123 B67-10232 03

Improved high-temperature silicide coatings
LEWIS-10817 B69-10266 03

Improved gyro-flotation /damping/ fluids
MSC-13217 B69-10360 03

Improved retort for cleaning metal powders
with hydrogen
LEWIS-10718 B69-10468 03

Analysis of secondary cells with
lithium anodes and immobilized
fused-salt electrolytes
ARG-10452 B69-10613 01

HALL EFFECT

System measures arc energy dissipated in
relay contact cycling
M-FS-14541 B68-10312 01

HALOGEN COMPOUNDS

Xenon fluoride solutions effective as
fluorinating agents
ARG-217 B67-10133 03

Fire retardant foams developed to suppress
fuel fires
ARC-10098 B68-10358 03

Zone purification of potassium chloride
ARG-10377 B69-10241 03

HALOGENATION

Synthesis of various highly halogenated
monomers and polymers
M-FS-2143 B67-10100 03

Fire retardant foams developed to suppress
fuel fires
ARC-10098 B68-10358 03

HALOGENS

Silazane elastomer remains resilient at
400 deg C
M-FS-1144 B66-10667 05

SUBJECT INDEX

HARDENERS

Primary cells utilize halogen-organic charge transfer complex JPL-926	B66-10682	02	Heavy-duty staple remover operated by hand JPL-IT-1004	B63-10292	05
HAMMERS			Electronic assembly rack panels snap on and off GSFC-59	B64-10121	05
Versatile impact hand tool M-FS-20140	B68-10371	05	Torque wrench designed for restricted areas LEWIS-246	B66-10011	05
HANSTEES			T-handle wrench has torque-limiting action MSC-280	B66-10065	05
Study of radiation effects on mammalian cells in vitro ARG-10191	B68-10294	02	Fingertip current control facilitates use of arc welding gun MSC-289	B66-10092	05
HANDBOOKS			Latching mechanism operates in limited access area MSC-230	B66-10338	05
Pyrometry handbook describes practical aspects of surface temperature measurements of opaque materials LEWIS-349	B66-10520	01	Tool facilitates installation of Marmon clamps M-FS-2039	B67-10105	05
Materials data handbooks prepared for aluminum alloys 2014, 2219, and 5456, and stainless steel alloy 301 M-FS-1959	B67-10089	03	Coaxial cable stripping device facilitates RF cabling fabrication NPO-10315	B67-10419	05
Materials data handbook, Inconel alloy 718 M-FS-2348	B67-10282	03	HANDLING EQUIPMENT		
Materials data handbook, aluminum alloy 7075 M-FS-2349	B67-10301	03	Filler device for handling hot corrosive materials MSC-85	B64-10166	03
Handbooks describe eddy current techniques used in nondestructive testing of metal parts and components M-FS-13172	B67-10374	03	Remotely operated clamping tool has positive grip NU-0020	B65-10254	05
Fluid properties handbook M-FS-13462	B67-10440	03	Hollow plastic hoops protect thermocouple in storage and handling NU-0023	B65-10256	05
Handbook of cryogenic data in graphic form KSC-10009	B67-10610	02	Dispenser leak-tests and sterilizes rubber gloves MSC-285	B66-10166	03
Training manuals for nondestructive testing using magnetic particles M-FS-20187	B68-10391	03	Universal transloader moves delicate equipment without stress MSC-654	B66-10384	05
Contamination control handbook M-FS-20185	B68-10392	03	Apparatus for fabrication of americium-beryllium neutron sources prevents capsule contamination ARG-184	B67-10202	05
Failure rates for accelerated acceptance testing of silicon transistors ERC-10198	B68-10541	01	Detachable caster adapter MSC-91215	B69-10164	05
Thermal expansion properties of aerospace materials M-FS-18335	B69-10055	03	Proposed technique for vertical alignment of a crane's cable M-FS-16496	B69-10202	05
Materials data handbook, aluminum alloy 6061 M-FS-20381	B69-10065	03	HANKEL FUNCTIONS		
Tube welding and brazing M-FS-20348	B69-10085	05	Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes ARG-10274	B69-10047	02
Handbooks for nondestructive testing using ultrasonics M-FS-20409	B69-10108	03	Numerical inversion of finite Toeplitz matrices and vector Toeplitz matrices ARG-10445	B69-10415	02
Welding, brazing, and soldering handbook M-FS-20504	B69-10264	05	HARDENERS		
Sterilization training manual M-FS-20437	B69-10277	04	Stringent cleaning technique assures reliable epoxy bond GSFC-161	B64-10142	03
Handbook for design of containers of fluids and gases for spacecraft M-FS-20502	B69-10279	05	Epoxy blanket protects milled part during explosive forming M-FS-307	B66-10029	03
Microelectronic device data handbook ERC-10322	B69-10687	01	Sprayable birefringent coating enables strain measurements on large surfaces M-FS-1484	B66-10578	03
Handbook explaining the fundamentals of nuclear and atomic physics NUC-10330	B69-10705	02	Flowmeter determines mix ratio for viscous adhesives M-FS-2308	B67-10378	01
HANDLES					
Special pliers connect hose containing liquid under pressure JPL-IT-1003	B63-10291	05			

HARDENING (MATERIALS)

HARDENING (MATERIALS)

Removable preheater elements improve oxide induction furnace
JPL-288 B63-10193 01

Quick-hardening problems are eliminated with spray gun modification which mixes resin and accelerator liquids during application
LANGLEY-6A B63-10318 03

Boron-deoxidized copper withstands brazing temperatures
M-FS-762 B66-10273 03

Quick-set temporary bonding clamps
NPO-10695 B69-10406 03

HARDNESS

Dry film lubricant is effective at extreme loads
M-FS-628 B66-10256 03

Valve seat pores sealed with thermosetting monomer
M-FS-900 B66-10322 03

Traveling wire electrode increases productivity of Electrical Discharge Machining /EDM/ equipment
ARG-136 B67-10238 05

A new method for producing optical mirrors
HQ-10227 B69-10529 02

HARDWARE

Composite bulkhead fabrication development
M-FS-1264 B66-10582 05

Computer program determines chemical equilibria in complex systems
LEWIS-281 B66-10671 01

Data retrieval system provides unlimited hardware design information
MSC-1144 B67-10170 01

Chemical milling solution reveals stress corrosion cracks in titanium alloy
LANGLEY-10077 B67-10322 03

Multiple correlation computer program determines relationships between several independent and dependent variables
M-FS-13024 B67-10327 06

Test device prevents weld joint damage by eliminating axial pin forces on unpotted modules
LEWIS-10201 B67-10359 01

Eccentric drive mechanism is adjustable during operation
M-FS-2576 B67-10373 05

Reidentifying hardware after loss of serial number
M-FS-18133 B69-10059 05

Technique for assessing potential fire hazards
HQ-10279 B69-10287 03

A method for using surface tension to determine the size of holes in hardware
MSC-15194 B69-10595 03

Investigation of the development of cracks in solder joints
M-FS-20444 B69-10807 01

HARMONIC ANALYSIS

Harmonic distortion analyzer speeds setup of magnetic tape recorders
GSFC-10198 B68-10254 01

HARMONIC FUNCTIONS

Large-amplitude inviscid fluid motion in an accelerating container
MSC-11560 B68-10170 02

SUBJECT INDEX

HARMONIC GENERATIONS

Wide-band doubler and sine wave quadrature generator
NPO-11133 B69-10383 01

HARMONIC GENERATORS

Efficient millimeter wave 1140 GHz/ diode for harmonic power generation
HQ-61 B67-10166 01

Experimental coherent fractional frequency multiplier at S-band
M-FS-2427 B67-10250 01

HARMONIC OSCILLATION

Improved circuit for measuring capacitive and inductive reactances
M-FS-13083 B67-10513 01

HARMONIC OSCILLATORS

Synthesis of electro-optic modulators for amplitude modulation of light
M-FS-14268 B68-10275 02

HARMONICS

Double emitter suppressed carrier modulator uses commercially available components
M-FS-2494 B67-10101 01

Vibration damping composition has flush-away feature
M-FS-597 B67-10432 03

HARNESSES

Nylon shock absorber prevents injury to parachute jumpers
MSC-226 B66-10080 05

Body-fitted harness provides safe and easy component handling
M-FS-533 B66-10202 05

Simulator effects partial gravity conditions
MSC-152 B66-10339 05

Web belt load measuring instrument has excellent stability
MSC-921 B67-10242 01

Safety yoke would protect construction workers from falling
KSC-10075 B67-10445 05

HASTELLOY (TRADEMARK)

Composite weld rod corrects individual filler weaknesses
M-FS-1923 B67-10107 05

Weld procedure produces quality welds for thick sections of Hastelloy-X
NUC-10048 B67-10195 05

Hastelloy X properties, data, and metallurgical characteristics
NUC-10302 B68-10023 03

Magnetic forming of resistive materials
M-FS-20417 B69-10397 03

Technique for predicting the thermal expansion coefficients of cryogenic metallic alloys
NUC-10554 B69-10707 02

HATCHES

Concealed hinge permits flush mounting of doors and hatches
MSC-623 B66-10336 03

Inflatable O-ring seal would ease closing of hatch cover plate
MSC-740 B66-10385 05

Interior servicing platform simplifies maintenance of storage tanks
M-FS-1300 B66-10425 05

HAULING

Detachable caster adapter

SUBJECT INDEX

HEAT EXCHANGERS

MSC-91215	B69-10164	05	concentration in aqueous samples	ARG-208	B67-10129	04
HAZARDS			Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna			
Low-cost insulation system for cryostats eliminates need for a vacuum	LEWIS-64	B63-10365	03	ARG-10345	B69-10258	02
System transmits mechanical vibration into hazardous environment	NU-0025	B65-10248	05	Health hazards of ultrafine metal and metal oxide powders	LEWIS-10878	B69-10268 04
Electromechanical flowmeter accurately monitors fluid flow	GSFC-357	B65-10273	01	HEARING		
Oxygen-hydrogen torch is a small-scale steam generator	NU-0042	B66-10120	03	Electronic dummy for acoustical testing	MSC-206	B67-10298 01
Soft-seal valve holds hazardous fluids safely	LEWIS-275	B66-10216	05	HEART DISEASES		
Lathe chuck key incorporates safety feature	MSC-506	B66-10243	05	Neutron therapy of cancer	ARG-10310	B69-10203 04
Magnetic latches provide positive overpressure control	NU-0057	B66-10279	05	HEART FUNCTION		
Sniffer used as portable hydrogen leak detector	M-FS-846	B66-10356	01	A phonocardiogram simulator	KSC-67-94	B67-10239 01
Nonhazardous acid etches weld samples	M-FS-975	B66-10378	05	Cardiac R-wave detector	LEWIS-10394	B68-10144 01
Ion exchange determines iodine-131 concentration in aqueous samples	ARG-208	B67-10129	04	HEART RATE		
Test instrumentation evaluates electrostatic hazards in fluid system	M-FS-2277	B67-10145	01	Digital cardiometer computes and displays heartbeat rate	MSC-93	B64-10258 01
Remotely operated high pressure valve protects test personnel	MSC-11010	B67-10291	05	Inexpensive, stable circuit measures heart rate	MSC-95	B65-10010 01
Chemistry laboratory safety manual available	SAN-10030	B68-10419	03	Digital-output cardiometer measures rapid changes in heartbeat rate	MSC-133	B65-10143 01
Ambient temperature catalyst for hydrogen ignition	LEWIS-10551	B68-10520	03	Phonocardiograph system monitors heart sounds	MSC-185	B66-10154 04
Improved combustion chamber optical probe	MSC-10953	B69-10142	02	Cardiometer with linear beat-to-beat frequency response	ARC-10033	B67-10598 01
Technique for assessing potential fire hazards	HQ-10279	B69-10287	03	Direct reading of electrocardiograms and respiration rates	KSC-10233	B69-10188 04
Device separates hydrogen from solution in water at ambient temperatures	MSC-13335	B69-10635	03	HEARTHS		
HEAD (ANATOMY)			Laboratory arc furnace features interchangeable hearths			
Electronic dummy for acoustical testing	MSC-206	B67-10298	01	ARG-125	B67-10052	05
HEAD FLOW			HEAT			
Pump simulator provides variable pressure-flow characteristics	LEWIS-10122	B67-10453	05	Potassium plasma cell facilitates thermionic energy conversion process	ARG-10010	B67-10399 01
HEAD MOVEMENT			Studies of cycles for liquid-metal magnetohydrodynamic generation of power			
Improved head-controlled TV system produces high-quality remote image	ARG-128	B67-10317	01	ARG-10250	B69-10194	02
HEADERS			Concept for improved vacuum pressure measuring device			
Tube-to-header joint for bimetallic construction	LEWIS-10282	B67-10464	05	M-FS-20172	B69-10421	02
HEALTH			Deposition monitor and control			
Ion exchange determines iodine-131				NPO-10706	B69-10722	01
			HEAT BALANCE			
			Electronic calorimetric computer			
			LEWIS-90254			
			HEAT EXCHANGERS			
			New method used to fabricate light-weight heat exchanger for rocket motor			
			LEWIS-43			
			B63-10346			
			02			
			Refractory ceramic has wide usage, low fabrication cost			
			M-FS-67			
			B63-10481			
			03			
			Integral coolant channels supply made by melt-out method			
			M-FS-91			
			B63-10497			
			05			

HEAT FLUX

SUBJECT INDEX

Cantilever springs maintain tension in thermally expanded wires LEWIS-136	B65-10149	05	Study of theory and application of long duration heat flux transducers M-FS-1265	B66-10614	01
Spiraled channels improve heat transfer between fluids JPL-694	B65-10291	02	Study of hot wire techniques in low density flows with high turbulence levels M-FS-1269	B66-10687	01
Reaction heat used in static water removal from fuel cells M-FS-532	B66-10013	01	Plasma jet electrode has longer operating life NU-0098	B67-10024	02
Self-contained clothing system provides protection against hazardous environments M-FS-536	B66-10201	05	Computer program MCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid NUC-10042	B67-10456	06
Closed loop operation eliminates need for auxiliary gas in high pressure pumping station M-FS-893	B66-10408	05	Gage measures total radiation, including vacuum UV, from ionized high-temperature gases XNP-09802	B69-10028	02
Rotational fluid coupling eliminates hose entanglements MSC-312	B66-10585	05	Mixing weld gases offers advantages M-FS-16413	B69-10145	05
Coldplate of pin fin design makes efficient heat exchanger MSC-1093	B67-10073	05	A prototype high power portable lamp M-FS-20229	B69-10189	02
Tool facilitates installation of Marmon clamps M-FS-2039	B67-10105	05	Ultra-high-flux heat exchanger M-FS-18135	B69-10201	02
Development of dual solid cryogenics for high reliability refrigeration system GSPC-10188	B67-10644	02	Automated measurement of thermal conductivity M-FS-20454	B69-10283	03
Concept to comfort-condition subjects wearing restrictive clothing MSC-10964	B68-10178	02	Technique for assessing potential fire hazards HQ-10279	B69-10287	03
Liquid-metal heat transfer in a cocurrent-flow, double-pipe heat exchanger is investigated ARG-10261	B69-10091	02	Stress-testing of the throat of a rocket's nozzle NPO-10311	B69-10358	05
A method for predicting interfacial freezing of a liquid flowing over a cold surface LEWIS-10813	B69-10321	02	HEAT GENERATION		
Measurement of gas flow at extremely low pressures MSC-13261	B69-10522	03	Segmented, arch-bound carbon seal is pressure loaded M-FS-12777	B67-10325	05
Cryogenic fluid flow instabilities in heat exchangers M-FS-20438	B69-10541	02	Study made of anodized aluminum circuit boards M-FS-13580	B67-10425	01
Liquid-metal-piston MHD generator ARG-10500	B69-10771	02	Computer program MCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid NUC-10042	B67-10456	06
HEAT FLUX			Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid NUC-10043	B67-10457	06
Flexible curtain shields equipment from intense heat fluxes M-FS-48	B65-10044	03	Study of thermal effects on nickel-cadmium batteries GSPC-10003	B67-10614	01
Graphite element serves as radiant heat source M-FS-105	B65-10218	01	Improved calorimeter provides accurate thermal measurements of space batteries GSPC-10003A	B67-10615	01
Air-cured ceramic coating insulates against high heat fluxes M-FS-150	B65-10357	03	Cooling of 2 kW H subscript 2-O subscript 2 fuel cell M-FS-13737	B68-10544	01
Circular, explosion-proof lamp provides uniform illumination MSC-382	B66-10156	02	Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes ARG-10274	B69-10047	02
Improved thermal insulation materials made of foamed refractory oxides M-FS-735	B66-10288	03	Thermal Network Analyzer Program NUC-10540	B69-10239	06
Heat flux sensor design reduces extraneous source effects MSC-400	B66-10531	01	Temperature-controlled resistor NPO-10713	B69-10440	01
Light-intensity modulator withstands high heat fluxes MSC-246	B66-10532	02			

SUBJECT INDEX

HEAT SINKS

Rate of heat extraction controller for environmental control HQ-10318	B69-10516	01		
HEAT MEASUREMENT				
Simple transducer measures low heat-transfer rates JPL-466	B64-10122	01		
Probe measures characteristics of hot gas stream M-FS-240	B65-10133	02		
Calorimeter accurately measures thermal radiation energy LANGLEY-173	B66-10058	02		
Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique ARG-277	B67-10324	03		
Twin solution calorimeter determines heats of formation of alloys at high temperatures ARG-10114	B68-10083	01		
Steady-state differential calorimeter measures gamma heating in reactor ARG-10120	B68-10182	01		
A mass flux probe for measurement in a supersonic stream LEWIS-10695	B68-10533	02		
Calibration of a resistance thermometer down to 0.04 degrees K ARG-10318	B69-10149	01		
Continuous analysis of nitrogen dioxide in gas streams of plants ARG-10356	B69-10254	03		
Automatic calorimetry system monitors RF power NPO-11033	B69-10384	01		
HEAT OF FORMATION				
Twin solution calorimeter determines heats of formation of alloys at high temperatures ARG-10114	B68-10083	01		
One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06		
HEAT OF VAPORIZATION				
Reaction heat used in static water removal from fuel cells M-FS-532	B66-10013	01		
Complementary system vaporizes subcooled liquid, improves transformer efficiency M-FS-550	B66-10045	02		
Cryogenic liquid transfer system reduces residual boiloff LEWIS-274	B66-10157	02		
Development of dual solid cryogens for high reliability refrigeration system GSPC-10188	B67-10644	02		
Cooling of 2 kW H subscript 2-O subscript 2 fuel cell M-FS-13737	B68-10544	01		
A rotating, noncapillary heat pipe LEWIS-10298	B69-10684	05		
HEAT PIPES				
A rotating, noncapillary heat pipe LEWIS-10298	B69-10684	05		
HEAT RADIATORS				
Graphite element serves as radiant heat source M-FS-105	B65-10218	01		
HEAT RESISTANT ALLOYS				
Nickel-base superalloys developed for high-temperature applications LEWIS-226	B66-10222	03		
Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics LEWIS-320	B66-10373	03		
Nonhazardous acid etches weld samples M-FS-975	B66-10378	05		
Cobalt-tungsten, ferromagnetic high-temperature alloy LEWIS-10378	B68-10095	03		
Manual of industrial diamonds plus dressing and grinding criteria for machining superalloys M-FS-14582	B68-10239	05		
Nickel base alloy with improved stress rupture properties LEWIS-10283	B68-10344	03		
Tungsten fiber-reinforced nickel superalloy LEWIS-10424	B68-10369	03		
Nickel-base superalloy*s excellent properties promote its service to 2200 degrees F LEWIS-10355	B68-10380	03		
Evaluation of lubricants for ball bearings at high temperatures LEWIS-10578	B69-10025	03		
High strength, superplastic superalloy LEWIS-10805	B69-10293	03		
Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03		
HEAT SHIELDING				
Refractory thermal insulation for smooth metal surfaces M-FS-160	B64-10099	03		
Flexible curtain shields equipment from intense heat fluxes M-FS-48	B65-10044	03		
Air-cured ceramic coating insulates against high heat fluxes M-FS-150	B65-10357	03		
Jig protects transistors from heat while tinning leads MSC-515	B66-10240	05		
Modified thermocouple is effective from minus 250 deg to 5000 deg F MSC-420	B66-10461	01		
Heat flux sensor design reduces extraneous source effects MSC-400	B66-10531	01		
Tungsten insulated susceptor cup for high temperature induction furnace eliminates contamination LEWIS-283	B66-10538	03		
Sensors measure surface ablation rate of reentry vehicle heat shield LANGLEY-287	B66-10592	01		
Predicting surface heating rates and pressures resulting from hot exhaust gases MSC-971	B66-10633	05		
Multidimensional reaction kinetic ablation program /REKAP/ MSC-10079	B67-10495	06		
HEAT SINKS				
Indium foil with beryllia washer improves				

HEAT SOURCES

SUBJECT INDEX

transistor heat dissipation GSFC-42	B63-10033	01	Method of disjoining adhesively bonded electronic cordwood modules MSC-12060	B68-10086	01
Mounting for diodes provides efficient heat sink M-FS-197	B64-10283	01	Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time ARG-10110	B68-10328	01
Wide-angle sensor measures radiant heat energy in corrosive atmospheres M-FS-228	B65-10019	05	Heat-load simulator for heat sink design MSC-15170	B68-10510	02
Automatic thermal switch accelerates cooling-down of cryogenic system JPL-655	B65-10068	01	High conductance vapor thermal switch GSFC-10109	B68-10519	02
Refractory oxides evaluated for high-temperature use LANGLEY-121	B65-10167	03	Self-shielding printed circuit boards for high frequency amplifiers and transmitters HQ-10433	B69-10314	01
Electronic modules easily separated from heat sink MSC-142	B65-10186	02	An integrated circuit switch NPO-11073	B69-10326	01
Wire mesh isolator protects sensitive electronic components GSFC-347	B65-10216	05	Quick-acting backup tool for welding ducts M-FS-18404	B69-10396	05
Servo calorimeter measures material heating rate NU-0024	B65-10247	01	HEAT SOURCES		
Boron nitride housing cools transistors WOO-079	B65-10289	01	Emergency solar still desalts seawater MSC-135	B65-10214	03
Copper foil provides uniform heat sink path MSC-262	B66-10004	02	Graphite element serves as radiant heat source M-FS-105	B65-10218	01
Calorimeter accurately measures thermal radiation energy LANGLEY-173	B66-10058	02	High-speed furnace uses infrared radiation for controlled brazing NU-0047	B66-10268	02
Mounting improves heat-sink contact with beryllia washer MSC-194	B66-10144	01	High intensity radiation heat source is capable of sustained operation ARC-61	B66-10547	02
Jig protects transistors from heat while tinning leads MSC-515	B66-10240	05	Pyrotechnic device provides one-shot heat source LEWIS-10131	B68-10062	03
Rugged microelectronic module package supports circuitry on heat sink MSC-81A	B66-10245	01	Electrochemical cell has internal resistive heater element GSFC-10358	B68-10325	01
Bypass rod transfers heat developed in thermionic diode JPL-SC-136	B66-10303	05	Optically exciting a magnetic memory - A feasibility study M-FS-14854	B69-10060	02
Collector/collector guard ring balancing circuit eliminates edge effects JPL-SC-143	B66-10563	01	Techniques for controlling warpage and residual stresses in welded structures M-FS-20307	B69-10086	05
Technique for measuring absorptance and emittance by using cyclic incident radiation LEWIS-321	B66-10630	02	Improved vacuum deposition apparatus NPO-11009	B69-10365	02
Switching-type regulator circuit has increased efficiency MSC-1063	B67-10190	01	HEAT STORAGE		
Reparable, high-density microelectronic module provides effective heat sink M-FS-13075	B67-10356	01	Balloon batteries, charged and heated by solar energy GSFC-10769	B69-10585	01
Study made of anodized aluminum circuit boards M-FS-13580	B67-10425	01	HEAT TRANSFER		
Aluminum heat sink enables power transistors to be mounted integrally with printed circuit board M-FS-13663	B67-10426	01	High purity electroforming yields superior metal models ARC-6	B63-10007	05
Study made of transfer of heat energy through metal joints in vacuum environment M-FS-12534	B67-10465	02	Indium foil with beryllia washer improves transistor heat dissipation GSFC-42	B63-10033	01
Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01	Cooling method prolongs life of hot-wire transducer LEWIS-41	B63-10344	02
			New method used to fabricate light-weight heat exchanger for rocket motor LEWIS-43	B63-10346	02
			Insulated weld tooling permits uniform, high quality weld MSC-42	B64-10058	05
			Adhesive for vacuum environments resists shock and vibration MSC-56	B65-10016	03

SUBJECT INDEX

HEAT TRANSFER

Thermistor connector assembly increases accuracy of measurements LANGLEY-62	B65-10045	01	Selective tube roughening increases heat transfer capability M-FS-599	B66-10610	05
Pulsed plasma accelerator operates repetitively without complex controls LANGLEY-48	B65-10062	01	Computer program simplifies transient and steady-state temperature prediction for complex body shapes MSC-989	B66-10619	01
Automatic thermal switch accelerates cooling-down of cryogenic system JPL-655	B65-10068	01	Instrument accurately measures small temperature changes on test surface LANGLEY-174	B66-10637	01
Internal cooling increases range of immersion-type temperature probe LEWIS-171	B65-10157	02	Combustion chamber struts can be effectively transpiration cooled M-FS-1830	B66-10643	03
Electronic modules easily separated from heat sink MSC-142	B65-10186	02	Study of fast response thermocouple measurement of temperatures in cryogenic gases M-FS-1659	B66-10661	01
Insulation accelerates rate of cooling with cryogenic fluid MSC-161	B65-10240	02	Low input voltage converter/regulator minimizes external disturbances GSFC-527	B66-10689	01
Spiraled channels improve heat transfer between fluids JPL-694	B65-10291	02	Plasma jet electrode has longer operating life NU-0098	B67-10024	02
Closed fluid system without moving parts controls temperature LEWIS-222	B65-10331	02	Correlation established between heat transfer and ultrasonic transmission properties of copper braze bonds ARG-247	B67-10037	02
Vacuum chamber provides improved insulation and support for cryostat M-FS-415	B65-10368	02	Thermodynamic properties related to expansion of two-component gas MSC-1133	B67-10112	03
Mounting improves heat-sink contact with beryllia washer MSC-194	B66-10144	01	Clamp provides efficient connection for high-density currents M-FS-2417	B67-10140	01
Transducer measures force in vacuum environment LEWIS-218	B66-10161	01	Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries M-FS-1910	B67-10329	06
Control system maintains compartment at constant temperature JPL-SC-145	B66-10188	05	Design for high-temperature /1800 deg F/ liquid metal pressure transducer LEWIS-10144	B67-10458	01
Solid state thermostat has integral probe and circuitry M-FS-434	B66-10193	01	Study made of transfer of heat energy through metal joints in vacuum environment M-FS-12534	B67-10465	02
Freon provides heat transfer for solid CO2 calibration standard M-FS-644	B66-10257	02	Study made of heat transfer and pressure drop through tubes with internal interrupted fins LEWIS-10280	B67-10555	05
Differential expansion provides pressure for diffusion bonding of large diameter rings M-FS-588	B66-10269	05	Propellant tank pressurization analysis program M-FS-1506	B67-10625	06
Boron-deoxidized copper withstands brazing temperatures M-FS-762	B66-10273	03	Properties of optics at high temperature and their measurement, a study M-FS-14696	B68-10240	02
Apparatus enables accurate determination of alkali oxides in alkali metals LEWIS-256	B66-10296	03	Characteristics of fluidized-packed beds ARG-10049	B68-10278	03
Computer program determines gas flow rates in piping systems M-FS-443	B66-10300	01	Thermal conductivity and dielectric constant of silicate materials M-FS-14856	B68-10351	03
Bypass rod transfers heat developed in thermionic diode JPL-SC-136	B66-10303	05	Analysis of annular combustors LEWIS-10399	B68-10356	06
New computer program solves wide variety of heat flow problems M-FS-421	B66-10404	01	Rating of electrical wires in vacuum environments MSC-15108	B68-10362	01
Computer simulation program is adaptable to industrial processes LEWIS-240	B66-10426	01	An investigation of particle mixing in a gas-fluidized bed ARG-10182	B68-10407	05
Computational procedure for finite difference solution of one-dimensional heat conduction problems reduces computer time MSC-1120	B66-10566	01	Solving nonlinear heat transfer constant area fin problems		

HEAT TRANSFER COEFFICIENTS

SUBJECT INDEX

M-FS-14851	B68-10504	02	Differencing Analyzer computer program		
Cooling of 2 kW H subscript 2-0 subscript 2 fuel cell			M-FS-2298	B67-10278	06
M-FS-13737	B68-10544	01	Evaluation of superconducting magnets, a study		
Gage measures total radiation, including vacuum UV, from ionized high-temperature gases			M-FS-14808	B68-10396	02
INP-09802	B69-10028	02	Heat transfer coefficients for liquid hydrogen turbopumps		
Instabilities encountered during heat transfer to a supercritical fluid			M-FS-18345	B68-10517	02
ARG-10266	B69-10042	02	Monte Carlo direct view factor and generalized radiative heat transfer programs		
Propagation of density disturbances in air-water flow			M-FS-15051	B69-10038	06
ARG-10260	B69-10043	02	Instabilities encountered during heat transfer to a supercritical fluid		
Abrasion and resistant discharge valve developed			ARG-10266	B69-10042	02
ARG-10219	B69-10044	05	Liquid-metal heat transfer in a cocurrent-flow, double-pipe heat exchanger is investigated		
Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes			ARG-10261	B69-10091	02
ARG-10274	B69-10047	02	A method for predicting interfacial freezing of a liquid flowing over a cold surface		
Liquid-metal heat transfer in a cocurrent-flow, double-pipe heat exchanger is investigated			LEWIS-10813	B69-10321	02
ARG-10261	B69-10091	02	Technique for predicting temperature distribution in gases		
Experimental prediction of performance by superconducting cables			LEWIS-10918	B69-10329	01
ARG-10215	B69-10161	01	Surface-renewal models for heat-transfer between walls and fluidized beds		
Effect of interparticle forces on the fluidization of fine particles			ARG-10372	B69-10772	02
ARG-10264	B69-10195	03	HEAT TRANSMISSION		
Ultra-high-flux heat exchanger			Electronic device simulates respiration rate and depth		
M-FS-18135	B69-10201	02	MSC-89	B64-10255	01
Improved liquid-level sensor for cryogenics			Servo calorimeter measures material heating rate		
ARG-10162	B69-10210	02	NU-0024	B65-10247	01
Thermophysical properties of sodium			Apparatus measures thermal conductivity of honeycomb-core panels		
ARG-10363	B69-10240	03	LANGLEY-202	B66-10127	01
Method for predicting pump cavitation performance			New computer program solves wide variety of heat flow problems		
LEWIS-10916	B69-10446	02	M-FS-421	B66-10404	01
A comparison of two methods of measuring particle size of Al2O3 produced by a small rocket motor			Experiments to investigate particulate materials in reduced gravity fields		
NPO-11198	B69-10572	03	M-FS-13308	B67-10394	02
Design of multilayer insulation systems			Solution of differential equations by application of transformation groups		
ARC-10166	B69-10615	05	M-FS-14802	B68-10276	02
New type pressure transducer for severe thermal environments			Dynamics of moving bubbles in single and binary component systems		
M-FS-20208	B69-10652	01	M-FS-14845	B68-10339	02
Engineering thermal analyzer /BETA 2/			Computer program TRACK performs transient and/or steady state thermal analysis with coupled fluid flow and heat conduction		
M-FS-15055	B69-10760	06	NUC-10189	B68-10450	06
HEAT TRANSFER COEFFICIENTS			Solving nonlinear heat transfer constant area fin problems		
Thin-film gage measures low heat-transfer rates			M-FS-14851	B68-10504	02
LANGLEY 205	B66-10180	01	Hydraulic calipers		
Wide-range instrument monitors flow rates of chemically active fluids			M-FS-18052	B69-10399	05
MSC-186	B66-10205	01	HEAT TREATMENT		
Bi-metallic devices help maintain constant sealing forces down to cryogenic temperatures			New cobalt alloys have high-temperature strength and long life in vacuum environments		
M-FS-800	B66-10325	02	LEWIS-47	B63-10351	03
Computer program calculates steady-state temperature distribution within plane or axisymmetric solids			Fiber glass parts cured during filament winding eliminates oven, saves time		
NUC-10049	B67-10224	06	M-FS-14	B65-10088	03
CINDA - Chrysler Improved Numerical					

SUBJECT INDEX

HEATERS

High permeability semiconductors permit close-tolerance soldering GSFC-319	B65-10134	05	Development of technology for hot-drape forming of large torus sections M-FS-12141	B67-10341	05
Coiled sheet metal strip opens into tubular configuration GSFC-425	B66-10009	03	Excellent spring properties developed in two nickel alloys for use at cryogenic temperatures NUC-10084	B67-10349	03
Assembly jig assures reliable solar cell modules GSFC-455	B66-10040	05	Magnesium-lithium alloys developed for low temperature use M-FS-1541	B67-10365	03
Refractory coating protects intricate graphite elements from high-temperature hydrogen NU-0027	B66-10084	01	Heat treatment procedure to increase ductility of degraded nickel alloy M-FS-12410	B68-10029	03
Aluminum/steel wire composite plates exhibit high tensile strength M-FS-401	B66-10262	05	Antechamber facilitates loading and unloading of vacuum furnace LEWIS-10265	B68-10135	02
High-speed furnace uses infrared radiation for controlled brazing NU-0047	B66-10268	02	Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03
Aluminum core structures brazed without use of flux M-FS-659	B66-10360	05	Pre-weld heat treatment improves welds in Rene 41 M-FS-18174	B68-10285	03
Special treatment reduces helium permeation of glass in vacuum systems HQ-25	B66-10372	02	Improved thermal treatment of aluminum alloy 7075 M-FS-20083	B68-10534	05
Heat treatment stabilizes welded aluminum jigs and tool structures MSC-800	B66-10458	03	SPAN C - Terminal sterilization process analysis program NPO-10805	B69-10039	06
Electroless nickel plating on stainless steels and aluminum GSFC-533	B66-10479	03	Tensile and fatigue properties of Inconel 718 at cryogenic temperatures M-FS-18192	B69-10068	03
Treatment increases stress-corrosion resistance of aluminum alloys M-FS-1840	B66-10595	05	SPAN - Terminal sterilization process analysis program NPO-10804	B69-10104	06
New weldable high strength aluminum alloy developed for cryogenic service M-FS-737	B66-10613	05	New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118	03
Heat-treatment of metal parts facilitated by sand embedment M-FS-1543	B66-10616	03	Renewal of corrosion protection of coated aluminum after welding M-FS-20361	B69-10150	05
Radioactive method enables determination of surface areas rapidly and accurately NU-0088	B66-10710	03	High strength, superplastic superalloy LEWIS-10805	B69-10293	03
Zirconium alloys with small amounts of iron and copper or nickel show improved corrosion resistance in superheated steam ARG-226	B67-10050	03	Electrothermal linear actuator NPO-10637	B69-10296	05
Simplified method introduces drift fields into cells GSFC-572	B67-10102	03	Effects of hydrogen on metals M-FS-20364	B69-10372	03
Coating protects magnesium-lithium alloys against corrosion M-FS-2446	B67-10149	03	Adjustable thermal **tree** MSC-15556	B69-10484	01
Heat treatment study of aluminum casting alloy M45 M-FS-2397	B67-10159	03	Retention of ductility in high-strength steels ARG-10497	B69-10616	03
Porous mandrels provide uniform deformation in hydrostatic powder metallurgy M-FS-1972	B67-10209	03	Reducing contact resistance at semiconductor to metal or aluminum to metal interfaces ERC-10254	B69-10689	01
Simplified method measures changes in tensile yield strength using least number of specimens NUC-10075	B67-10266	03	Effects of high-pressure hydrogen on storage vessel materials M-FS-18605	B69-10730	03
Welding of AM350 and AM355 steel M-FS-2314	B67-10292	05	Determination of permissible applied load stress in structural elements M-FS-16556	B69-10823	02
High-strength tungsten alloy with improved ductility LEWIS-10257	B67-10340	03	HEATERS		
			Wire winding increases lifetime of oxide coated cathodes LEWIS-154	B65-10032	03
			Experimental investigation of megawatt dc arc heating of nitrogen		

HEATING

SUBJECT INDEX

LEWIS-313	B66-10508	02	Heater decomposes oil backstreaming from high-vacuum pumps GSFC-356	B65-10224	02
Heater control circuit provides both fast and proportional control M-FS-906	B67-10097	01	Angular glass tubing drawn from round tubing HQ-20	B65-10235	05
Lightweight heater generates high temperatures from low current SAN-10004	B68-10223	01	Complementary system vaporizes subcooled liquid, improves transformer efficiency M-FS-550	B66-10045	02
Viscosity and density of methanol/water mixtures at low temperatures M-FS-14991	B68-10274	03	Heated die facilitates tungsten forming LEWIS-25A	B66-10047	05
HEATING			Refractory coating protects intricate graphite elements from high-temperature hydrogen NU-0027	B66-10084	01
New method forms bond line free of voids LANGLEY-20	B63-10558	05	Soldering tool heats workpieces and applies solder in one operation LEWIS-247	B66-10115	05
Thermocompression bonding produces efficient surface-barrier diode JPL-SC-066	B65-10007	05	Apparatus measures thermal conductivity of honeycomb-core panels LANGLEY-202	B66-10127	01
Jig and fixture aid fabrication of tungsten rivets LEWIS-185	B65-10101	05	Soldering iron temperature is automatically reduced ARC-57	B66-10203	01
Design concept for pressure switch calibrator HQ-36	B66-10598	01	Wide-range instrument monitors flow rates of chemically active fluids MSC-186	B66-10205	01
Predicting surface heating rates and pressures resulting from hot exhaust gases MSC-971	B66-10633	05	Low power heating element provides thermal control during swaging operations M-FS-457	B66-10206	05
Design concept to decrease relative speed of ball bearings M-FS-2003	B67-10212	05	Special tool seals conductors with combination of plastic sleeves M-FS-579	B66-10209	05
Liquid crystals detect voids in fiber glass laminates LEWIS-10104	B67-10286	03	Tool permits damage-free removal of solar cell GSFC-467	B66-10219	05
Graphite cloth facilitates vacuum evaporation of silicon monoxide M-FS-14764	B68-10256	03	Electric arc heater is self starting LANGLEY-208	B66-10230	03
Inverted grounding technique for electron beam heating LEWIS-10543	B68-10411	01	Modified soldering iron speeds cutting of synthetic materials M-FS-725	B66-10246	05
HEATING EQUIPMENT			Apparatus enables automatic microanalysis of body fluids JPL-962	B66-10515	04
Removable preheater elements improve oxide induction furnace JPL-288	B63-10193	01	Temperature responsive valve withstands high impact loading NPO-10186	B67-10225	05
Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen LEWIS-15	B63-10340	05	High-strength tungsten alloy with improved ductility LEWIS-10257	B67-10340	03
Radiant heater for vacuum furnaces offers high structural rigidity, low heat loss LEWIS-39	B63-10342	01	Modified blackbody device emits high-density radiation M-FS-12744	B67-10388	02
Apparatus facilitates high-temperature tensile testing in vacuum LEWIS-42	B63-10345	03	Concept for cryogenic liquid reclamation system NPO-10322	B67-10420	02
Filler device for handling hot corrosive materials MSC-85	B64-10166	03	Concept for design of variable stiffness damper ARC-11225	B67-10483	05
Nitrogen dioxide produced by self-sustained pyrolysis of nitrous oxide LANGLEY-32	B65-10074	05	Liquid gallium rotary electric contract LEWIS-10828	B69-10138	03
Efficient thin film heating element takes minimum space GSFC-289	B65-10123	01	Combustion method for assay of biological materials labeled with carbon-14 or tritium, or double-labeled ARG-10331	B69-10208	04
Collar positions strip stock used to form coil on mandrel JPL-198	B65-10130	05	Thermophysical properties of sodium ARG-10363	B69-10240	03
Cantilever springs maintain tension in thermally expanded wires LEWIS-136	B65-10149	05	Automated measurement of thermal conductivity		
Spiral heater coils hand-formed with fixture LEWIS-208	B65-10192	05			

SUBJECT INDEX

HELIUM

M-FS-20454	B69-10283	03	Self-actuating grapple automatically engages and releases loads from overhead cranes	ARG-81	B66-10522	05
Tool for reading psychrometric charts	KSC-10358	B69-10527	05			
A rotating, noncapillary heat pipe	LEWIS-10298	B69-10684	05			
HEAVING				HELIUM		
Air-cushion lift pad	M-FS-14685	B69-10448	05	Supercold technique duplicates magnetic field in second superconductor	JPL-376	B63-10237 05
HEAVY ELEMENTS				Low-cost insulation system for cryostats eliminates need for a vacuum	LEWIS-64	B63-10365 03
Daughter growth in freshly separated Ra-226, Ac-227 and U-232	ARG-10226	B69-10003	02	Rapid helium-air analyzer can measure other binary gas mixtures	LANGLEY-16	B63-10557 03
HEAVY WATER				Sensitive low-pressure relief valve has positive seating against leakage	WOO-041	B64-10278 05
Cytology is advanced by studying effects of deuterium environment	ARG-205	B67-10304	04	Automatic thermal switch accelerates cooling-down of cryogenic system	JPL-655	B65-10068 01
Purification and characterization of two fully deuterated enzymes	ARG-10314	B69-10207	04	Transmission system isolates pressure transducer from severe environment	WOO-239	B66-10064 01
HEIGHT				Thin-film gage measures low heat-transfer rates	LANGLEY 205	B66-10180 01
System enables dimensional inspection of very large structures	M-FS-2477	B67-10214	05	Insulation for cryogenic tanks has reduced thickness and weight	M-FS-326	B66-10183 02
Measuring coplanarity of surfaces	MSC-12044	B67-10371	02	Expandable rubber plug seals openings for pressure testing	NU-0048	B66-10229 05
HELICAL ANTENNAS				Brazing process using Al-Si filler alloy reliably bonds aluminum parts	MSC-448	B66-10241 05
Comfortable, lightweight safety helmet holds radio transmitter, receiver	MSC-53	B64-10015	05	Sniffer used as portable hydrogen leak detector	M-FS-846	B66-10356 01
Low-loss C-band parasitic probe	KSC-09348	B69-10251	01	Special treatment reduces helium permeation of glass in vacuum systems	HQ-25	B66-10372 02
HELICAL FLOW				Leak locator for vacuum jacketed pipelines eliminates need for removal of outer jacket	M-FS-888	B66-10412 01
Stationary device produces homogeneous mixture of fluids	M-FS-525	B66-10570	05	Large diameter metal ring seal prevents gas leakage at 5000 psi	M-FS-1064	B66-10422 05
Hermetically sealed pump	LEWIS-10837	B69-10320	05	Cold trap increases sensitivity of gas chromatography	M-FS-1617	B66-10517 03
Torsional tubular disconnect	NPO-10704	B69-10499	05	A continuously operating source of vacuum ultraviolet below 500 angstrom	GSFC-545	B66-10576 01
HELICAL WINDINGS				Resistor monitors transfer of liquid helium	LANGLEY-229	B66-10580 01
Helium tube separates nitrogen gas from liquid nitrogen	JPL-398	B63-10251	05	Neon isotopes cancel errors in gas laser	M-FS-1476	B66-10583 02
Helical coaxial-resonator makes excellent RF filter	GSFC-243	B65-10012	01	Laser Doppler flowmeter measures gas velocity	M-FS-1747	B66-10693 02
High frequency wide-band transformer uses coax to achieve high turn ratio and flat response	ARG-107	B66-10600	01	Portable detector set discloses helium leak rates	M-FS-1733	B67-10065 01
Development of helical seal for high temperature /2000 degrees F/ application	M-FS-13304	B67-10655	05	Effects of helium and nitrogen as pressurants in nitrogen tetroxide transfer	MSC-924	B67-10083 03
Dynamically stable check valve concept for wide flow range	M-FS-14579	B68-10247	05	Fixture facilitates helium leak testing of		
Helical tape forming device	GSFC-10830	B69-10137	05			
Helical recorder	GSFC-10614	B69-10340	01			
A positive taper traveling-wave tube	LANGLEY-10263	B69-10407	01			
HELICOPTERS						
Scoop attachment makes helicopter recoveries easier and safer	MSC-130	B65-10229	05			

HELIUM ISOTOPES

SUBJECT INDEX

pipe welds M-FS-2167	B67-10178	05	High pressure real gas effects for helium and nitrogen LEWIS-10819	B69-10669	06
Fresnel diffraction plates are simple and inexpensive M-FS-12731	B67-10297	02	Thermal conductivity probe M-FS-20566	B69-10780	03
Single-source mechanical loading system produces biaxial stresses in cylinders M-FS-12530	B67-10380	05	HELIUM ISOTOPES Cryogenic filter method produces super-pure helium and helium isotopes JPL-374	B63-10235	03
Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133	B67-10437	03	A fast-neutron spectrometer of advanced design M-FS-1664	B66-10555	01
Fluid properties handbook M-FS-13462	B67-10440	03	HELMETS Comfortable, lightweight safety helmet holds radio transmitter, receiver MSC-53	B64-10015	05
Environmental control system for cryogenic testing of tensile specimens NUC-10523	B67-10618	02	Self-contained clothing system provides protection against hazardous environments M-FS-536	B66-10201	05
Reducing bubbles in glass coatings improves electrical breakdown strength LEWIS-10278	B68-10214	03	One-piece transparent shell improves design of helmet assembly MSC-187	B66-10390	05
Quasi-static vapor pressure measurements on reactive systems in inert atmosphere box ARG-90142	B68-10236	01	Helmet system broadcasts electroencephalograms of wearer ARC-70	B66-10536	01
Advances in light-gas gun technology M-FS-14270	B68-10288	05	Protective clothing for workers with 5-kW and 20-kW short-arc lamps NPO-11155	B69-10218	01
Cryogenic liquid level measuring probe ARG-10138	B68-10291	01	HELMHOLTZ EQUATIONS Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01
Reliable method for testing gross leaks in semiconductor component packages ERC-10150	B68-10562	01	HEMISPHERE CYLINDER BODIES Hollow spherical rotors fabricated by electroplating JPL-SC-117	B66-10366	05
Levitation-melting technique for metals and alloys ARG-10240	B69-10006	03	HEMISPHERICAL SHELLS Improved method of dicing integrated circuit wafers into chips ERC-10138	B69-10441	01
Two systems developed for purifying inert atmospheres ARG-10234	B69-10026	03	HEMOLYSIS Blood oxygen saturation determined by transmission spectrophotometry of hemolyzed blood samples MSC-11018	B67-10252	04
Diffusion of trace gases for leak detection - A study M-FS-20254	B69-10067	03	Improved sample capsule for determination of oxygen in hemolyzed blood MSC-11017	B67-10408	04
Prediction of friction coefficients for gases LEWIS-10774	B69-10112	02	HENRY LAW Effects of helium and nitrogen as pressurants in nitrogen tetroxide transfer MSC-924	B67-10083	03
Mixing weld gases offers advantages M-FS-16413	B69-10145	05	HEPARINS Heparin insolubilized with crosslinking agent NPO-10834	B69-10299	03
Calibration of a resistance thermometer down to 0.04 degrees K ARG-10318	B69-10149	01	HEPTANES Magnetic fluid readily controlled in zero gravity environment LEWIS-126	B65-10335	03
Experimental prediction of performance by superconducting cables ARG-10215	B69-10161	01	HERMETIC SEALS Device transmits rotary motion through hermetically sealed wall JPL-303	B63-10198	05
Computer program for high pressure real gas effects LEWIS-10820	B69-10222	06	Mouthpiece adapter for pipettes protects mouth from harmful liquids LANGLEY-47	B65-10043	03
Spiral-flow apparatus for measuring permeation of solids by gases M-FS-16517	B69-10357	03	Automatic thermal switch accelerates cooling-down of cryogenic system JPL-655	B65-10068	01
Report on a cryogenic gyroscope NPO-11200	B69-10504	02			
Flared-tube fittings with replaceable seat inserts MSC-15372	B69-10519	05			
A new method for fabrication of flexible vacuum purge jackets M-FS-12646	B69-10564	03			
Two-color holography HQ-10349	B69-10662	02			

SUBJECT INDEX

HIGH FREQUENCIES

Transducer measures temperature differentials in presence of strong electromagnetic fields ARC-27	B65-10089	01	HEXAGONAL CELLS		
One-shot valve may be remotely actuated WOO-195	B65-10266	05	Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics LEWIS-320	B66-10373	03
Cam-operated limit switch features safe fuse replacement MSC-218	B65-10322	01	HIGH ACCELERATION		
Solid state thermostat has integral probe and circuitry M-FS-434	B66-10193	01	Improved holder protects crystal during high acceleration and impact JPL-463	B65-10037	05
Critical parts are stored and shipped in environmentally controlled reusable container M-FS-703	B66-10258	05	Acceleration-compensated pressure transducer has fast response LANGLEY-113	B66-10353	01
Brazing process provides high-strength bond between aluminum and stainless steel M-FS-803	B66-10352	05	HIGH ALTITUDE BALLOONS		
Miniature capacitive accelerometer is especially applicable to telemetry ARC-72	B66-10491	01	An improved magnetic tape recorder GSPC-08259	B67-10646	01
Fuel and oxidizer valve assembly employs single solenoid actuator MSC-1046	B66-10648	05	HIGH ALTITUDE TESTS		
Hermetically sealed cells protected from internal gas pressure GSPC-555	B66-10692	01	An improved magnetic tape recorder GSPC-08259	B67-10646	01
Metal boot permits fabrication of hermetically sealed splices in metal sheathed instrumentation cables NU-0083	B66-10704	05	HIGH ASPECT RATIO		
Glass formulation has high coefficient of thermal expansion NU-0084	B66-10705	03	Wire material reduces compressor blade vibration LEWIS-357	B66-10666	03
Multichannel implantable telemetry system ARC-10083	B68-10065	01	HIGH CURRENT		
Conceptual hermetically sealed elbow actuator M-FS-14710	B68-10300	05	Superconductor magnets used for stagger-tuning traveling-wave maser GSPC-292	B65-10165	01
New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118	03	Electropneumatic rheostat regulates high current ARC-44	B65-10299	01
Hermetically sealed pump LEWIS-10837	B69-10320	05	Niobium thin films are superconductive in strong magnetic fields at low temperatures JPL-SC-174	B66-10122	02
Hermetically sealed vibration damper MSC-10959	B69-10634	05	Mechanism facilitates coating of inner surfaces of metal cylinders GSPC-515	B66-10698	05
HETEROCYCLIC COMPOUNDS			High-energy-rate magnetohydraulic metal forming system M-FS-2142	B67-10126	02
Polymer film exhibits thermal and radiation stability LANGLEY-100	B66-10043	03	Clamp provides efficient connection for high-density currents M-FS-2417	B67-10140	01
HETERODYNING			Hybrid solid state switch replaces motor-driven power switch JPL-931	B67-10165	01
Study of random process theory aids digital data processing M-FS-1475	B67-10309	06	Eutectic fuse provides current and thermal protection under high vibration M-FS-13664	B67-10535	01
Laser communication system is insensitive to atmospherically induced noise GSPC-10396	B67-10587	01	Thermionic diode switching has high temperature application NPO-10404	B67-10672	01
Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02	Separation simulator KSC-67-15	B69-10315	01
HETEROGENEITY			Synchronous charge-constrained electroquasistatic generator HQ-10231	B69-10461	01
Laser microprobe facility used in the elemental analysis of small feature of a sample ARG-10359	B69-10165	02	HIGH ENERGY ELECTRONS		
HEURISTIC METHODS			Radiation used to temperature compensate semiconductor strain gages LANGLEY-207	B66-10186	02
COGENT programming manual ARG-10463	B69-10656	06	HIGH FREQUENCIES		
			Microwave technique measures plasma characteristics LANGLEY-134	B65-10122	02
			Increased junction lead inductance ballasts high-frequency transistors GSPC-387	B65-10259	01
			Electrodeless discharge lamp is easily started, has high stability WOO-030	B66-10015	01

HIGH GAIN

SUBJECT INDEX

Fatigue cracks detected and measured without test interruption LEWIS-266	B66-10178	02	Blood pressure reprogramming adapter assists signal recording MSC-265	B67-10475	01
High frequency wide-band transformer uses coax to achieve high turn ratio and flat response ARG-107	B66-10600	01	Improved fire resistant radio frequency anechoic materials M-FS-16600	B69-10450	05
Monitoring system determines amplitude and time of vibration channel peaks JPL-879	B66-10699	01	HIGH GRAVITY ENVIRONMENTS Modified algessimeter provides accurate depth measurements MSC-616	B66-10647	04
Current pulse amplifier transmits detector signals with minimum distortion and attenuation NUC-10055	B67-10347	01	HIGH PASS FILTERS High-pass RF coaxial filter rejects dc and low frequency signals GSFC-73	B64-10173	01
Ultrasonic wrench produces leaktight connections M-FS-12561	B67-10353	05	Compact microwave mixer has high conversion efficiency GSFC-197	B66-10625	01
Pressure levels and pulsation frequencies can be varied on high pressure/frequency testing device LEWIS-10205	B67-10360	05	Study of optimum discrete estimators in measurement analysis M-FS-14915	B68-10348	02
Potassium plasma cell facilitates thermionic energy conversion process ARG-10010	B67-10399	01	Design of dissipative linear phase filters M-FS-14698	B68-10572	01
Moebius resistor is noninductive and nonreactive SAN-10020	B68-10267	01	HIGH POLYMERS Study of high-speed angular-contact ball bearings under dynamic load M-FS-20562	B69-10367	05
Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01	HIGH PRESSURE High-pressure regulating system prevents pressure surges JPL-231	B63-10170	05
Effects of high frequency current in welding aluminum alloy 6061 M-FS-18337	B68-10383	05	Filter for high-pressure gases has easy take-down, assembly JPL-373	B63-10234	03
Induction probe determines levels of liquid metals ARG-10348	B69-10256	03	Composite, vacuum-jacketed tubing replaces bellows in cryogenic systems LEWIS-67	B63-10368	05
Survey of man-made electrical noise affecting radio broadcasting HQ-10290	B69-10308	01	High-temperature, high-pressure spherical segment valve provides quick opening ARC-13	B63-10431	05
Self-shielding printed circuit boards for high frequency amplifiers and transmitters HQ-10433	B69-10314	01	Safety restrainer prevents whipping of ruptured high-pressure hose LEWIS-99	B64-10348	05
Computer simulation of high-frequency combustion instability and its suppression HQ-10391	B69-10368	06	Fluid-pressure measurement apparatus uses short-length manometer tubes LEWIS-28	B65-10027	05
Improved ferrous shielding for flat cables M-FS-14524	B69-10401	01	High-pressure, low temperature electrical connector makes no-leak seal MSC-276	B66-10079	02
Cryogenic flux-concentrator ARG-10494	B69-10654	02	Radioactive tracer system detects oil contaminants in fluid lines M-FS-512	B66-10090	03
HIGH GAIN Lightweight load support serves as vibration damper JPL-661	B65-10144	05	Transducer measures force in vacuum environment LEWIS-218	B66-10161	01
Apparatus presents visual display of semiconductor surface characteristics JPL-665	B66-10200	01	Bellows design features low spring rate and long life MSC-521	B66-10190	05
Circuit provides accurate four-quadrant multiplication WOO-272	B66-10331	02	Quick-closing valve is actuated by explosive discharge ARC-55	B66-10233	05
Voltage regulator/amplifier is self-regulated MSC-1240	B67-10156	01	Diffusion bonding makes strong seal at flanged connector M-FS-637	B66-10250	05
FM carrier deviation measured by differential probability method M-FS-2166	B67-10213	01	Flow ring valve is simple, quick-acting M-FS-752	B66-10255	05
Review of research and development in fluid logic elements M-FS-420	B67-10438	01	Remotely controlled system couples and decouples large diameter pipes NU-0062	B66-10276	05

SUBJECT INDEX

HIGH RESOLUTION

O-rings with mylar back-up provide high-pressure cryogenic seal M-FS-603 B66-10278 05	M-FS-12987 B67-10526 05
High pressure tube coupling requires no threads or flares MSC-600 B66-10285 05	Lead plated aluminum ring provides static high pressure seal for large diameter pressure vessel NUC-10008 B67-10539 05
External linkage tie permits reduction in ducting system flange thickness M-FS-823 B66-10326 05	Device damps fluid pressure oscillations in vent valve M-FS-13290 B68-10078 05
Adapter assembly prevents damage to tubing during high pressure tests MSC-563 B66-10330 02	High-pressure gas facilitates calibration of turbine flowmeters for liquid hydrogen LEWIS-10402 B68-10145 01
Shock-operated valve would automatically protect fluid systems M-FS-801 B66-10335 03	High-torque power wrench, a concept M-FS-18194 B68-10299 05
High pressure cryogenic liquid flow sight assembly provides streamlined flow for easy observation LEWIS-310 B66-10394 01	Hand-tightened, high-pressure seal M-FS-18416 B68-10417 05
Closed loop operation eliminates need for auxiliary gas in high pressure pumping station M-FS-893 B66-10408 05	Performance of low-pressure thermionic converters is evaluated ARG-10276 B69-10090 01
Combustion chamber struts can be effectively transpiration cooled M-FS-1830 B66-10643 03	Computer program for high pressure real gas effects LEWIS-10820 B69-10222 06
Improved cryogenic refrigeration system JPL-731 B67-10128 02	Leakage measuring method M-FS-14722 B69-10438 01
Line adapter provides quick disconnect under moderate side loading M-FS-2159 B67-10256 05	Abrasion and fracture testing in a high-pressure hydrogen environment M-FS-18480 B69-10457 03
A piezo-bar pressure probe LEWIS-393 B67-10259 01	High-pressure seals for rotary shafts M-FS-18548 B69-10649 05
Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi NUC-10067 B67-10263 01	High pressure real gas effects for helium and nitrogen LEWIS-10819 B69-10669 06
High impact pressure regulator withstands impacts of over 15,000 g NPO-10175 B67-10274 01	Effects of high-pressure hydrogen on storage vessel materials M-FS-18605 B69-10730 03
Remotely operated high pressure valve protects test personnel MSC-11010 B67-10291 05	HIGH RESISTANCE Electro-optic modulator for infrared laser using gallium arsenide crystal GSPC-10686 B68-10255 02
Radiation counting technique allows density measurement of metals in high-pressure/high-temperature environment ARG-124 B67-10316 02	Temperature or pressure controller LEWIS-10297 B68-10337 01
Segmented, arch-bound carbon seal is pressure loaded M-FS-12777 B67-10325 05	Instrumentation for potentiostatic corrosion studies with distilled water ARG-10409 B69-10413 03
Device enables calibration of microphones at high sound pressure levels M-FS-11980 B67-10336 01	HIGH RESOLUTION Raster linearity of video cameras calibrated with precision tester GSPC-200 B64-10209 01
Soft metal plating enables hard metal seal to operate successfully in low temperature, high pressure environment NUC-10083 B67-10350 03	Plant respirometer enables high resolution of oxygen consumption rates HQ-47 B66-10406 04
Pressure levels and pulsation frequencies can be varied on high pressure/frequency testing device LEWIS-10205 B67-10360 05	Means for improving apparent resolution of television ERC-65 B67-10152 01
Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133 B67-10437 03	Surface irregularities detected by flare inspection instrument M-FS-20157 B69-10152 01
Reaction of steam with molybdenum is studied ARG-295 B67-10502 03	Nondestructive testing of welds on thin-walled tubing M-FS-18144 B69-10402 01
Dynamic valve seal is reliable at cryogenic temperatures	Magnetomotive forming for precision sizing and joining of large-diameter tubes M-FS-20481 B69-10422 05
	A new method for producing optical mirrors HQ-10227 B69-10529 02
	Miniaturized high-resolution mass/charge spectrograph /design study/

HIGH SPEED

SUBJECT INDEX

MSC-13279	B69-10554	02	Nickel-base superalloys developed for high-temperature applications	LEWIS-226	B66-10222	03	
HIGH SPEED							
Ohmmeter senses depletion of lubricant in journal bearings	LEWIS-37	B64-10042	01	Aluminum/steel wire composite plates exhibit high tensile strength	M-FS-401	B66-10262	05
Intermediate rotating ring improves reliability of dynamic shaft seal	M-FS-575	B66-10197	05	Boron-deoxidized copper withstands brazing temperatures	M-FS-762	B66-10273	03
High-speed furnace uses infrared radiation for controlled brazing	NU-0047	B66-10268	02	Electrolytic etching process provides effective bonding surface on stainless steel	GSFC-484	B66-10299	03
Gas-injection valve operates at high speed	HQ-49	B66-10381	05	Brazing process provides high-strength bond between aluminum and stainless steel	M-FS-803	B66-10352	05
Selective tube roughening increases heat transfer capability	M-FS-599	B66-10610	05	Aluminum core structures brazed without use of flux	M-FS-659	B66-10360	05
Resilient bearing supports are gas controlled	LEWIS-10109	B67-10364	05	High-strength braze joints between copper and steel	M-FS-2519	B67-10211	05
Flow liner extends operating life of high-angulation bellows	M-FS-12023	B67-10512	05	Aluminum-titanium hydride-boron carbide composite provides lightweight neutron shield material	NUC-10069	B67-10265	03
Simplified, high-speed binary data decoder	NPO-10118	B68-10058	01	High-strength tungsten alloy with improved ductility	LEWIS-10257	B67-10340	03
High-speed camera synchronization	M-FS-18062	B68-10282	02	Carbon offers advantages as implant material in human body	M-FS-18207	B69-10087	04
Communication system features dual mode range acquisition plus time delay measurement	M-FS-14323	B68-10306	01	HIGH STRENGTH ALLOYS			
Solid state high-voltage pulser operates with low supply voltage	M-FS-14034	B68-10308	01	New cobalt alloys have high-temperature strength and long life in vacuum environments	LEWIS-47	B63-10351	03
Poil bearing support for high-speed rotor	HQ-10315	B69-10661	05	Study of stress corrosion in aluminum alloys	M-FS-13906	B67-10533	03
HIGH SPEED CAMERAS							
Rotating filters permit wide range of optical pyrometry	LANGLEY-33	B65-10100	02	High strength nickel-base alloy with improved oxidation resistance up to 2200 degrees F	LEWIS-10115	B68-10094	03
Rocket engine vibration accurately measured by photography	M-FS-1916	B66-10652	02	High strength, superplastic superalloy	LEWIS-10805	B69-10293	03
High-speed camera synchronization	M-FS-18062	B68-10282	02	Explosive bonding of metal-matrix composites	M-FS-20657	B69-10804	05
High-speed pulse camera	MSC-11353	B68-10329	02	HIGH STRENGTH STEELS			
Fast framing cameras provide high-speed multi-channel data recording	ABG-10252	B69-10102	02	Flexible coiled spline securely joins mating cylinders	WOO-270	B66-10172	05
HIGH STRENGTH							
New method used to fabricate light-weight heat exchanger for rocket motor	LEWIS-43	B63-10346	02	Study to minimize hydrogen embrittlement of ultrahigh-strength steels	M-FS-2455	B67-10141	03
Refractory ceramic has wide usage, low fabrication cost	M-FS-67	B63-10481	03	HIGH TEMPERATURE			
Flexible curtain shields equipment from intense heat fluxes	M-FS-48	B65-10044	03	Radiant heater for vacuum furnaces offers high structural rigidity, low heat loss	LEWIS-39	B63-10342	01
Bellows design features low spring rate and long life	MSC-521	B66-10190	05	High-temperature, high-pressure spherical segment valve provides quick opening	ARC-13	B63-10431	05
Pressure vessels fabricated with high-strength wire and electroformed nickel	M-FS-580	B66-10218	05	Refractory ceramic has wide usage, low fabrication cost	M-FS-67	B63-10481	03
				Flexure support system protects thermally and dynamically loaded models	LANGLEY-39	B65-10042	05
				Thoriated nickel bonded by solid-state			

SUBJECT INDEX

HIGH TEMPERATURE CONT

diffusion method LANGLEY-116	B65-10220	03	Braze alloys used as temperature indicators NU-0063	B66-10274	01
Feed-through connector withstands high temperatures in vacuum environment GSFC-442	B65-10328	01	Cork is used to make tooling patterns and molds MSC-425	B66-10328	01
Flexible protective coatings made from silicon-nitrogen materials M-FS-528	B66-10027	03	Inductive system detects level of conducting fluids LEWIS-322	B66-10392	01
Protective coating withstands high temperature in oxidizing atmosphere M-FS-529	B66-10044	03	Process yield Co-Fe alloys with superior high temperature magnetic properties LEWIS-333	B66-10535	03
Hydrogen-atmosphere induction furnace has increased temperature range LEWIS-153	B66-10055	05	Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys ARG-199	B66-10594	03
Transmission system isolates pressure transducer from severe environment WOO-239	B66-10064	01	Metal boot permits fabrication of hermetically sealed splices in metal sheathed instrumentation cables NU-0083	B66-10704	05
Oxygen-hydrogen torch is a small-scale steam generator NU-0042	B66-10120	03	RF inductor has high Q, is stable at higher temperatures JPL-1019	B67-10106	01
Apparatus measures thermal conductivity of honeycomb-core panels LANGLEY-202	B66-10127	01	Fixture tests bellows reliability through repetitive pressure/temperature cycling MSC-1176	B67-10111	01
Hot-wire detector for chemically active materials used in gas chromatography MSC-269	B66-10139	03	Degreasing of titanium to minimize stress corrosion LEWIS-382	B67-10147	03
Aluminum doping improves silicon solar cells LEWIS-206	B66-10181	02	Sensing disks for slug-type calorimeters have higher temperature stability M-FS-1867	B67-10161	01
Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02	Oxide film on metal substrate reduced to form metal-oxide-metal layer structure ARG-48	B67-10187	03
Radiation used to temperature compensate semiconductor strain gages LANGLEY-207	B66-10186	02	Weld procedure produces quality welds for thick sections of Hastelloy-X NUC-10048	B67-10195	05
Liquid trap seals thermocouple leads M-FS-688	B66-10212	05	Substituting gold for silver improves electrical connections M-FS-2390	B67-10228	03
Nickel-base superalloys developed for high- temperature applications LEWIS-226	B66-10222	03	Water cooled anode increases life of high temperature arc lamp WFO-10180	B67-10247	02
Chromium oxide coatings improve thermal emissivity of alumina WOO-263	B66-10227	03	Materials data handbook, aluminum alloy 7075 M-FS-2349	B67-10301	03
Quick-closing valve is actuated by explosive discharge ARC-55	B66-10233	05	Metal flame spray coating protects electrical cables in extreme environment NUC-10077	B67-10351	03
Insert sleeve prevents tube soldering contamination MSC-552	B66-10238	05	Polarized light reveals stress in machined laminated plastics LEWIS-10018	B67-10383	03
Brazing process using Al-Si filler alloy reliably bonds aluminum parts MSC-448	B66-10241	05	Design for high-temperature /1800 deg F/ liquid metal pressure transducer LEWIS-10144	B67-10458	01
Electrical upsetting of metal sheet forms weld edge M-FS-720	B66-10248	05	High temperature thermocouple design provides gas cooling without increasing overall size of unit NUC-10515	B67-10497	01
Diffusion bonding makes strong seal at flanged connector M-FS-637	B66-10250	05	Reaction of steam with molybdenum is studied ARG-295	B67-10502	03
Substituted silane-diol polymers have improved thermal stability M-FS-469	B66-10259	03	Eutectic fuse provides current and thermal protection under high vibration M-FS-13664	B67-10535	01
Differential expansion provides pressure for diffusion bonding of large diameter rings M-FS-588	B66-10269	05	High-temperature /1100 degrees F/ capacitors operate without supplement cooling LEWIS-10324	B67-10550	01
Boron-deoxidized copper withstands brazing temperatures M-FS-762	B66-10273	03			

HIGH TEMPERATURE AIR

SUBJECT INDEX

High-temperature bearing-cage materials LEWIS-10403	B68-10176	05	ARC-10166	B69-10615	05
Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03	Reducing contact resistance at semiconductor to metal or aluminum to metal interfaces ERC-10254	B69-10689	01
Inverted grounding technique for electron beam heating LEWIS-10543	B68-10411	01	Lateral PNP bipolar transistor with aiding field diffusions MSC-13072	B69-10741	01
Study of fluoride corrosion of nickel alloys ARG-10224	B69-10048	03	HIGH TEMPERATURE AIR		
Hot-cracking studies of Inconel 718 weld- heat-affected zones M-FS-18211	B69-10052	05	Hot-air soldering technique prevents overheating of electrical components GSFC-91	B63-10536	01
Thermal expansion properties of aerospace materials M-FS-18335	B69-10055	03	HIGH TEMPERATURE ENVIRONMENTS		
Materials data handbook, aluminum alloy 6061 M-FS-20381	B69-10065	03	New cobalt alloys have high-temperature strength and long life in vacuum environments LEWIS-47	B63-10351	03
Direct indication of particle size in fluidized beds ARG-10130	B69-10083	05	Gate valve with ceramic-coated base operates at high temperatures ARC-23	B63-10562	03
New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118	03	Fastener provides cooling and compensates for thermal expansion NU-0003	B65-10038	05
High temperature coatings for gas bearings LEWIS-10793	B69-10200	03	Refractory oxides evaluated for high-temperature use LANGLEY-121	B65-10167	03
Combustion method for assay of biological materials labeled with carbon-14 or tritium, or double-labeled ARG-10331	B69-10208	04	Fluoride coatings make effective lubricants in molten sodium environment LEWIS-229	B66-10005	03
Study of high temperature bearing materials LEWIS-10829	B69-10252	03	Special mount improves remote transducer accuracy LEWIS-269	B66-10021	01
Improved high-temperature silicide coatings LEWIS-10817	B69-10266	03	Refractory coating protects intricate graphite elements from high-temperature hydrogen NU-0027	B66-10084	01
Simple test indicates degree of cure of polyimide coatings MSC-15487	B69-10330	03	High temperature thermocouple operates in reduction atmosphere NU-0046	B66-10134	01
Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03	Gallium alloy films investigated for use as boundary lubricants LEWIS-245	B66-10165	03
High-temperature, gas-filled ceramic rectifiers, thyristors, and voltage-reference tubes LEWIS-90271	B69-10376	01	Silazane polymers show promise for high- temperature application M-FS-466	B66-10194	03
Development of structural test articles from magnesium-lithium and beryllium M-FS-14959	B69-10417	03	Self-contained clothing system provides protection against hazardous environments M-FS-536	B66-10201	05
Method for determining properties of microinstabilities of a magnetized plasma HQ-10447	B69-10462	02	Fluid damping reduces bellows seal fatigue failures M-FS-565	B66-10249	05
Device for obtaining separation of oxygen LANGLEY-11007	B69-10477	01	Acceleration-compensated pressure transducer has fast response LANGLEY-113	B66-10353	01
Radiometric temperature reference MSC-13276	B69-10507	01	Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics LEWIS-320	B66-10373	03
Flared-tube fittings with replaceable seat inserts MSC-15372	B69-10519	05	Radiation counting technique allows density measurement of metals in high-pressure/ high-temperature environment ARG-124	B67-10316	02
Rhodium-plated barrier against high-temperature fusion bonding M-FS-92155	B69-10544	05	Protected, high-temperature connecting cable LEWIS-10149	B67-10461	01
Cryogenic pressure transducer M-FS-14909	B69-10601	01	Tube-to-header joint for bimetallic construction LEWIS-10282	B67-10464	05
Design of multilayer insulation systems			Development of helical seal for high temperature /2000 degrees F/ application M-FS-13304	B67-10655	05

SUBJECT INDEX

HIGH VACUUM

Thermionic diode switching has high temperature application NFO-10404	B67-10672	01	High-temperature thermionic emission microscope NFO-10584	B68-10516	01
Asbestos and Inconel combined to form hot-gas seal M-PS-14004	B68-10162	05	Metallic diffusion measured by a modified Knudsen technique HQ-10145	B69-10309	03
High temperature alloy LEWIS-10377	B68-10253	03	Retention of ductility in high-strength steels ARG-10497	B69-10616	03
Ultrasonic temperature measuring device LEWIS-10446	B68-10319	01	Mass-spectrometric study of the rhenium-oxygen system ARG-10421	B69-10645	02
HIGH TEMPERATURE FLUIDS			HIGH TEMPERATURE TESTS		
Diaphragm valve for corrosive and high temperature fluid flow control has unique features LEWIS-304	B66-10365	05	Apparatus facilitates pressure-testing of metal tubing LEWIS-174	B65-10131	05
Flowmeter measures flow rates of high temperature fluids LEWIS-328	B66-10521	01	Evaluation of high temperature stranded hookup wire M-PS-2478	B67-10122	03
Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/ ARG-10148	B68-10368	03	Tensile testing grips ensure uniform loading of bimetal tubing specimens LEWIS-10267	B68-10248	05
Corrosion reduction of aluminum alloys in flowing high-temperature water ARG-10244	B69-10029	03	High-temperature bearing lubricants LEWIS-10408	B68-10249	05
HIGH TEMPERATURE GASES			Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/ ARG-10148	B68-10368	03
Probe measures characteristics of hot gas stream M-PS-240	B65-10133	02	Renewal of corrosion protection of coated aluminum after welding M-PS-20361	B69-10150	05
Self-balancing line-reversal pyrometer automatically measures gas temperatures LEWIS-348	B67-10268	01	Self-lubricating gear M-PS-14971	B69-10408	05
A method of determining combustion gas flow M-PS-13757	B67-10455	03	Engineering thermal analyzer /BETA 2/ M-PS-15055	B69-10760	06
Computer program calculates peripheral water injection cooling of axisymmetric subsonic diffuser NUC-10541	B67-10543	06	HIGH VACUUM		
HIGH TEMPERATURE LUBRICANTS			Gallium useful bearing lubricant in high-vacuum environment LEWIS-12	B63-10337	03
Lead oxide ceramic makes excellent high-temperature lubricant LEWIS-144	B64-10116	03	Molybdenum disulfide mixtures make effective high-vacuum lubricants M-PS-54	B63-10453	03
Solid-film lubricant is effective at high temperatures in vacuum LEWIS-228	B66-10087	03	Improved molybdenum disulfide-silver motor brushes have extended life M-PS-64	B63-10479	03
High-temperature bearing lubricants LEWIS-10408	B68-10249	05	Connector seals fluid lines at cryogenic temperatures and high vacuums GSFC-253	B64-10327	05
Evaluation of lubricants for ball bearings at high temperatures LEWIS-10578	B69-10025	03	Adhesive for vacuum environments resists shock and vibration MSC-56	B65-10016	03
HIGH TEMPERATURE NUCLEAR REACTORS			New alloy brazes titanium to stainless steel MSC-102	B65-10060	05
An ultrasonic method for studying elastic moduli as a function of temperature ARG-10187	B69-10082	02	Spherical electrode eliminates high-voltage breakdown LEWIS-155	B65-10139	01
HIGH TEMPERATURE PLASMA			Instrument accurately measures extremely low air densities M-PS-193	B65-10221	01
Imaging slitless spectrometer for X-ray astronomy M-PS-14309	B68-10546	02	Titanium diaphragm makes excellent amplitron cathode support GSFC-394	B65-10298	01
HIGH TEMPERATURE RESEARCH			Polytetrafluoroethylene lubricates ball bearings in vacuum environment M-PS-379	B66-10081	03
Modified thermocouple is effective from minus 250 deg to 5000 deg F MSC-420	B66-10461	01	Rod and dish cathode improves penning-type vacuum gage GSFC-447	B66-10082	01
Tungsten insulated susceptor cup for high temperature induction furnace eliminates contamination LEWIS-283	B66-10538	03			
Properties of optics at high temperature and their measurement, a study M-PS-14696	B68-10240	02			

HIGH VOLTAGES

SUBJECT INDEX

Solid-film lubricant is effective at high temperatures in vacuum LEWIS-228	B66-10087	03	forming system M-FS-2142	B67-10126	02
Gallium alloy films investigated for use as boundary lubricants LEWIS-245	B66-10165	03	Hybrid solid state switch replaces motor-driven power switch JPL-931	B67-10165	01
Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics LEWIS-320	B66-10373	03	Thermal neutron image intensifier tube provides brightly visible radiographic pattern ARG-120	B67-10296	02
Improved design provides faster response time in photomultiplier GSFC-451	B66-10526	01	High-voltage pulse generator developed for wide-gap spark chambers ARG-10136	B68-10283	01
Tantalum alloys resist creep deformation at elevated temperatures LEWIS-350	B66-10558	03	Solid state high-voltage pulser operates with low supply voltage M-FS-14034	B68-10308	01
Feed-thru flange is useful in vacuum applications to cryogenic temperatures JPL-846	B66-10615	02	High voltage pulse generator MSC-12178	B69-10548	01
Improved rolling element bearings provide low torque and small temperature rise in ultrahigh vacuum environment LEWIS-359	B66-10678	05	Automatic frequency control of voltage-controlled oscillators NPO-11064	B69-10569	01
Combination double door high-vacuum valve provides access to vacuum chamber JPL-849	B66-10697	05	Automated plotting of equipotentials NPO-11134	B69-10570	01
An improved soft X-ray photoionization detector GSFC-540	B67-10072	02	HIGHWAYS Thermophysical properties of sodium ARG-10363	B69-10240	03
Environmental study of miniature slip rings M-FS-2443	B67-10210	05	HINGES Concealed hinge permits flush mounting of doors and hatches MSC-623	B66-10336	03
Machine tests slow-speed sliding friction in high vacuum M-FS-12341	B67-10379	05	Device serves as hinge and electrical connector for circuit boards M-FS-743	B66-10359	01
Improved process for making thin-film sodium niobate capacitors MSC-11231	B68-10163	01	Simple motor drive system operates heavy hinged door NU-0093	B66-10712	05
High-emittance coatings on metal substrates LEWIS-10325	B68-10381	03	Adjustable hinge permits movement of knee in plaster cast M-FS-1756	B67-10056	04
Study of high temperature bearing materials LEWIS-10829	B69-10252	03	Welding torch and wire feed manipulator M-FS-13102	B67-10385	05
Evaluation of magnetic materials for static inverters and converters LEWIS-10343	B69-10306	01	HISTOGRAMS Algebraic Monte Carlo procedure reduces statistical analysis time and cost factors M-FS-1887	B67-10434	01
HIGH VOLTAGES Efficient circuit triggers high-current, high-voltage pulses MSC-14	B64-10024	01	The response of monoenergetic gamma rays in finite media are investigated ARG-10295	B69-10080	02
Cold cathode ionization gage has rigid metal housing GSFC-445	B66-10041	01	HISTOLOGY Foot-operated cell-counter ARG-10315	B69-10351	01
Rod and dish cathode improves penning-type vacuum gage GSFC-447	B66-10082	01	HISTORIES Computer program FPIP-REV calculates fission product inventory for U-235 fission NUC-10089	B67-10450	06
Electric arc heater is self starting LANGLEY-208	B66-10230	03	LABCON - Laboratory Job Control program M-FS-18141	B69-10106	06
Dust particle injector for hypervelocity accelerators provides high charge-to-mass ratio GSFC-509	B66-10347	01	HOLDERS Molded elastomer provides compact ferrite-core holder, simplifies assembly JPL-584	B64-10084	05
Process reduces secondary resonant emission in electronic components JPL-934	B66-10685	01	Improved holder protects crystal during high acceleration and impact JPL-463	B65-10037	05
Low input voltage converter/regulator minimizes external disturbances GSFC-527	B66-10689	01	Carbon-arc rod holder has long life, reduces arc splatter MSC-144	B65-10095	03
High-energy-rate magnetohydraulic metal					

SUBJECT INDEX

HOMOGENIZING

Insulator-holder protects transistors in dense electronic assemblies MSC-214	B65-10389	01	X-ray film holder permits single continuous picture of tubing joint LEWIS-10382	B68-10343	05
Specimen holder design improves accuracy of X-ray powder analysis JPL-SC-165	B66-10075	02	Versatile impact hand tool M-FS-20140	B68-10371	05
Pipe cutting tool is useful in limited space MSC-36	B66-10102	05	Tape reading fixture M-FS-14146	B69-10008	05
Fixture aids soldering of electronic components on circuit board ARC-56	B66-10162	01	HOLDING Residual magnetism holds solenoid armature in desired position LEWIS-343	B67-10038	01
Multisurface fixture permits easy grinding of tool bit angles M-FS-586	B66-10171	05	Programmed schedule holds for improving launch vehicle holds M-FS-14502	B69-10602	03
Tool post modification allows easy turret lathe cutting-tool alignment M-FS-581	B66-10191	05	HOLE DISTRIBUTION (ELECTRONICS) Electroformed screens with uniform hole size LEWIS-10117	B68-10107	05
Soldering iron temperature is automatically reduced ARC-57	B66-10203	01	Nondestructive evaluation of printed wiring boards by microhm resistance measurements SAN-10034	B69-10272	01
Tool separates sleeve-type unions without heat MSC-497	B66-10253	05	HOLE DISTRIBUTION (MECHANICS) Gear drive automatically indexes rotary table M-FS-753	B66-10383	05
Fixed vacuum plate clamps styrofoam for machining M-FS-683	B66-10283	05	Computer program calculates and plots surface area and pore size distribution data GSFC-10362	B68-10009	06
Swiveling lathe jaw concept for holding irregular pieces M-FS-783	B66-10321	05	A method for using surface tension to determine the size of holes in hardware MSC-15194	B69-10595	03
Inflatable holding fixture permits X-rays to be taken of inner weld areas M-FS-856	B66-10327	03	HOLES Hole saw drill attachment has zero force reaction MSC-543	B66-10604	05
Inspection of fine wires simplified by capillary tube wire holder MSC-358	B66-10329	01	HOLLOW Plugged hollow shaft makes fatigue-resistant shear pin LANGLEY-195	B66-10077	05
Adapter assembly prevents damage to tubing during high pressure tests MSC-563	B66-10330	02	Hollow needle used to cut metal honeycomb structures MSC-486	B66-10244	05
Device serves as hinge and electrical connector for circuit boards M-FS-743	B66-10359	01	Self-sealing closure enables access to several fluid containers NPO-10123	B67-10207	04
Versatile machine mills, saws light materials M-FS-827	B66-10364	05	HOLOGRAPHY Improvement in recording and reading holograms ERC-10151	B68-10347	02
Special tool kit aids heavily garmented workers MSC-163	B66-10403	05	Fine-line sensitivity for holographic interferograms HQ-10348	B69-10663	02
Flexible drive allows blind machining and welding in hard-to-reach areas MSC-524	B66-10428	05	Long range holographic contour mapping concept HQ-10350	B69-10700	02
Heat-treatment of metal parts facilitated by sand embedment M-FS-1543	B66-10616	03	HOMOGENEITY Stationary device produces homogeneous mixture of fluids M-FS-525	B66-10570	05
Holding fixture facilitates pipe thread gage measurements M-FS-2009	B67-10066	05	Improved compression molding process LANGLEY-10027	B67-10302	03
Cable clamp bolt fixture facilitates assembly in close quarters KSC-67-80	B67-10244	05	Spectrographic analysis of bismuth-tin eutectic alloys by spark-ignited low-voltage ac-arc excitation ARG-10288	B69-10081	03
Tensile testing grips ensure uniform loading of bimetal tubing specimens LEWIS-10267	B68-10248	05	HOMOGENIZING Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique ARG-277	B67-10324	03
Application of the solid lubricant molybdenum disulfide by sputtering LEWIS-10544	B68-10340	03			
Indium adhesion provides quantitative measure of surface cleanliness SAN-10024	B68-10342	01			

HONEYCOMB CORES

SUBJECT INDEX

Sintering characteristics and properties of PuS and PuP are determined ARG-10228	B69-10058	03	Instrumentation for nondestructive testing of composite honeycomb materials M-FS-20405	B69-10366	03
HONEYCOMB CORES			Nondestructive determination of cohesive strength of adhesive-bonded composites M-FS-20397	B69-10464	03
Flexible honeycomb structure can bend to fit compound curves M-FS-13	B63-10385	05	Freon, T-B1 cutting fluid MSC-11486	B69-10485	05
Fastener distributes stress evenly from sandwich-panel-hung items MSC-236	B65-10358	05	HONING		
Apparatus measures thermal conductivity of honeycomb-core panels LANGLEY-202	B66-10127	01	Run-in with chemical additive protects gear surface M-FS-548	B66-10069	05
Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02	HOOKS		
Ultrasonic emission method enables testing of adhesive bonds M-FS-799	B66-10341	01	Heavy-duty staple remover operated by hand JPL-IT-1004	B63-10292	05
Aluminum core structures brazed without use of flux M-FS-659	B66-10360	05	Simple mechanism combines positive locking and quick-release features WOO-4	B63-10420	05
Composite bulkhead fabrication development M-FS-1264	B66-10582	05	Threading hook facilitates safe recovery of heavy loads MSC-46	B64-10185	05
HONEYCOMB STRUCTURES			Tool pre-tensions covers prior to lacing MSC-631	B66-10301	05
Refractory ceramic has wide usage, low fabrication cost M-FS-67	B63-10481	03	Detachable caster adapter MSC-91215	B69-10164	05
Apparatus permits flexure testing of specimens at cryogenic temperatures M-FS-257	B65-10129	02	Quick-release hook-and-loop fastener MSC-10950	B69-10388	05
Adjustable knife cuts honeycomb material to specified depth MSC-475	B66-10237	05	HOOPS		
Hollow needle used to cut metal honeycomb structures MSC-486	B66-10244	05	Hollow plastic hoops protect thermocouple in storage and handling NU-0023	B65-10256	05
Ultrasonic quality inspection of bonded honeycomb assemblies is automated MSC-859	B66-10544	01	Analysis of stability-critical orthotropic cylinders subjected to axial compression M-FS-12869	B67-10375	03
Study made to control depth of potting compound for honeycomb sandwich fasteners LEWIS-370	B66-10677	05	Single-source mechanical loading system produces biaxial stresses in cylinders M-FS-12530	B67-10380	05
Detection of entrapped moisture in honeycomb sandwich structures MSC-1103	B67-10116	01	Quick-acting backup tool for welding ducts M-FS-18404	B69-10396	05
Application of distorted models in developing scaled structural models M-FS-2540	B67-10321	05	HORIZON		
Analysis of stability-critical orthotropic cylinders subjected to axial compression M-FS-12869	B67-10375	03	Star/horizon simulator used to test space guidance system MSC-407	B67-10110	02
Heavy-gage bonded honeycomb sandwich as primary load-bearing structure M-FS-12060	B67-10427	05	HORIZON SCANNERS		
Nondestructive testing techniques used in analysis of honeycomb structure bond strength M-FS-1214	B67-10574	01	Sextant measures spacecraft altitude without gravitational reference MSC-200	B66-10143	02
Honeycomb seal backing ring increases turbopump disk life M-FS-13303	B67-10607	05	Special purpose reflectometer uses modified ulbricht sphere MSC-1135	B67-10109	02
Repair of honeycomb panels with welded breakaway studs MSC-15046	B69-10261	05	Automatic star-horizon angle measurement system MSC-11585	B69-10597	01
Technique for anchoring fasteners to honeycomb panels LEWIS-10888	B69-10265	03	HORN ANTENNAS		
			Novel horn antenna reduces side lobes, improves radiation pattern JPL-425	B63-10264	01
			Shortened horn-reflector antenna GSFC-502	B67-10017	01
			HOSES		
			Special pliers connect hose containing liquid under pressure JPL-IT-1003	B63-10291	05
			Safety restrainer prevents whipping of ruptured high-pressure hose LEWIS-99	B64-10348	05
			Dispensing system eliminates torsion in		

SUBJECT INDEX

HUMAN FACTORS ENGINEERING

deployed hoses MSC-80	B65-10185	05	Seismometer designed for remote operation in random orientation JPL-320	B66-10085	01
Rubber-coated bellows improves vibration damping in vacuum lines LEWIS-273	B66-10187	02	High temperature thermocouple operates in reduction atmosphere NU-0046	B66-10134	01
Rotational fluid coupling eliminates hose entanglements MSC-312	B66-10585	05	Solid state thermostat has integral probe and circuitry M-FS-434	B66-10193	01
Plastic tubing protects flexible copper hose M-FS-772	B66-10588	05	Segmented ball valve is easy to open and close WOO-248	B66-10195	05
Method for predicting frictional loss in metal bellows and flexible hose M-FS-883	B66-10662	05	Temperature responsive valve withstands high impact loading NPO-10186	B67-10225	05
Hand-tightened, high-pressure seal M-FS-18416	B68-10417	05	Tool samples subsurface soil free of surface contaminants MSC-10988	B67-10473	05
Teflon-packed flexible joint LEWIS-90252	B69-10049	03	Computer program analyzes whirl critical speeds and bearing loads for shafts coupled by nonlinear springs to machine housing NUC-10308	B69-10034	06
TFE-fluorocarbon liners for flexible hoses M-FS-16480	B69-10288	05	Improved mouse cage provides versatility and ease in handling laboratory mice MSC-12250	B69-10124	04
Flexible rivet-set M-FS-20317	B69-10459	05	Hermetically sealed pump LEWIS-10837	B69-10320	05
Torsional tubular disconnect NPO-10704	B69-10499	05	HUBS		
Two-functional seal for hose connection M-FS-14062	B69-10588	05	Device measures curved surface finish on gear teeth WOO-112	B65-10064	05
HOSPITALS			Computer program performs flow analysis through turbines LEWIS-236	B66-10496	01
Electrocardiograph transmitted by RF and telephone links in emergency situations FRC-10031	B68-10233	01	Improved design of item in high speed rotating machinery M-FS-18441	B69-10373	05
HOT CATHODES			HUMAN BEHAVIOR		
Vacuum gage system for radiation environment LEWIS-10797	B69-10156	01	Modified algometer provides accurate depth measurements MSC-616	B66-10647	04
HOT ELECTRONS			HUMAN BEINGS		
Vacuum gage system for radiation environment LEWIS-10797	B69-10156	01	Gelatin coated electrodes allow prolonged bioelectronic measurements MSC-153	B66-10088	01
HOT PRESSING			Electrocardiograph transmitted by RF and telephone links in emergency situations FRC-10031	B68-10233	01
Aluminum/steel wire composite plates exhibit high tensile strength M-FS-401	B66-10262	05	HUMAN BODY		
HOT-WIRE ANEMOMETERS			Novel shock absorber features varying yield strengths MSC-63A	B64-10138	03
Cooling method prolongs life of hot-wire transducer LEWIS-41	B63-10344	02	HUMAN FACTORS ENGINEERING		
Experimental design for research on shock-turbulence interaction M-FS-20031	B69-10604	02	Optical projectors simulate human eyes to establish operator's field of view WOO-250	B66-10010	02
HOT-WIRE FLOWMETERS			Shoulder adapter steadies spot welding gun M-FS-321	B66-10076	05
Study of hot wire techniques in low density flows with high turbulence levels M-FS-1269	B66-10687	01	Fingertip current control facilitates use of arc welding gun MSC-289	B66-10092	05
Thermal conductivity probe M-FS-20566	B69-10780	03	Body-fitted harness provides safe and easy component handling M-FS-533	B66-10202	05
HOT WORKING			Legibility of electroluminescent instrument panels investigated MSC-494	B66-10316	02
Development of technology for hot-drape forming of large torus sections M-FS-12141	B67-10341	05	Portable lightweight cell provides controlled environment		
Magnesium-lithium alloys developed for low temperature use M-FS-1541	B67-10365	03			
Basal-plane metallography of deformed pyrolytic carbon NPO-11196	B69-10488	03			
HOUSINGS					
Cold cathode ionization gage has rigid metal housing GSPC-445	B66-10041	01			

HUMAN PATHOLOGY

SUBJECT INDEX

MSC-648 B66-10370 05
 One-piece transparent shell improves design of helmet assembly
 MSC-187 B66-10390 05
 Special tool kit aids heavily garmented workers
 MSC-163 B66-10403 05
 A phonocardiogram simulator
 KSC-67-94 B67-10239 01
 Electronic dummy for acoustical testing
 MSC-206 B67-10298 01

HUMAN PATHOLOGY
 Carbon offers advantages as implant material in human body
 M-FS-18207 B69-10087 04
 Direct reading of electrocardiograms and respiration rates
 KSC-10233 B69-10188 04

HUMAN PERFORMANCE
 Spray-on electrodes enable EKG monitoring of physically active subjects
 FRC-36 B66-10649 04
 Effect of surface irregularities on bellows fatigue life
 M-FS-14480 B68-10229 05

HUMAN REACTIONS
 Improved electrode paste provides reliable measurement of galvanic skin response
 MSC-146 B66-10049 04
 Human transfer functions used to predict system performance parameters
 LANGLEY-203 B66-10379 01

HUMAN TOLERANCES
 Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna
 ARG-10345 B69-10258 02

HUMIDITY
 Materials physically tested in variable-environment chamber
 JPL-789 B66-10130 01
 Dewpoint temperature inversions analyzed
 ARG-10316 B69-10057 02
 Multilayer infrared beamsplitter film system
 XGS-11036 B69-10260 02

HUMIDITY MEASUREMENT
 Fluidic oscillator used as humidity sensor
 LEWIS-340 B67-10063 05
 Connector shorting cap provides pin alignment, inspection, and stray voltage protection
 M-FS-13111 B67-10635 01
 Millimeter-wave atmospheric loss prediction method
 NPO-11054 B69-10584 01

HYBRID COMPUTERS
 Hybrid computer technique yields random signal probability distributions
 ARC-34 B65-10208 01

HYDRATES
 Hydrated multivalent cations are new class of molten salt mixtures
 ARG-211 B67-10033 03
 New class of compounds have very low vapor pressures
 ARG-115 B67-10184 03
 Primary radical yields in pulse irradiated

alkaline aqueous solution
 ARG-10322 B69-10167 02
 Production of solvated electrons
 ARG-10416 B69-10430 03

HYDRATION
 Rate constants measured for hydrated electron reactions with peptides and proteins
 ARG-10195 B68-10424 04

HYDRAULIC CONTROL
 Flow ring valve is simple, quick-acting
 M-FS-752 B66-10255 05
 Rotary valve controls multiple hydraulic leveling cylinders
 M-FS-361 B66-10402 05
 Miniature valve accurately controls small volume fluid flow
 ARG-66 B66-10473 05
 Hydraulically controlled flexible arm can bend in any direction
 KSC-66-20 B66-10626 05
 Pump simulator provides variable pressure-flow characteristics
 LEWIS-10122 B67-10453 05
 Low-cost, fast-response drive circuit for electromagnetic torque motors
 LEWIS-10143 B68-10386 01

HYDRAULIC EQUIPMENT
 Upsetting butt edge increases weld-joint strength
 M-FS-175 B64-10164 05
 Device disconnects several couplings simultaneously
 JPL-226 B65-10163 05
 New nut and sleeve improve flared connections
 M-FS-194 B65-10180 05
 Hydraulic device provides accurate displacements to microinches
 MSC-112 B65-10230 05
 Shock absorber operates over wide range
 MSC-168 B65-10241 05
 Hydraulic drive system prevents backlash
 JPL-371 B65-10351 05
 Electrically heated diaphragm eliminates use of pyrotechnics
 MSC-241 B65-10400 01
 O-ring tube fittings form leakproof seal in hydraulic systems
 M-FS-481 B66-10020 05
 Tool post modification allows easy turret lathe cutting-tool alignment
 M-FS-581 B66-10191 05
 Critical parts are stored and shipped in environmentally controlled reusable container
 M-FS-703 B66-10258 05
 Modified hydraulic braking system limits angular deceleration to safe values
 GSFC-476 B66-10310 05
 Friction loading device enables accurate testing of brittle materials
 NU-0051 B66-10345 05
 Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics
 LEWIS-320 B66-10373 03
 Rotary valve controls multiple hydraulic leveling cylinders

SUBJECT INDEX

HYDROCARBON FUELS

M-FS-361	B66-10402	05	Temperature-controlled resistor NPO-10713	B69-10440	01
Quick-response servo amplifies small hydraulic pressure differences ARG-99	B66-10498	05	Improved solenoid valve design GSFC-10607	B69-10704	05
Hydraulic fluid serves as mandrel for small diameter refractory tube drawing ARG-44	B66-10523	05	HYDRAULIC FLUIDS Device disconnects several couplings simultaneously JPL-226	B65-10163	05
Combination double door high-vacuum valve provides access to vacuum chamber JPL-849	B66-10697	05	Closed fluid system without moving parts controls temperature LEWIS-222	B65-10331	02
Orbital tube flaring system produces tubing connectors with zero leakage M-FS-2016	B67-10019	05	Hydraulic fluid serves as mandrel for small diameter refractory tube drawing ARG-44	B66-10523	05
Pressure levels and pulsation frequencies can be varied on high pressure/frequency testing device LEWIS-10205	B67-10360	05	Valve effectively controls amount of contaminant in flow stream M-FS-1771	B66-10683	05
Single-source mechanical loading system produces biaxial stresses in cylinders M-FS-12530	B67-10380	05	High-energy-rate magnetohydraulic metal forming system M-FS-2142	B67-10126	02
Metal tube reducer is inexpensive and simple to operate ARG-49	B67-10401	05	Test instrumentation evaluates electrostatic hazards in fluid system M-FS-2277	B67-10145	01
Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates NPO-10316	B67-10418	05	Accumulator isolator prevents malfunctioning of faulty hydraulic system M-FS-1415	B67-10528	05
Material fatigue data obtained by card-programmed hydraulic loading system LANGLEY-10042	B67-10491	03	HYDRAULICS Pressure molding of powdered materials improved by rubber mold insert WOO-100	B64-10270	03
Analysis of dynamic systems with DAP4B computer program M-FS-13999	B67-10523	06	Two-axis winch installer for heavy ducts in confined space M-FS-14254	B69-10062	05
Accumulator isolator prevents malfunctioning of faulty hydraulic system M-FS-1415	B67-10528	05	Prediction of performance of centrifugal pumps during starts under pressure LEWIS-109C0	B69-10263	05
Hydraulic servo system increases accuracy in fatigue testing LANGLEY-217	B67-10637	01	Automatic filter-blowback systems used with sintered-metal filters ARG-10324	B69-10342	05
Pressure variable orifice for hydraulic control valve MSC-11323	B68-10120	05	HYDRAZIDES Solder flux leaves corrosion-resistant coating on metal JPL-611	B64-10206	03
High-torque power wrench, a concept M-FS-18194	B68-10299	05	HYDRAZINES Magnetic fluid readily controlled in zero gravity environment LEWIS-126	B65-10335	03
Conceptual hermetically sealed elbow actuator M-FS-14710	B68-10300	05	Gas chromatographic column enables analysis of propellant hydrazines MSC-1161	B66-10586	03
Conceptual apparatus for detecting leaks of nonconductive liquids M-FS-14713	B68-10303	01	Addition of solid oxidizer increases liquid fuel specific impulse JPL-861	B67-10058	03
Hand-tightened, high-pressure seal M-FS-18416	B68-10417	05	Trace hydrazines in aqueous solutions accurately determined by gas chromatography MSC-11222	B67-10290	03
Torsion system for creep testing with multiple stress reversals BQ-10039	B69-10147	03	HYDRIDES Aluminum-titanium hydride-boron carbide composite provides lightweight neutron shield material NUC-10069	B67-10265	03
Two-step rocket engine bipropellant valve concept MSC-10951	B69-10280	05	Effects of hydrogen on metals M-FS-20364	B69-10372	03
Repair of weld defects in thin-walled stainless steel tubes M-FS-16293	B69-10305	05	HYDROCARBON FUELS Sensor detects hydrocarbon oil contaminants in fluid lines M-FS-522	B66-10068	01
Vibration dampener for Niles vertical boring mill ram MSC-15529	B69-10348	05	Test instrumentation evaluates electrostatic		
Hydraulic calipers M-FS-18052	B69-10399	05			

HYDROCARBONS

SUBJECT INDEX

hazards in fluid system M-FS-2277	B67-10145	01	HYDROGEN Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen LEWIS-15	B63-10340	05
HYDROCARBONS Variable-transparency wall regulates temperatures of structures LANGLEY-25	B63-10528	03	Fuel cell serves as oxygen level detector JPL-SC-072	B65-10066	01
Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons LEWIS-263	B66-10104	03	Impurity diffusion process for silicon semiconductors is fast and precise GSFC-397	B65-10300	01
Process reduces secondary resonant emission in electronic components JPL-934	B66-10685	01	Brazing method produces solid-solution bond between refractory metals LEWIS-212	B65-10370	05
New class of thermosetting plastics has improved strength, thermal and chemical stability LEWIS-10108	B67-10197	03	Process reduces pore diameters to produce superior filters WOO-093	B66-10037	03
Improved inorganic ion exchange membranes LEWIS-10737	B69-10451	03	Heated die facilitates tungsten forming LEWIS-25A	B66-10047	05
Improved primer for bonding polyurethane adhesives to metals M-FS-90591	B69-10540	03	Hydrogen-atmosphere induction furnace has increased temperature range LEWIS-153	B66-10055	05
Chromatographic detection and analysis of traces of hydrocarbons KSC-10388	B69-10716	02	Refractory coating protects intricate graphite elements from high-temperature hydrogen NU-0027	B66-10084	01
HYDROCHLORIC ACID Solder flux leaves corrosion-resistant coating on metal JPL-611	B64-10206	03	Oxygen-hydrogen torch is a small-scale steam generator NU-0042	B66-10120	03
Modification increases light output of injection-luminescent diodes M-FS-192	B65-10006	01	Dual regulator controls two gases from a single reference MSC-227	B66-10167	05
Gage of 6.5 per cent Si-Fe sheet is chemically reduced MSC-537	B66-10454	03	Liquid trap seals thermocouple leads M-FS-688	B66-10212	05
Zone purification of potassium chloride ARG-10377	B69-10241	03	Chromium oxide coatings improve thermal emissivity of alumina WOO-263	B66-10227	03
Improved nickel plating of Inconel X-750 M-FS-18604	B69-10463	05	Boron-deoxidized copper withstands brazing temperatures M-FS-762	B66-10273	03
HYDRODYNAMICS Spiral-grooved shaft seals substantially reduce leakage and wear LEWIS-10397	B68-10270	05	Device removes hydrogen gas from enclosed spaces GSFC-495	B66-10340	03
Hydrodynamics of a new concept of primary containment by energy absorption ARG-10242	B69-10046	05	Sniffer used as portable hydrogen leak detector M-FS-846	B66-10356	01
Self-sustained hydrodynamic oscillations in a natural-circulation two-phase-flow boiling loop ARG-10461	B69-10620	02	Infrared television used to detect hydrogen fires M-FS-654	B66-10363	01
Foil bearing support for high-speed rotor HQ-10315	B69-10661	05	Hydrogen fire detection system features sharp discrimination M-FS-643	B66-10368	01
HYDROFLUORIC ACID Nonhazardous acid etches weld samples M-FS-975	B66-10378	05	Auxiliary titanium sublimation pump produces ultrahigh /10 to the minus 11 torr/ vacuum LANGLEY-212	B66-10388	02
Xenon fluoride solutions effective as fluorinating agents ARG-217	B67-10133	03	Large diameter metal ring seal prevents gas leakage at 5000 psi M-FS-1064	B66-10422	05
Copper and nickel adherently electroplated on titanium alloy M-FS-13952	B67-10532	03	Selective tube roughening increases heat transfer capability M-FS-599	B66-10610	05
Transplutonium elements processed from rock debris of underground detonations ARG-10222	B69-10054	03	Hermetically sealed cells protected from internal gas pressure GSFC-555	B66-10692	01
Improved nickel plating of Inconel X-750 M-FS-18604	B69-10463	05	Purification train produces ultrapure hydrogen gas M-FS-1913	B67-10078	03
A method for precision anodize stripping MSC-15040	B69-10581	03	Clamp provides efficient connection for high-density currents M-FS-2417	B67-10140	01

SUBJECT INDEX

HYDROGEN ATOMS

Study to minimize hydrogen embrittlement of ultrahigh-strength steels M-FS-2455	B67-10141	03	Cryogenic liquid level measuring probe ARG-10138	B68-10291	01
Hydrogen maser as a highly stable frequency reference M-FS-2437	B67-10146	01	Hydrogen safety manual LEWIS-10487	B68-10323	01
Iron serves as diffusion barrier in thermally regenerative galvanic cell ARG-29	B67-10189	03	Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06
Study made of Raney nickel technology M-FS-2054	B67-10208	03	One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06
Portable spectrometer monitors inert gas shield in welding process M-FS-12144	B67-10326	02	One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06
Single-source mechanical loading system produces biaxial stresses in cylinders M-FS-12530	B67-10380	05	Axisymmetric reacting gas nonequilibrium performance program MSC-11781	B68-10377	06
Wear studies made of slip rings and gas bearing components M-FS-12882	B67-10403	05	Ambient temperature catalyst for hydrogen ignition LEWIS-10551	B68-10520	03
Study of hydrogen slush-hydrogen gel utilization M-FS-13068	B67-10413	02	Two systems developed for purifying inert atmospheres ARG-10234	B69-10026	03
Fluid properties handbook M-FS-13462	B67-10440	03	Prediction of friction coefficients for gases LEWIS-10774	B69-10112	02
Vanadium diaphragm electrode serves as hydrogen diffuser in lithium hydride cell ARG-10048	B67-10499	01	One hundred MHz voltage-controlled oscillator NPO-11004	B69-10133	01
Reaction of steam with molybdenum is studied ARG-295	B67-10502	03	Qualitative and quantitative analysis of mixtures of compounds containing both hydrogen and deuterium ARG-10312	B69-10177	04
Computer program calculates peripheral water injection cooling of axisymmetric subsonic diffuser NUC-10541	B67-10543	06	Plasma-heating by induction LEWIS-10528	B69-10185	02
Butterfly valve with metal seals controls flow of hydrogen from cryogenic through high temperatures NUC-10034	B67-10567	05	Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456	B69-10192	03
Thoriated tungsten tube provides improved high temperature thermocouple sheath NUC-10145	B67-10627	03	An improved atomic hydrogen frequency and time standard GSFC-10706	B69-10341	02
Highly stable microwave delay line NPO-09828	B67-10642	01	An infrared television system for hydrogen flame detection KSC-10368	B69-10354	01
Method of maintaining activity of hydrogen-sensing platinum electrode M-FS-1422	B68-10049	03	Effects of hydrogen on metals M-FS-20364	B69-10372	03
Computer programs for thermodynamic and transport properties of hydrogen NUC-10537	B68-10150	06	Hydrogen flash lamps studied ARG-10419	B69-10411	02
Welding of commercial base plates is investigated M-FS-13649	B68-10192	03	Abrasion and fracture testing in a high-pressure hydrogen environment M-FS-18480	B69-10457	03
Susceptibility of irradiated steels to hydrogen embrittlement ARG-10115	B68-10194	03	Improved retort for cleaning metal powders with hydrogen LEWIS-10718	B69-10468	03
Manganese-alumina-ceramic glass eliminates rigid controls necessary in bonding metals to ceramics SAN-10012	B68-10204	03	Literature review on pickling inhibitors and cadmium electroplating processes M-FS-14421	B69-10606	03
Proposed gas generation assembly would recover deeply submerged objects SAN-10007	B68-10211	05	Device separates hydrogen from solution in water at ambient temperatures MSC-13335	B69-10635	03
Improved fuel-cell-type hydrogen sensor M-FS-14656	B68-10263	01	Effects of high-pressure hydrogen on storage vessel materials M-FS-18605	B69-10730	03
Advances in light-gas gun technology M-FS-14270	B68-10288	05	Thermal conductivity probe M-FS-20566	B69-10780	03

HYDROGEN ATOMS

Production of metals and compounds by

HYDROGEN COMPOUNDS

SUBJECT INDEX

radiation chemistry LEWIS-10231	B69-10123	03	HYDROSPINNING Stainless-steel elbows formed by spin forging M-FS-122	B63-10590	05
Primary radical yields in pulse irradiated alkaline aqueous solution ARG-10322	B69-10167	02	HYDROSTATIC PRESSURE Nonresonant support facilitates vibration testing of structures M-FS-224	B65-10039	05
Automatic tuning of hydrogen masers GSFC-10127	B69-10452	01	Weld leaks rapidly and safely detected M-FS-362	B65-10265	01
HYDROGEN COMPOUNDS Miniature oxygen-hydrogen cutting torch constructed from hypodermic needle JPL-545	B63-10517	05	Porous mandrels provide uniform deformation in hydrostatic powder metallurgy M-FS-1972	B67-10209	03
Fire retardant foams developed to suppress fuel fires ARC-10098	B68-10358	03	Resilient bearing supports are gas controlled LEWIS-10109	B67-10364	05
Improved gyro-flotation /damping/ fluids MSC-13217	B69-10360	03	Hydrostatic testing of porous assemblies M-FS-18298	B68-10439	05
HYDROGEN OXYGEN FUEL CELLS Regenerative fuel cell combines high efficiency with low cost WOO-090	B65-10363	01	Device separates hydrogen from solution in water at ambient temperatures MSC-13335	B69-10635	03
Reaction heat used in static water removal from fuel cells M-FS-532	B66-10013	01	HYDROSTATICS Hydrostatic force used to handle outsized, heavy objects HQ-90	B67-10167	05
Fluidic oscillator used as humidity sensor LEWIS-340	B67-10063	05	HYDROTHERMAL CRYSTAL GROWTH Vapor grown silicon dioxide improves transistor base-collector junctions GSFC-389	B66-10091	01
Cooling of 2 kW H subscript 2-0 subscript 2 fuel cell M-FS-13737	B68-10544	01	HYDROXIDES Inorganic paint is durable, fireproof, easy to apply GSFC-366	B65-10156	03
Mass transport mechanism in porous fuel cell electrodes HQ-10343	B69-10135	01	Chemical milling solution produces smooth surface finish on aluminum MSC-549	B66-10312	03
HYDROGEN PEROXIDE Plated nickel wire mesh makes superior catalyst bed MSC-216	B65-10321	03	Improved fuel-cell-type hydrogen sensor M-FS-14656	B68-10263	01
Microorganisms detected by enzyme-catalyzed reaction JPL-782	B66-10117	04	Preparation of high purity copper fluoride by fluorinating copper hydroxyfluoride LEWIS-10794	B69-10136	03
Gage of 6.5 per cent Si-Fe sheet is chemically reduced MSC-537	B66-10454	03	Cobalt improves nickel hydroxide electrodes for batteries LEWIS-10760	B69-10228	01
Study made of Raney nickel technology M-FS-2054	B67-10208	03	Laser action from a terbium beta-ketoenolate at room temperature GSFC-10593	B69-10324	02
Tube swaging device uses explosive force LANGLEY-10092	B68-10235	05	HYDROXYL COMPOUNDS Storage-stable foamable polyurethane is activated by heat LANGLEY-187	B66-10111	03
Hydrogen peroxide etching proves useful for germanium ARG-10170	B68-10454	03	Tritiated alumina serves as reagent for self-labeling analysis ARG-209	B67-10315	03
Primary radical yields in pulse irradiated alkaline aqueous solution ARG-10322	B69-10167	02	Synthesis of polyethers of hexafluorobenzene and hexafluoropentanediol M-FS-14962	B69-10636	03
Improved nickel plating of Inconel X-750 M-FS-18604	B69-10463	05	HYGIENE Health hazards of ultrafine metal and metal oxide powders LEWIS-10878	B69-10268	04
HYDROGRAPHY Airborne Fraunhofer Line Discriminator MSC-13146	B69-10594	02	HYGROSCOPICITY Dewpoint temperature inversions analyzed ARG-10316	B69-10057	02
HYDROLYSIS Refractory-metal compound impregnation of polytetrafluoroethylene LEWIS-10733	B69-10072	03	HYPERBOLAS Glancing incidence telescope for far ultraviolet and soft X-rays GSFC-10052	B67-10508	02
Inhibition of browning in foodstuffs HQ-10177	B69-10493	04			
HYDROPONICS Electronic circuitry used to automate paper chromatography JPL-840	B67-10201	01			

SUBJECT INDEX

IBM COMPUTERS

Multi-feed cone for Cassegrainian antenna NFO-10539	B69-10269	01	Miniature capacitor functions as pressure sensor JPL-903	B67-10020	01
Resonant microwave dichroic surface GSFC-10658	B69-10274	01	HYSTERESIS New package for Belleville spring permits rate change, easy disassembly JPL-392	B63-10247	05
HYPERBOLIC FUNCTIONS Bell nozzle kernel analysis program M-FS-18456	B69-10146	06	Diaphragm spring gives clutch over-center toggle effect GSFC-499	B66-10297	05
HYPERGOLIC ROCKET PROPELLANTS Two-step rocket engine bipropellant valve concept MSC-10951	B69-10280	05	Process yield Co-Fe alloys with superior high temperature magnetic properties LEWIS-333	B66-10535	03
Elimination of dissolved gases in hypergolic engine propellants M-FS-16179	B69-10692	03	Device measures reaction engine thrust vector deviations JPL-SC-163	B66-10642	05
HYPERSONIC HEAT TRANSFER Thin-film gage measures low heat-transfer rates LANGLEY 205	B66-10180	01	Elastic guides reduce hysteresis effect in Belleville spring package JPL-910	B67-10011	05
HYPERSONIC NOZZLES High-temperature, high-pressure spherical segment valve provides quick opening ARC-13	B63-10431	05	Circuit increases capability of hysteresis synchronous motor MSC-1080	B67-10084	01
HYPERSONIC SHOCK Acceleration-compensated pressure transducer has fast response LANGLEY-113	B66-10353	01	SiC/Si diode trigger circuit provides automatic range switching for log amplifier M-FS-1879	B67-10314	01
HYPERSONIC SPEED Parallel line raster eliminates ambiguities in reading timing of pulses less than 500 microseconds apart JPL-805	B66-10386	01	Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01
Program computes equilibrium normal shock and stagnation point solutions for arbitrary gas mixtures LANGLEY-10090	B67-10509	06	Design for high-temperature /1800 deg F/ liquid metal pressure transducer LEWIS-10144	B67-10458	01
HYPERSONIC TEST APPARATUS Metal diaphragm used to calibrate miniature transducers M-FS-207	B65-10059	01	Circuit measures hysteresis loop areas at 30 Hz M-FS-13069	B67-10519	01
HYPERSONIC VEHICLES Molecular radiation - Its application in physical measurements and analyses M-FS-14816	B69-10562	02	Schmitt trigger multivibrator MSC-10955	B69-10143	01
HYPERVELOCITY GUNS Dust particle injector for hypervelocity accelerators provides high charge-to-mass ratio GSFC-509	B66-10347	01	Evaluation of magnetic materials for static inverters and converters LEWIS-10343	B69-10306	01
Advances in light-gas gun technology M-FS-14270	B68-10288	05	Calibratable solid-state pressure switch M-FS-20474	B69-10437	05
HYPERVELOCITY IMPACT High impact pressure regulator withstands impacts of over 15,000 g NFO-10175	B67-10274	01	Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06
HYPERVELOCITY PROJECTILES Advances in light-gas gun technology M-FS-14270	B68-10288	05	I BEAMS Self-balancing beam permits safe, easy load handling under overhang M-FS-84	B63-10571	05
HYPERVELOCITY WIND TUNNELS High-temperature, high-pressure spherical segment valve provides quick opening ARC-13	B63-10431	05	Safety yoke would protect construction workers from falling KSC-10075	B67-10445	05
Segmented electrode increases operating pressure of MHD accelerator LANGLEY-95	B65-10356	02	Fiber glass reinforced structural materials for aerospace application M-FS-14806	B68-10360	03
Thin-film gage measures low heat-transfer rates LANGLEY 205	B66-10180	01	Two-axis winch installer for heavy ducts in confined space M-FS-14254	B69-10062	05
Experimental investigation of megawatt dc arc heating of nitrogen LEWIS-313	B66-10508	02	Calibrated water tank facilitates proof- loading of cranes and derricks M-FS-15059	B69-10109	05
			IBM COMPUTERS Computer optimization program finds values for several independent variables that minimize a dependent variable M-FS-13030	B67-10328	06
			Computer program for network synthesis by frequency response fit		

IBM 360 COMPUTER

SUBJECT INDEX

M-FS-12686	B67-10406	06	1620 Monitor 2, 1311/1443 data processing system /CIRCS/		
GERT simulation program for GERT network analysis			NPO-10131	B67-10173	06
ERC-10209	B68-10457	06	Computer program simulates physical systems by solving the simultaneous differential equations describing the systems		
FORTRAN 4 program calculates velocities and streamlines in a tandem blade turbomachine			NPO-10019	B67-10193	06
LEWIS-10743	B69-10219	06	Computer program conducts facilities utilization and occupancy survey		
Sonic boom propagation in stratified atmosphere			NPO-10326	B67-10476	06
LANGLEY-10480	B69-10391	06	Compilation of detection sensitivities in thermal-neutron activation		
IBM 360 COMPUTER			ARG-10068	B67-10641	03
Computer program reduces and provides profile plot of surface plate calibration data			Daughter growth in freshly separated Ra-226, Ac-227 and U-232		
M-FS-13866	B67-10492	06	ARG-10226	B69-10003	02
CIRCUS--A digital computer program for transient analysis of electronic circuits			Computer grading of examinations		
M-FS-15002	B68-10416	06	ARG-10269	B69-10159	06
Generalized Newton-Raphson trajectory optimization-generator 1			JFLIP-JPL FORTRAN language with interval pre-processor		
M-FS-15020	B68-10422	06	NPO-10835	B69-10187	06
Performance analysis of electrical circuits			IBM-1620 monitor 2-D disk-storage subroutines		
/PANE/			ARG-10376	B69-10618	01
M-FS-15001	B68-10448	06	IBM 7040 COMPUTER		
Propellant tank pressurization analysis program			Linear circuit analysis program for IBM		
M-FS-12623	B69-10007	06	1620 Monitor 2, 1311/1443 data processing system /CIRCS/		
Variable-mesh method of solving differential equations			NPO-10131	B67-10173	06
NPO-10515	B69-10017	02	A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voigt line profile		
Monte Carlo direct view factor and generalized radiative heat transfer programs			ARC-10221	B69-10232	06
M-FS-15051	B69-10038	06	IBM 7044 COMPUTER		
VICAR-DIGITAL image processing system			Linear circuit analysis program for IBM		
NPO-10770	B69-10139	06	1620 Monitor 2, 1311/1443 data processing system /CIRCS/		
Bell nozzle kernel analysis program			NPO-10131	B67-10173	06
M-FS-18456	B69-10146	06	Calculation of resonance neutron absorption in two-region problems /the GAROL code/		
Performance statistics of the FORTRAN 4 /H/ library for the IBM system/360			NUC-10045	B67-10223	06
ARG-10299	B69-10157	06	Earth orbit rendezvous evaluation program		
JFLIP-JPL FORTRAN language with interval pre-processor			M-FS-13016	B67-10407	06
NPO-10835	B69-10187	06	General frequency response program calculates frequency response of system, open at any specified element		
Finite element analysis of compressible solids with nonlinear material properties			M-FS-12817	B67-10521	06
NUC-10342	B69-10238	06	Analysis of annular combustors		
Fast Fourier Transform Spectral Analysis Program			LEWIS-10399	B68-10356	06
M-FS-15062	B69-10434	06	Weight Control System		
Spacecraft Thermal Radiation Environment Computer Program			M-FS-15028	B69-10041	06
M-FS-15054	B69-10574	06	Structural Analysis and Matrix Interpretive System /SAMIS/		
Biomedical bulk data processing program			NPO-10839	B69-10093	01
FRC-10015	B69-10720	06	Geometry and design point performance of axial flow turbines		
Engineering thermal analyzer /BETA 2/			LEWIS-10471	B69-10111	06
M-FS-15055	B69-10760	06	Computer program for off-design performance of radial inflow turbines		
IBM 709 COMPUTER			LEWIS-10764	B69-10267	06
Subroutine allows easy computation in extended precision arithmetic			IBM 7090 COMPUTER		
M-FS-1136	B66-10504	01	Subroutine allows easy computation in extended precision arithmetic		
IBM 1620 COMPUTER			M-FS-1136	B66-10504	01
New computer system simplifies programming of mathematical equations			Computer program determines chemical equilibria in complex systems		
M-FS-441	B66-10361	01	LEWIS-281	B66-10671	01
Linear circuit analysis program for IBM					

SUBJECT INDEX

IBM 7094 COMPUTER

A power-spectral-density computer program NPO-10126	B67-10160	01	A power-spectral-density computer program NPO-10126	B67-10160	01
Structural Analysis and Matrix Interpretive System /SAMIS/ NPO-10130	B67-10171	01	Study of dynamic response of elastic space stations NPO-10124	B67-10169	06
Space trajectories program for IBM 7090 NPO-10125	B67-10172	06	Structural Analysis and Matrix Interpretive System /SAMIS/ NPO-10130	B67-10171	01
CINDA - Chrysler Improved Numerical Differencing Analyzer computer program M-FS-2298	B67-10278	06	A modal combination computer program for dynamic analysis of structures NPO-10129	B67-10217	06
Computer program for determination of natural frequencies of closed spherical sandwich shells MSC-1246	B67-10279	06	Computer program calculates steady-state temperature distribution within plane or axisymmetric solids NUC-10049	B67-10224	06
Computer program utilizes FORTRAN 4 subroutines for contour plotting NPO-10127	B67-10323	06	Land landing couch dynamics computer program MSC-1210	B67-10233	06
Computer programs for antenna feed system design and analysis NPO-10359	B67-10504	06	Computer program simplifies design of rotating components of turbomachinery NUC-10046	B67-10235	06
DYANA - An advanced programming system for large classes of dynamic and equivalent systems M-FS-12084	B67-10524	06	Master control data handling program uses automatic data input M-FS-2259	B67-10280	06
Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes NUC-10143	B67-10665	06	Computer program predicts thermal and flow transients experienced in a reactor loss- of-flow accident NUC-10054	B67-10281	06
Computer program /P1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas NUC-10141	B67-10678	06	Computer program provides linear sampled- data analysis for high order systems M-FS-12821	B67-10287	06
Computer program analyzes and designs supersonic wing-body combinations ARC-10141	B68-10335	06	Computer program uses Monte Carlo techniques for statistical system performance analysis M-FS-2234	B67-10306	06
IBM 7094 COMPUTER			Computer program determines thermal environment and temperature history of lunar orbiting space vehicles M-FS-12916	B67-10307	06
Computer program simplifies selection of structural steel columns NU-0044	B66-10097	01	Computer program for mass optional solutions of some endpoint trajectory problems M-FS-12976	B67-10310	06
Computer program determines gas flow rates in piping systems M-FS-443	B66-10300	01	Transient Analysis Generator /TAG/ simulates behavior of large class of electrical networks NPO-10031	B67-10319	06
New computer program solves wide variety of heat flow problems M-FS-421	B66-10404	01	Multiple correlation computer program determines relationships between several independent and dependent variables M-FS-13024	B67-10327	06
Subroutine allows easy computation in extended precision arithmetic M-FS-1136	B66-10504	01	Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries M-FS-1910	B67-10329	06
Computer routine adds plotting capabilities to existing programs GSFC-490	B66-10511	01	General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-FS-13094	B67-10331	06
Computer program performs statistical analysis for random processes M-FS-723	B66-10525	01	Computer subroutine ISUDS accurately solves large system of simultaneous linear algebraic equations NUC-10051	B67-10344	06
Computer program simplifies transient and steady-state temperature prediction for complex body shapes MSC-989	B66-10619	01	Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations NUC-10052	B67-10345	06
Computer program determines chemical composition of physical system at equilibrium MSC-1119	B66-10670	01	Earth orbit rendezvous evaluation program M-FS-13016	B67-10407	06
Computer program determines chemical equilibria in complex systems LEWIS-281	B66-10671	01	Computer program generates averaged value		
Computer program simulates design, test, and analysis phases of sensitivity experiments M-FS-1496	B67-10077	01			

data tapes M-FS-12728	B67-10411	06	two-material nuclear shield NUC-10142	B67-10537	06
Computer program provides steady state analysis for liquid propellant propulsion systems MSC-10064	B67-10414	06	Computer program calculates peripheral water injection cooling of axisymmetric subsonic diffuser NUC-10541	B67-10543	06
Computer program analyzes generalized environmental control and life support systems MSC-1157	B67-10415	06	Computer program ETC improves computation of elastic transfer matrices of Legendre polynomials P/0/ and P/1/ NUC-10070	B67-10566	06
Computer program MCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid NUC-10042	B67-10456	06	Propellant tank pressurization analysis program M-FS-1506	B67-10625	06
Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid NUC-10043	B67-10457	06	Computer program for Video Data Processing System /VIPS/ NPO-10042	B67-10630	06
KOPE /Kalendar Oriented Program Efforts/ provides data for management decisions M-FS-12331	B67-10478	06	Digital computer program predicts effects of local pressure transients on deformation and stresses in cylindrical ducts M-FS-13058	B67-10631	06
Numerical least-square method for resolving complex pulse height spectra GSFC-10142	B67-10480	06	HICOV - Newton-Raphson calculus of variation with automatic transversalities M-FS-14468	B68-10232	06
Computer program uses characteristics method for free-jet investigation LANGLEY-10117	B67-10490	06	Computer program analyzes and designs supersonic wing-body combinations ARC-10141	B68-10335	06
Computer program performs aerothermodynamic flight test data correlation MSC-10075	B67-10494	06	FORTRAN optical lens design program NPO-10603	B68-10354	06
Multidimensional reaction kinetic ablation program /REKAP/ MSC-10079	B67-10495	06	Analysis of annular combustors LEWIS-10399	B68-10356	06
Computer programs for antenna feed system design and analysis NPO-10359	B67-10504	06	Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06
Program computes equilibrium normal shock and stagnation point solutions for arbitrary gas mixtures LANGLEY-10090	B67-10509	06	Axisymmetric two-phase perfect gas performance program MSC-11774	B68-10374	06
Computer program performs rectangular fitting stress analysis M-FS-13010	B67-10520	06	One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06
General frequency response program calculates frequency response of system, open at any specified element M-FS-12817	B67-10521	06	One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06
Computerized Schedule Effectiveness Technique /SET/ determines present and future schedule position M-FS-13012	B67-10522	06	Axisymmetric reacting gas nonequilibrium performance program MSC-11781	B68-10377	06
DIANA - An advanced programming system for large classes of dynamic and equivalent systems M-FS-12084	B67-10524	06	Internal velocity factors MSC-15002	B68-10403	06
Program computes zero lift wave drag of entire aircraft LANGLEY-10079	B67-10530	06	Analysis of filament reinforced metal-shell pressure vessels LEWIS-10352	B68-10405	06
Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles LANGLEY-10093	B67-10531	06	DSN seven day/twelve week schedule program NPO-10752	B68-10410	06
N-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program NUC-10126	B67-10536	06	Computer program for machine design of Cassegrain feed systems NPO-10588	B68-10421	06
SOC-DS computer code provides tool for design evaluation of homogeneous			Symbolic reduction of block diagrams using FORMAC LEWIS-10409	B68-10423	06
			Plume radiation program M-FS-13202	B68-10447	06
			Single degree of freedom antenna pointing program /ANTENA/ NPO-10756	B68-10449	06
			A request-oriented information selection program LEWIS-10255	B68-10451	06

SUBJECT INDEX

IGNITION SYSTEMS

Computer program for parameter optimization ARC-10168	B68-10453	06	freezing of a liquid flowing over a cold surface LEWIS-10813	B69-10321	02
Computer program analyzes whirl critical speeds and bearing loads for shafts coupled by nonlinear springs to machine housing NUC-10308	B69-10034	06	IDEAL GAS Computer program determines gas flow rates in piping systems M-FS-443	B66-10300	01
SPAN C - Terminal sterilization process analysis program NPO-10805	B69-10039	06	Computer program for calculation of ideal gas thermodynamic data LEWIS-10254	B68-10025	06
Ratio matching of half-bridge weldable strain gages, computer program FRC-10032	B69-10040	06	IDENTIFYING Simple, nondestructive test identifies metals MSC-525	B66-10305	03
Weight Control System M-FS-15028	B69-10041	06	Chart system simplifies identification of complex design assemblies MSC-752	B66-10460	05
Structural Analysis and Matrix Interpretive System /SAMIS/ NPO-10839	B69-10093	01	Electrical continuity scanner facilitates identification of wires for soldering to connectors MSC-626	B66-10605	01
SPAN - Terminal sterilization process analysis program NPO-10804	B69-10104	06	Process produces accurate registry between circuit board prints LANGLEY-288	B66-10660	02
Midcourse maneuver operations program NPO-10735	B69-10105	06	Run numbering system for use with data recorders M-FS-2557	B67-10215	01
Geometry and design point performance of axial flow turbines LEWIS-10471	B69-10111	06	Product identification techniques used as training aids for analytical chemists SAN-10025	B68-10373	03
MAGNTY - Program for calculating velocities in magnified region of turbomachines LEWIS-10789	B69-10132	06	Reidentifying hardware after loss of serial number M-FS-18133	B69-10059	05
Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems M-FS-14447	B69-10158	06	Identification and evaluation of linear damping models in beam vibrations ARG-10275	B69-10196	03
Advanced mission analysis programs GSFC-10575	B69-10171	06	Improved camera for better X-ray powder photographs HQ-10424	B69-10537	01
Computer programs for axial flow compressor design LEWIS-10765	B69-10174	06	IDLERS Chain friction system gives positive, reversible drive ARC-8	B63-10009	05
JFLIP-JPL FORTRAN language with interval pre-processor NPO-10835	B69-10187	06	A mechanically extendible boom NPO-11118	B69-10328	05
Computer program for high pressure real gas effects LEWIS-10820	B69-10222	06	IGNITERS Study made of Raney nickel technology M-FS-2054	B67-10208	03
A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voigt line profile ARC-10221	B69-10232	06	IGNITION Explosive-train initiated through solid bulkhead by pressure cartridge MSC-11395	B67-10589	03
Thermal Network Analyzer Program NUC-10540	B69-10239	06	Ignition of binary alloys of uranium ARG-10057	B68-10280	01
Computer program for off-design performance of radial inflow turbines LEWIS-10764	B69-10267	06	Testing the flammability of materials exposed to arcs MSC-15225	B69-10531	03
Visual task analysis /VISTA/ M-FS-14716	B69-10394	06	IGNITION SYSTEMS Igniting system for mercury lamps protects transistorized sustaining supply JPL-421	B63-10262	01
System for computing operational probability equations M-FS-16410	B69-10566	06	Circuit controls transients in SCR inverters GSFC-120	B63-10600	01
Biomedical bulk data processing program FRC-10015	B69-10720	06	Carbon arc ignition improved by simple auxiliary circuit MSC-103	B65-10018	01
ICE Tools made of ice facilitate forming of soft, sticky materials KSC-10262	B69-10199	05	Power arc welder touch-started with consumable electrode M-FS-1485	B66-10641	05
ICE FORMATION A method for predicting interfacial					

IGNITION TEMPERATURE

SUBJECT INDEX

Cold solid propellant motor has stop-restart capability JPL-836	B66-10673	03	signals GSFC-385	B65-10283	02
Technique for assessing potential fire hazards HQ-10279	B69-10287	03	New television camera eliminates vidicon tube M-FS-472	B66-10112	01
High voltage pulse generator MSC-12178	B69-10548	01	Study made of application of stereoscopic display system to analog computer simulation M-FS-1263	B66-10590	01
Burn-rate testing apparatus MSC-10947	B69-10740	03	Improved television signal processing system NPO-10140	B67-10246	01
IGNITION TEMPERATURE Evaluation of ignition mechanisms in selected nonmetallic materials MSC-11645	B68-10167	03	Mounting method improves electrical and vibrational characteristics of screen electrodes M-FS-20169	B69-10097	01
Ambient temperature catalyst for hydrogen ignition LEWIS-10551	B68-10520	03	VICAR-DIGITAL image processing system NPO-10770	B69-10139	06
IGNITRONS Electromagnetic hammer removes weld distortions from aluminum tanks M-FS-287	B65-10342	05	IMAGE DISSECTOR TUBES Point-source light sensor circuit is insensitive to background light JPL-778	B66-10502	01
Compact SCR trigger circuit for ignitron switch operates efficiently M-FS-371	B65-10347	01	Precision CW laser automatic tracking system investigated M-FS-1606	B66-10629	01
ILLUMINATING Beam splitter used in dual filming technique M-FS-501	B66-10072	02	Improved electro-optical tracking system M-FS-14791	B68-10311	01
Circular, explosion-proof lamp provides uniform illumination MSC-382	B66-10156	02	Image position sensor M-FS-14101	B69-10783	02
Optical device enables small detector to see large field of view WOO-253	B66-10263	02	IMAGE FILTERS Optical automatic gain channel M-FS-1550	B66-10596	02
Legibility of electroluminescent instrument panels investigated MSC-494	B66-10316	02	Exposure Value /EV/ system expanded to include filter factors and transmittance LANGLEY-190	B66-10602	02
A prototype high power portable lamp M-FS-20229	B69-10189	02	New electron microscope employs new video display technique ARG-158	B67-10312	03
Electrooptical scanning of film NPO-11106	B69-10568	01	Fluorescent particles enable visualization of gas flow M-FS-14583	B68-10259	02
ILLUMINATION Illuminated display panel is easily changed MSC-108	B65-10003	05	Occulting-filter method for obtaining flashing-light visibility data MSC-13097	B69-10107	02
Panels illuminated by edge-lighted lens technique MSC-871	B66-10507	02	Method of directing a laser beam with very high accuracy NPO-11087	B69-10508	02
Energy-storage of a prescribed impedance NPO-10303	B69-10380	01	IMAGE INTENSIFIERS Thermal neutron image intensifier tube provides brightly visible radiographic pattern ARG-120	B67-10296	02
Checking flat conductor cable spacing by means of a wire pattern M-FS-20426	B69-10456	05	Aerial-image enables diagrams and animation to be inserted in motion pictures ARG-165	B67-10398	02
ILLUMINATORS Vibration tests on vidicons made by improved method JPL-SC-115	B66-10042	01	Camera lens adapter magnifies image M-FS-11955	B67-10431	02
Rectangular-bore, high-gain laser plasma tube HQ-10234	B69-10193	02	Improved radiographic image amplifier panel M-FS-14522	B68-10363	02
Long range holographic contour mapping concept HQ-10350	B69-10700	02	Shortened processing time technique for color industrial radiography ARG-10235	B69-10001	02
IMAGE CONTRAST Legibility of electroluminescent instrument panels investigated MSC-494	B66-10316	02	VICAR-DIGITAL image processing system NPO-10770	B69-10139	06
IMAGE CONVERTERS Electron-beam deflection controlled by digital			IMAGE ORTHICONS Design concept for improved photo-scan tube JPL-818	B67-10157	01
			Electronic shutter gates image orthicon on and off		

SUBJECT INDEX

IMPACT LOADS

HQ-96	B67-10270	01	inspection system ARG-90237	B68-10088	01
IMAGE TUBES					
Vibration tests on vidicons made by improved method			Antiglare improvement for optical imaging systems		
JPL-SC-115	B66-10042	01	NPO-10337	B68-10090	02
Thermal neutron image intensifier tube provides brightly visible radiographic pattern			Color-televised medical microscopy		
ARG-120	B67-10296	02	MSC-13086	B68-10314	01
IMAGE VELOCITY SENSORS			Selective video blanking technique		
Plotter design simplifies determination of image sensor transfer characteristic			M-FS-20013	B68-10434	01
NPO-10164	B67-10206	01	Imaging slitless spectrometer for X-ray astronomy		
IMAGES			M-FS-14309	B68-10546	02
Modified contour projector makes excellent contour densitometer			Shortened procedure for obtaining reproducible copies of 35 mm color slides		
LANGLEY-93	B65-10084	02	KSC-09957	B68-10560	02
Fresnel zone plate forms images at wavelengths below 1000 angstroms			Selective vignetting of Type 1 X-ray telescopes		
GSFC-231	B65-10171	02	GSFC-10682	B69-10075	02
Improved head-controlled TV system produces high-quality remote image			Improved method of optical design		
ARG-128	B67-10317	01	GSFC-10743	B69-10405	02
Fluorescent photography of spray droplets using a laser light source			Technique for improving solid state mosaic images		
LEWIS-10777	B69-10122	02	M-FS-20532	B69-10676	01
Improved combustion chamber optical probe			System converts slow-scan to standard fast-scan TV signals		
MSC-10953	B69-10142	02	MSC-90534	B69-10748	01
IMAGING TECHNIQUES			Image position sensor		
Electromechanically operated camera shutter provides uniform exposure			M-FS-14101	B69-10783	02
JPL-357	B63-10227	01	IMBEDDINGS		
Vibration tests on vidicons made by improved method			Pressure transducer 3/8-inch in size can be faired into surface		
JPL-SC-115	B66-10042	01	WOO-065	B64-10021	05
Beam splitter used in dual filming technique			Accurate depth control provided for thermocouple junction locations		
M-FS-501	B66-10072	02	LANGLEY-289	B66-10632	01
Screen of cylindrical lenses produces stereoscopic television pictures			IMIDES		
M-FS-273	B66-10086	02	New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability		
Ultraviolet photographic pyrometer used in rocket exhaust analysis			LEWIS-10576	B69-10118	03
M-FS-499	B66-10095	02	IMINES		
Optical device enables small detector to see large field of view			Trace hydrazines in aqueous solutions accurately determined by gas chromatography		
WOO-253	B66-10263	02	MSC-11222	B67-10290	03
Dot patterns provide reproducible flaw areas for study of adhesive bonds			IMPACT		
M-FS-862	B66-10367	05	Single wrench separates nuts from free-floating bolts		
Three-axis attitude and direction reference instrument has only one moving part			NUC-10013	B67-10158	05
M-FS-1819	B66-10644	01	IMPACT ACCELERATION		
Means for improving apparent resolution of television			Kinetic-energy absorber employs frictional force between mating cylinders		
ERC-65	B67-10152	01	LEWIS-75	B63-10442	05
Design concept for improved photo-scan tube			Improved holder protects crystal during high acceleration and impact		
JPL-818	B67-10157	01	JPL-463	B65-10037	05
Improved ultrasonic TV images achieved by use of Lamb-wave orientation technique			A piezo-bar pressure probe		
ARG-203	B67-10295	02	LEWIS-393	B67-10259	01
Glancing incidence telescope for far ultraviolet and soft X-rays			IMPACT LOADS		
GSFC-10052	B67-10508	02	Epoxy blanket protects milled part during explosive forming		
Electronic aperture control devised for solid state imaging system			M-FS-307	B66-10029	03
M-FS-12428	B68-10028	01	Temperature responsive valve withstands high impact loading		
New camera tube improves ultrasonic			NPO-10186	B67-10225	05
			A piezo-bar pressure probe		
			LEWIS-393	B67-10259	01
			Manual of typical low temperature		

IMPACT RESISTANCE

SUBJECT INDEX

mechanical properties of several materials M-FS-18331	B69-10179	03	Versatile impact hand tool M-FS-2014C	B68-10371	05
IMPACT RESISTANCE			IMPEDANCE		
Improved holder protects crystal during high acceleration and impact JPL-463	B65-10037	05	Transistorized trigger circuit is frequency-controllable GSFC-111	B63-10553	01
Seismometer designed for remote operation in random orientation JPL-320	B66-10085	01	High-pass RF coaxial filter rejects dc and low frequency signals GSFC-73	B64-10173	01
Critical parts are stored and shipped in environmentally controlled reusable container M-FS-703	B66-10258	05	Bandwidth switching is transient-free, avoids loss of loop lock WOO-054	B64-10349	01
Impact and puncture resistant material protects parts from damage MSC-747	B66-10375	05	Circuit improvement produces monostable multivibrator with load-carrying capability GSFC-34A	B65-10011	01
One-piece transparent shell improves design of helmet assembly MSC-187	B66-10390	05	Helical coaxial-resonator makes excellent RF filter GSFC-243	B65-10012	01
High impact pressure regulator withstands impacts of over 15,000 g WFO-10175	B67-10274	01	Zener diode function generator requires no external reference voltage JPL-0031	B65-10013	01
Damages in rolling element bearings may be detected early HQ-10031	B67-10658	01	Photoelectric semiconductor switch operates with low level inputs JPL-SC-068	B65-10033	01
Thermal protective visor for entering high temperature areas MSC-10285	B68-10277	05	Microparticle impact sensor measures energy directly GSFC-252	B65-10048	01
IMPACT STRENGTH			Zener diode is starter for transistor regulated power supply NU-0015	B65-10052	01
Heat treatment study of aluminum casting alloy M45 M-FS-2397	B67-10159	03	Vibrating-membrane electrometer has high conversion gain ARC-38	B65-10056	01
Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133	B67-10437	03	Synchronized pulse generator needs no external power GSFC-274	B65-10072	01
Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03	Tiny biomedical amplifier combines high performance, low power drain ARC-41	B65-10203	01
A sterilizable high-impact antenna WFO-10231	B69-10697	01	Electrometer preamplifier has drift correction feedback JPL-SC-074	B65-10267	01
IMPACT TESTS			Zener diode controls switching of large direct currents MSC-188	B65-10350	01
Break-up of metal tube makes one-time shock absorber, bars rebound LANGLEY-1A	B63-10304	05	Remote preamplifier circuit maintains stability over wide temperature range WOO-278	B66-10432	01
Analysis of problems related to slingshot shock machine high-velocity shock testing WFO-11193	B69-10506	05	Miniature electrometer preamplifier effectively compensates for input capacitance ARC-69	B66-10549	01
Strain-age cracking in Rene 41 alloy M-FS-18650	B69-10605	03	MOSFET analog memory circuit achieves long duration signal storage M-FS-860	B66-10603	01
IMPACT TOLERANCES			Transistor biased amplifier minimizes diode discriminator threshold attenuation ARG-163	B67-10311	01
Land landing couch dynamics computer program MSC-1210	B67-10233	06	Field effect transistors improve buffer amplifier M-FS-916	B67-10334	01
High impact pressure regulator withstands impacts of over 15,000 g WFO-10175	B67-10274	01	Multiplexer uses insulated gate-field effect transistors M-FS-13096	B67-10396	01
Nickel base alloy with improved stress rupture properties LEWIS-10283	B68-10344	03	Silicon strain sensors enable pressure measurement at cryogenic temperatures M-FS-14703	B68-10262	01
Balloon batteries, charged and heated by solar energy GSFC-10769	B69-10585	01			
IMPACTORS					
Pneumatic wrench retains or discharges nuts or bolts as desired NU-0085	B66-10707	05			
Air sampler collects and protects minute particles HQ-10037	B67-10661	01			

SUBJECT INDEX

IMPURITIES

Electron beam selectively seals porous metal filters LEWIS-10162	B68-10331	05	material in human body M-FS-18207	B69-10087	04
Improved limiter for turn-on current transient GSFC-10413	B68-10384	01	Remotely-actuated biomedical switch ARC-10105	B69-10117	01
Linear voltage-to-frequency converter GSFC-10546	B69-10220	01	IMPLOSIONS Fluid behavioral patterns found in subscale geysering study M-FS-13582	B67-10462	02
Sweep frequency detector NPO-10669	B69-10289	01	Study of cryogenic container thermodynamics during propellant transfer M-FS-14310	B68-10108	02
Automatic Gaussian random-noise limiter NPO-10169	B69-10349	01	IMPREGNATING Integral coolant channels supply made by melt-out method M-FS-91	B63-10497	05
Phase multiplying electronic scanning array NPO-10302	B69-10381	01	Didymium compound improves nickel-cadmium cell GSFC-295	B65-10083	03
Nondestructive determination of cohesive strength of adhesive-bonded composites M-FS-20397	B69-10464	03	Valve seat pores sealed with thermosetting monomer M-FS-900	B66-10322	03
An unconventional magnetically-coupled multivibrator HQ-10226	B69-10480	01	Composite gaskets are compatible with liquid oxygen, resist compression set M-FS-455	B66-10395	03
A theoretical study of radar backscatter from distributed targets with emphasis on polarization dependence M-FS-13775	B69-10560	02	Study made of dielectric properties of promising materials for cryogenic capacitors M-FS-13620	B67-10366	03
Load current sensor for a pulse width modulator power regulator GSFC-10656	B69-10578	01	Refractory-metal compound impregnation of polytetrafluoroethylene LEWIS-10733	B69-10072	03
IMPEDANCE MATCHING Ultrasonic wrench produces leaktight connections M-FS-12561	B67-10353	05	New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118	03
Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01	IMPROVEMENT Study made of ductility limitations of aluminum-silicon alloys M-FS-12524	B67-10392	03
Reflectometer for receiver input system NPO-10843	B67-10657	01	Modification to improve self-isolating transistor arrays M-FS-20499	B69-10678	01
Low-cost, fast-response drive circuit for electromagnetic torque motors LEWIS-10143	B68-10386	01	IMPULSE GENERATORS Simple device produces accelerometer calibration pulse M-FS-363	B65-10269	01
IMPEDANCE MEASUREMENTS Energy-storage of a prescribed impedance ARG-10428	B69-10431	02	Circuit operates as sine function generator MSC-255	B66-10038	01
IMPELLERS Segmented, arch-bound carbon seal is pressure loaded M-FS-12777	B67-10325	05	IMPULSES Cold solid propellant motor has stop-restart capability JPL-836	B66-10673	03
Inflatable bladder to facilitate handling of heavy objects - A concept M-FS-14272	B69-10069	05	IMPURITIES Ceramic materials purified by experimental method LEWIS-225	B65-10270	03
Improved design of item in high speed rotating machinery M-FS-18441	B69-10373	05	Impurity diffusion process for silicon semiconductors is fast and precise GSFC-397	B65-10300	01
IMPINGEMENT Experiments shed new light on nickel-fluorine reactions ARG-10008	B67-10397	03	Portable self-powered device detects internal flaws in tubular structures NU-0019	B66-10028	01
Two-fluid, impinging-sheet injector NPO-10547	B68-10338	05	Trace levels of metallic corrosion in water determined by emission spectrography MSC-1193	B66-10701	03
A comparison of two methods of measuring particle size of Al2O3 produced by a small rocket motor NPO-11198	B69-10572	03	Simplified method introduces drift fields into cells GSFC-572	B67-10102	03
IMPLANTATION Miniature bioelectric device accurately measures and telemeters temperature ARC-52	B66-10057	01	Carbon offers advantages as implant		

IN-FLIGHT MONITORING

SUBJECT INDEX

Status of ultrachemical analysis for semiconductors M-FS-2254	B67-10138	03	M-FS-14886	B69-10674	02
Trace hydrazines in aqueous solutions accurately determined by gas chromatography MSC-11222	B67-10290	03	INCOMPATIBILITY Glass bead shot peening retards stress corrosion failure of titanium tanks LANGLEY-319	B67-10198	05
Process controls introduction of selected impurities into semiconductor wafers GSFC-523	B67-10303	01	INCOMPRESSIBLE FLOW CINDA - Chrysler Improved Numerical Differencing Analyzer computer program M-FS-2298	B67-10278	06
Spectrographic analysis of bismuth-tin eutectic alloys by spark-ignited low-voltage ac-arc excitation ARG-10288	B69-10081	03	INCOMPRESSIBLE FLUIDS Metal parts hydrosized by explosive force M-FS-289	B65-10170	05
Silicon carbide diode for increased light output M-FS-20063	B69-10096	01	Analysis of dynamic systems with DAP4H computer program M-FS-13999	B67-10523	06
Improved method of fabricating planar gallium arsenide diodes XNP-04235	B69-10271	01	INCONEL (TRADEMARK) Grit blasting nozzle fabricated from mild tool steel proves satisfactory M-FS-1420	B66-10597	05
Improved retort for cleaning metal powders with hydrogen LEWIS-10718	B69-10468	03	Wire material reduces compressor blade vibration LEWIS-357	B66-10666	03
IN-FLIGHT MONITORING Rectilinear display gives acceleration load factor and velocity information MSC-1045	B67-10248	01	Silver plating technique seals leaks in thin wall tubing joints NU-0090	B66-10703	05
INCANDESCENCE Illuminated display panel is easily changed MSC-108	B65-10003	05	Cryogenic fatigue data developed for Inconel 718 M-FS-702	B67-10049	03
Improved carbon electrode reduces arc sputtering MSC-219	B66-10026	01	Undercoat prevents blistering of silver plating at elevated temperatures M-FS-2049	B67-10096	05
Silicon solar cell monitors high temperature furnace operation NUC-10163	B68-10148	01	Silver plating ensures reliable diffusion bonding of dissimilar metals M-FS-1975	B67-10124	03
Occulting-filter method for obtaining flashing-light visibility data MSC-13097	B69-10107	02	Materials data handbook, Inconel alloy 718 M-FS-2348	B67-10282	03
Testing the flammability of materials exposed to arcs MSC-15225	B69-10531	03	Soft metal plating enables hard metal seal to operate successfully in low temperature, high pressure environment NUC-10083	B67-10350	03
INCIDENCE Simple control device senses solar position JPL-638	B65-10061	01	Asbestos and Inconel combined to form hot-gas seal M-FS-14004	B68-10162	05
Glancing incidence telescope for far ultraviolet and soft X-rays GSFC-10052	B67-10508	02	Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03
Plastic shoe facilitates ultrasonic inspection of thin wall metal tubing NUC-10010	B67-10542	02	Hot-cracking studies of Inconel 718 weld-heat-affected zones M-FS-18211	B69-10052	05
INCIDENT RADIATION Technique for measuring absorptance and emittance by using cyclic incident radiation LEWIS-321	B66-10630	02	Tensile and fatigue properties of Inconel 718 at cryogenic temperatures M-FS-18192	B69-10068	03
Fast-acting calorimeter measures heat output of plasma gun accelerator LEWIS-388	B67-10192	01	Handbook for design of containers of fluids and gases for spacecraft M-FS-20502	B69-10279	05
Uranium isotopes quantitatively determined by modified method of atomic absorption spectrophotometry ARG-210	B67-10236	03	Improved nickel plating of Inconel X-750 M-FS-18604	B69-10463	05
Ellipsoidal-mirror reflectometer accurately measures infrared reflectance of materials GSFC-566	B67-10444	01	Technique for predicting the thermal expansion coefficients of cryogenic metallic alloys NUC-10554	B69-10707	02
Optimetric system facilitates colorimetric and fluorometric measurements NPO-10233	B68-10316	01	INDEPENDENT VARIABLES Mechanical properties of plastics predetermined by empirical method ARC-28	B64-10068	03
Electron interaction in matter			Human transfer functions used to predict system performance parameters LANGLEY-203	B66-10379	01

SUBJECT INDEX

INDEPENDENT VARIABLES CONT

Study made of application of stereoscopic display system to analog computer simulation M-FS-1263 B66-10590	01	material through variety of parameters M-FS-12938 B67-10545	01
Treatment increases stress-corrosion resistance of aluminum alloys M-FS-1840 B66-10595	05	Independent doubly truncated gamma variables M-FS-20143 B68-10345	02
Study of theory and application of long duration heat flux transducers M-FS-1265 B66-10614	01	Controllability of distributed-parameter systems M-FS-14929 B68-10346	02
Magnetoresistor monitors relay performance M-FS-1754 B66-10650	01	Computer program for parameter optimization ARC-10168 B68-10453	06
Computer program reduces calculation time of normal response functions M-FS-1517 B67-10108	01	SPAN C - Terminal sterilization process analysis program NPO-10805 B69-10039	06
Computer program calculates monotonic maximum likelihood estimates using method of reversals M-FS-1516 B67-10136	01	Analysis of magnetically-controlled processes in pulse-modulation systems GSFC-10241 B69-10070	01
Master control data handling program uses automatic data input M-FS-2259 B67-10280	06	ABTRAJ on-site tracking prediction program NPO-10836 B69-10103	06
Multiple correlation computer program determines relationships between several independent and dependent variables M-FS-13024 B67-10327	06	SPAN - Terminal sterilization process analysis program NPO-10804 B69-10104	06
Computer optimization program finds values for several independent variables that minimize a dependent variable M-FS-13030 B67-10328	06	Computer programs for axial flow compressor design LEWIS-10765 B69-10174	06
General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-FS-13094 B67-10331	06	Thermal Network Analyzer Program NUC-10540 B69-10239	06
Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations NUC-10052 B67-10345	06	Simplified system displays complex curves corresponding to input data HQ-10073 B69-10247	01
Multiple meter monitoring circuits served by single alarm MSC-10984 B67-10369	01	Computer program for off-design performance of radial inflow turbines LEWIS-10764 B69-10267	06
High power dc/dc and dc/ac electrical power conversion techniques developed M-FS-13227 B67-10390	01	New passive telemetry system HQ-10214 B69-10312	01
Study made to establish parameters and limitations of explosive welding M-FS-13006 B67-10393	05	The effect of mismatched components on microwave noise-temperature calibrations NPO-11163 B69-10333	01
Wear studies made of slip rings and gas bearing components M-FS-12882 B67-10403	05	Prediction of thermal radiation from a rocket's exhaust plume M-FS-20414 B69-10371	02
Computer program generates averaged value data tapes M-FS-12728 B67-10411	06	Wall-thickness changes predicted in hollow-drawn tubing ARG-10425 B69-10428	02
Algebraic Monte Carlo procedure reduces statistical analysis time and cost factors M-FS-1887 B67-10434	01	Crossed-beam technique for measuring horizontal winds M-FS-20160 B69-10447	02
Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid NUC-10043 B67-10457	06	Optimizing solar-cell grid geometry HQ-10417 B69-10460	01
Program computes equilibrium normal shock and stagnation point solutions for arbitrary gas mixtures LANGLEY-10090 B67-10509	06	Method for determining properties of microinstabilities of a magnetized plasma HQ-10447 B69-10462	02
DIANA - An advanced programming system for large classes of dynamic and equivalent systems M-FS-12084 B67-10524	06	Stereo TV enhancement study M-FS-14805 B69-10497	01
Instrumentation monitors transported		Rate of heat extraction controller for environmental control HQ-10318 B69-10516	01
		Miniaturized high-resolution mass/charge spectrograph /design study/ MSC-13279 B69-10554	02
		A theoretical study of radar backscatter from distributed targets with emphasis on polarization dependence M-FS-13775 B69-10560	02
		Self-sustained hydrodynamic oscillations in a natural-circulation two-phase-flow	

INDEXES (DOCUMENTATION)

SUBJECT INDEX

boiling loop ARG-10461	B69-10620	02	Superconductive thin film makes convenient liquid helium level sensor LANGLEY-10289	B68-10341	01
Optimum structural design based on reliability and proof-load testing NPO-11228	B69-10723	31	Remotely operated gripper provides vertical control rod movement ARG-10160	B68-10359	05
INDEXES (DOCUMENTATION)			Low-cost voltage-level detector LEWIS-10885	B69-10217	01
JPKWIC - General key word in context and subject index report generator NPO-10589	B68-10208	06	Leakage tester for flat conductor cable connector M-FS-20427	B69-10284	05
Direct reading of electrocardiograms and respiration rates KSC-10233	B69-10188	04	Identification of thermocouple material M-FS-18540	B69-10356	01
Microelectronic device data handbook ERC-10322	B69-10687	01	Battery charge-discharge controller MSC-11836	B69-10747	01
INDEXES (RATIOS)			INDICATORS		
Gear drive automatically indexes rotary table M-FS-753	B66-10383	05	Test strips detect different CO2 concentrations in closed compartments MSC-210	B65-10390	03
Multilayer infrared beamsplitter film system XGS-11036	B69-10260	02	Conceptual apparatus for detecting leaks of nonconductive liquids M-FS-14713	B68-10303	01
INDICATING INSTRUMENTS			INDIUM		
Coaxial capacitor used to determine fluid density LEWIS-232	B65-10296	02	Indium foil with beryllia washer improves transistor heat dissipation GSFC-42	B63-10033	01
Depth indicator and stop aid machining to precise tolerances M-FS-553	B66-10149	05	Mounting for diodes provides efficient heat sink M-FS-197	B64-10283	01
Device facilitates centering of workpieces in lathe chuck M-FS-685	B66-10277	05	Mounting improves heat-sink contact with beryllia washer MSC-194	B66-10144	01
Legibility of electroluminescent instrument panels investigated MSC-494	B66-10316	02	Environmental study of miniature slip rings M-FS-2443	B67-10210	05
Minimum permissible leakage resistance established for instrumentation systems M-FS-848	B66-10397	01	Practical new method of measuring thermal-neutron fluence NUC-10086	B67-10352	02
Leak locator for vacuum jacketed pipelines eliminates need for removal of outer jacket M-FS-888	B66-10412	01	Neutron detector simultaneously measures fluence and dose equivalent ARG-10071	B67-10597	02
Portable fixture facilitates pressure testing of instrumentation fittings M-FS-2032	B67-10121	03	Indium adhesion provides quantitative measure of surface cleanliness SAN-10024	B68-10342	01
IR vidicon scanner monitors many test points M-FS-1937	B67-10277	01	INDIUM ALLOYS		
Precision capacitor has improved temperature and operational stability ARG-189	B67-10313	01	Gallium alloy films investigated for use as boundary lubricants LEWIS-245	B66-10165	03
Conceptual nonorthogonal gyro configuration for guidance and navigation MSC-11363	B67-10433	01	Cryogenic seal remains leaktight during thermal displacement ARG-96	B67-10134	02
Transient sensor development M-FS-13370	B67-10471	01	INDUCTANCE		
Low cost SCR lamp driver indicates contents of digital computer registers GSFC-10221	B67-10656	01	Tiny sensor-transmitter can withstand extreme acceleration, gives digital output ARC-22	B63-10561	01
Reflectometer for receiver input system NPO-10843	B67-10657	01	Simple circuit produces high-speed, fixed duration pulses GSFC-285	B65-10228	01
Damages in rolling element bearings may be detected early HQ-10031	B67-10658	01	Increased junction lead inductance ballasts high-frequency transistors GSFC-387	B65-10259	01
Detection and location of metallic objects imbedded in nonmetallic structures M-FS-14790	B68-10183	01	Large capacitor performs as a distributed parameter pulse line LEWIS-176	B66-10291	01
Automatic, nondestructive test monitors in-process weld quality M-FS-14996	B68-10333	01	Improved circuit for measuring capacitive and inductive reactances M-FS-13083	B67-10513	01
			Moebius resistor is noninductive and		

SUBJECT INDEX

INELASTIC SCATTERING

nonreactive SAN-10020	B68-10267	01	GSFC-285	B65-10228	01
High-voltage pulse generator developed for wide-gap spark chambers ARG-10136	B68-10283	01	Inductor flyback characteristic gives voltage regulator fast response GSFC-361	B65-10257	01
Induction probe determines levels of liquid metals ARG-10348	B69-10256	03	Improved tool easily removes brazed tube connectors MSC-263	B66-10003	05
Synchronous charge-constrained electroquasistatic generator HQ-10231	B69-10461	01	Calculations enable optimum design of magnetic brake LEWIS-251	B66-10073	05
Design of printed circuit coils HQ-10431	B69-10665	01	Inductive system detects level of conducting fluids LEWIS-322	B66-10392	01
INDUCTION			Thin-film ferrites vapor deposited by one-step process in vacuum MSC-259	B66-10398	03
Evaluation of magnetic materials for static inverters and converters LEWIS-10343	B69-10306	01	RF inductor has high Q, is stable at higher temperatures JPL-1019	B67-10106	01
INDUCTION HEATING			Switching-type regulator circuit has increased efficiency MSC-1063	B67-10190	01
Removable preheater elements improve oxide induction furnace JPL-288	B63-10193	01	Braze joint quality tested electromagnetically M-FS-12795	B67-10333	01
Apparatus facilitates pressure-testing of metal tubing LEWIS-174	B65-10131	05	Microelectronic oscillator, 2 GSFC-10387	B69-10063	01
Refractory metal shielding /insulation/ increases operating range of induction furnace LEWIS-202	B65-10188	02	Microelectronic oscillator GSFC-10375	B69-10064	01
Complementary system vaporizes subcooled liquid, improves transformer efficiency M-FS-550	B66-10045	02	Plasma-heating by induction LEWIS-10528	B69-10185	02
Hydrogen-atmosphere induction furnace has increased temperature range LEWIS-153	B66-10055	05	INDUSTRIAL PLANTS		
Auxiliary coil controls temperature of RF induction heater GSFC-428	B66-10067	01	Computer program conducts facilities utilization and occupancy survey NPO-10326	B67-10476	06
Refractory coating protects intricate graphite elements from high-temperature hydrogen NU-0027	B66-10084	01	INDUSTRIAL SAFETY		
Rotating magnetic poles used to pump mercury LEWIS-276	B66-10434	05	Emergency escape system protects personnel from explosion and fire KSC-66-12	B66-10634	05
Tungsten insulated susceptor cup for high temperature induction furnace eliminates contamination LEWIS-283	B66-10538	03	Handbooks describe eddy current techniques used in nondestructive testing of metal parts and components M-FS-13172	B67-10374	03
Miniaturized King furnace permits absorption spectroscopy of small samples ARG-10177	B68-10418	02	Safety yoke would protect construction workers from falling KSC-10075	B67-10445	05
Plasma-heating by induction LEWIS-10528	B69-10185	02	Technique for assessing potential fire hazards HQ-10279	B69-10287	03
Niobium-uranium alloys with voids of predetermined size and total volume ARG-10490	B69-10641	03	INDUSTRIES		
INDUCTORS			Computer simulation program is adaptable to industrial processes LEWIS-240	B66-10426	01
Circuit controls transients in SCR inverters GSFC-120	B63-10600	01	Weight Control System M-FS-15028	B69-10041	06
Tunnel-diode circuit features zero-level clipping GSFC-241	B65-10002	01	An improved method for electrical cable terminations NPO-10694	B69-10327	01
Carbon arc ignition improved by simple auxiliary circuit MSC-103	B65-10018	01	Sealed container sampling device GSFC-10690	B69-10682	03
Voltage controlled oscillator is easily aligned, has low phase noise JPL-510	B65-10223	01	INELASTIC COLLISIONS		
Simple circuit produces high-speed, fixed duration pulses			The response of monoenergetic gamma rays in finite media are investigated ARG-10295	B69-10080	02
			INELASTIC SCATTERING		
			Dual-mode operation of a neutron source, a concept		

INERT ATMOSPHERE

SUBJECT INDEX

HQ-10106	B69-10248	02	INERTIAL NAVIGATION		
INERT ATMOSPHERE			Ring laser angle encoder	B69-10115	01
Apparatus facilitates high-temperature tensile testing in vacuum			MSC-13099		
LEWIS-42	B63-10345	03	INERTIAL REFERENCE SYSTEMS		
Cesium iodide crystals fused to vacuum tube faceplates			Conceptual nonorthogonal gyro configuration for guidance and navigation	B67-10433	01
GSFC-67	B63-10476	03	INFLATABLE STRUCTURES		
Double gloves reduce contamination of dry box atmosphere			New inflatable liferaft is nontippable	B64-10001	05
LEWIS-211	B65-10117	03	Inflatable bladder provides accurate calibration of pressure switch	B65-10279	01
Thoriated nickel bonded by solid-state diffusion method			M-PS-367		
LANGLEY-116	B65-10220	03	Buoyant stokes litter assembly used for sea rescue operations	B66-10019	05
Ceramic materials purified by experimental method			MSC-131		
LEWIS-225	B65-10270	03	Rotating mandrel speeds assembly of plastic inflatables	B66-10137	05
Refractory metals welded or brazed with tungsten inert gas equipment			LANGLEY-155		
LEWIS-219	B65-10319	05	Self-inflating lifevest stores in small package	B66-10184	04
Inert-gas welding and brazing enclosure fabricated from sheet plastic			MSC-5A		
LEWIS-220	B65-10338	05	Flexible fastener effects airtight material closure	B66-10304	05
Tungsten wire and tubing joined by nickel brazing			JPL-684		
M-PS-394	B65-10391	05	Inflatable holding fixture permits X-rays to be taken of inner weld areas	B66-10327	03
Flexible drive allows blind machining and welding in hard-to-reach areas			M-PS-856		
MSC-524	B66-10428	05	Portable lightweight cell provides controlled environment	B66-10370	05
Process for preparing dispersions of alkali metals			MSC-648		
JPL-734	B66-10639	03	Inflatable O-ring seal would ease closing of hatch cover plate	B66-10385	05
Laboratory arc furnace features interchangeable hearths			MSC-740		
ARG-125	B67-10052	05	Pneumatic raft automatically reforms after rupture of buoyant member	B68-10011	05
Quasi-static vapor pressure measurements on reactive systems in inert atmosphere box			MSC-11562		
ARG-90142	B68-10236	01	Inflatable bladder to facilitate handling of heavy objects - A concept	B69-10069	05
Titanium-nitrogen reaction investigated for application to gettering systems			M-PS-14272		
ARG-10208	B68-10414	03	INFLATING		
Isothermal drop calorimeter provides measurements for alpha active, pyrophoric materials			Buoyant stokes litter assembly used for sea rescue operations	B66-10019	05
ARG-10186	B69-10002	02	MSC-131		
Two systems developed for purifying inert atmospheres			INFORMATION		
ARG-10234	B69-10026	03	Encode/Decode facility for FORTRAN 4	B69-10169	06
Calibratable solid-state pressure switch			ARG-10335		
M-PS-20474	B69-10437	05	INFORMATION RETRIEVAL		
INERTIA			Pickup device reads pressures from ports in rotating mechanisms	B65-10021	05
Angular acceleration measured by deflection in sensing ring			LEWIS-158		
MSC-250	B66-10105	01	Opaque microfiche masthead permits easy reading	B65-10306	01
Concept for sleeve induction motor with 1-msec mechanical time constant			HQ-7		
ARG-10124	B68-10185	01	Computer program searches characteristic data of diodes and transistors	B66-10529	01
Compensation of pulse-rebalanced inertial instruments			GSFC-493		
MSC-13098	B69-10216	01	Hydra 1 data display system	B68-10155	01
INERTIAL GUIDANCE			MSC-11594		
Optical automatic gain channel			JPKNIC - General key word in context and subject index report generator	B68-10208	06
M-PS-1550	B66-10596	02	NPO-10589		
Ring laser angle encoder			Long-term data storage and retrieval system, a concept	B68-10505	01
MSC-13099	B69-10115	01	M-PS-14789		
Hermetically sealed vibration damper			INFRARED DETECTORS		
MSC-10959	B69-10634	05	Infrared television used to detect hydrogen fires		

SUBJECT INDEX

INFRARED SPECTROSCOPY

M-FS-654	B66-10363	01	Automatic, nondestructive test monitors in-process weld quality M-FS-14996	B68-10333	01
Infrared radiometer M-FS-13373	B67-10422	01	Surface temperature mapping with infrared photographic pyrometry LEWIS-10763	B69-10113	01
Development of dual solid cryogenics for high reliability refrigeration system GSFC-10188	B67-10644	02	Method for copper staining of germanium crystals ARG-10403	B69-10257	03
INFRARED FILTERS Photoelectric sensor output controlled by eyeball movements M-FS-274	B65-10079	01	Thermal calibration target XGS-11144	B69-10419	01
PTFE-aluminum films serve as neutral density filters LANGLEY-189	B66-10017	02	Radiometric temperature reference MSC-13276	B69-10507	01
Infrared television used to detect hydrogen fires M-FS-654	B66-10363	01	Multichannel spectroscopy guide HQ-10441	B69-10550	01
INFRARED IMAGERY Thin film thermal detector JPL-943	B67-10505	01	Spacecraft Thermal Radiation Environment Computer Program M-FS-15054	B69-10574	06
INFRARED INSTRUMENTS Inexpensive infrared source improvised from flashlight M-FS-494	B66-10096	02	INFRARED REFLECTION Photoelectric sensor output controlled by eyeball movements M-FS-274	B65-10079	01
Infrared viewing permits human iris response studies ERC-10003	B68-10206	04	Unique construction makes interferometer insensitive to mechanical stresses JPL-725	B65-10295	02
An infrared television system for hydrogen flame detection KSC-10368	B69-10354	01	Ellipsoidal-mirror reflectometer accurately measures infrared reflectance of materials GSFC-566	B67-10444	01
INFRARED LASERS Electro-optic modulator for infrared laser using gallium arsenide crystal GSFC-10686	B68-10255	02	A ceramic composite thermal insulation M-FS-13991	B67-10608	03
Repetitively pulsed, wavelength-selective carbon dioxide laser ERC-10178	B68-10564	02	INFRARED SCANNERS Solid-state switching used to speed up capacitive integrator LANGLEY-104	B65-10159	01
INFRARED PHOTOGRAPHY Surface temperature mapping with infrared photographic pyrometry LEWIS-10763	B69-10113	01	Twin helix system produces fast scan in infrared detector M-FS-1598	B66-10638	02
INFRARED RADIATION IR-transmission glasses formed from oxides of bismuth and tellurium M-FS-279	B65-10190	03	IR vidicon scanner monitors many test points M-FS-1937	B67-10277	01
Infrared shield facilitates optical pyrometer measurements LANGLEY-133	B65-10272	02	Gimbaled-mirror scanning system capable of spiral pattern GSFC-10170	B67-10609	02
Wedge immersed thermistor bolometer measures infrared radiation GSFC-443	B65-10330	02	INFRARED SPECTRA Calculation of infrared spectral transmittances of inhomogeneous gases M-FS-1563	B66-10554	02
Inexpensive infrared source improvised from flashlight M-FS-494	B66-10096	02	Study made of far infrared spectra of silicate minerals M-FS-1811	B67-10075	02
Optical gyro pickoff operates at cryogenic temperatures M-FS-407	B66-10128	01	Xenon fluorides show potential as fluorinating agents ARG-113	B67-10185	03
High-speed furnace uses infrared radiation for controlled brazing NU-0047	B66-10268	02	Detection of molecular infrared spectra HQ-10377	B69-10172	02
Gimbaled-mirror scanning system capable of spiral pattern GSFC-10170	B67-10609	02	Multilayer infrared beamsplitter film system XGS-11036	B69-10260	02
Optical integrating sphere operates at visible and infrared wavelengths M-FS-14248	B68-10126	02	Molecular radiation - Its application in physical measurements and analyses M-FS-14816	B69-10562	02
Standards for compatibility of printed circuit and component lead materials M-FS-14531	B68-10310	01	INFRARED SPECTROPHOTOMETERS Infrared spectroradiometer for rocket exhaust analysis M-FS-14357	B68-10081	02
			INFRARED SPECTROSCOPY Study made of far infrared spectra of		

INFRARED TRACKING

SUBJECT INDEX

silicate minerals M-FS-1811	B67-10075	02	Gas chromatograph injection port protective device M-FS-18585	B69-10788	03
Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters M-FS-13594	B67-10527	03	INLET FLOW Fuel and oxidizer valve assembly employs single solenoid actuator MSC-1046	B66-10648	05
The preparation, identification and properties of chlorophyll derivatives ARG-10205	B68-10409	03	Venturi meter with separable diffuser LEWIS-10483	B68-10295	05
Aggregation of metallochlorophylls - Examination by spectroscopy ARG-10273	B69-10163	04	Modified cryogenic storage tank subsystem KSC-10380	B69-10556	02
INFRARED TRACKING Point-source detection system rejects spatially extended radiation sources GSFC-486	B66-10622	01	INLET NOZZLES Venturi meter with separable diffuser LEWIS-10483	B68-10295	05
INGOTS Coating protects magnesium-lithium alloys against corrosion M-FS-2446	B67-10149	03	INOCULATION Automated microorganism Sample Collection Module HQ-10421	B69-10223	04
Magnesium-lithium alloys developed for low temperature use M-FS-1541	B67-10365	03	INORGANIC COATINGS Anodization process produces opaque, reflective coatings on aluminum M-FS-348	B65-10336	03
Zone purification of potassium chloride ARG-10377	B69-10241	03	Air-cured ceramic coating insulates against high heat fluxes M-FS-150	B65-10357	03
INHIBITORS Spectrophotometric technique quantitatively determines NaMBT inhibitor in ethylene glycol-water solutions MSC-11496	B67-10573	03	INORGANIC COMPOUNDS Inorganic paint is durable, fireproof, easy to apply GSFC-366	B65-10156	03
Literature review on pickling inhibitors and cadmium electroplating processes M-FS-14421	B69-10606	03	Coordination chemistry in fused-salt solutions ARG-10469	B69-10423	03
INHOMOGENEITY Calculation of infrared spectral transmittances of inhomogeneous gases M-FS-1563	B66-10554	02	INORGANIC MATERIALS Study made of dielectric properties of promising materials for cryogenic capacitors M-FS-1362C	B67-10366	03
Improved ultrasonic TV images achieved by use of Lamb-wave orientation technique ARG-203	B67-10295	02	Reduction by monovalent zinc, cadmium, and nickel cations ARG-10328	B69-10170	03
INJECTION Economical fabrication process produces high quality junction transistors JPL-SC-065	B64-10330	01	INPUT Veitch diagram plotter simplifies Boolean functions JPL-385	B63-10241	05
INJECTION GUIDANCE Space trajectories program for IBM 7090 NPO-10125	B67-10172	06	Double-throw microwave device switches two lines quickly JPL-410	B63-10258	01
Advanced mission analysis programs GSFC-10575	B69-10171	06	Digital logic elements provide additional functions from analog input MSC-64	B64-10064	01
INJECTORS Filler device for handling hot corrosive materials MSC-85	B64-10166	03	Field-effect transistor improves electrometer amplifier ARC-36	B64-10143	01
Dust particle injector for hypervelocity accelerators provides high charge-to-mass ratio GSFC-509	B66-10347	01	Transistorized converter provides nondissipative regulation GSFC-238	B64-10305	01
A method of determining combustion gas flow M-FS-13757	B67-10455	03	Stepping motor drive circuit designed for low power drain GSFC-198	B65-10026	01
Journal gas bearing for curved surfaces M-FS-20423	B69-10182	05	Transistor voltage comparator performs own sensing GSFC-228	B65-10028	01
Single-element coaxial injector for rocket fuel NPO-11095	B69-10547	05	Photoelectric semiconductor switch operates with low level inputs JPL-SC-068	B65-10033	01
A method for using surface tension to determine the size of holes in hardware MSC-15194	B69-10595	03	Electrometer preamplifier has drift correction feedback JPL-SC-074	B65-10267	01

SUBJECT INDEX

INSERTION LOSS

Automatic gain control circuit handles wide input range MSC-166	B66-10089	01	programmable digital filter for sampled-data control systems M-FS-20290	B69-10454	06
Electropneumatic transducer automatically limits motor current LEWIS-253	B66-10160	01	Live-timer method of automatic dead-time correction for precision counting ARG-10478	B69-10612	01
Offset lenses add versatility to phototypesetting machine HQ-9	B66-10173	02	COGENT programming manual ARG-10463	B69-10656	06
Electronic circuit provides accurate sensing and control of dc voltage NU-0089	B66-10591	01	INPUT/OUTPUT ROUTINES		
MOSFET analog memory circuit achieves long duration signal storage M-FS-860	B66-10603	01	Human transfer functions used to predict system performance parameters LANGLEY-203	B66-10379	01
Transistor biased amplifier minimizes diode discriminator threshold attenuation ARG-163	B67-10311	01	System monitors discrete computer inputs M-FS-1021	B66-10389	01
Field effect transistors improve buffer amplifier M-FS-916	B67-10334	01	Polynomial manipulator AP-168 MSC-1231	B67-10103	01
Limit circuit prevents overdriving of operational amplifier NUC-10082	B67-10343	01	Structural Analysis and Matrix Interpretive System /SAMIS/ NPO-10130	B67-10171	01
Digital-to-analog converter operates from low level inputs JPL-907	B67-10357	01	Computer program simulates physical systems by solving the simultaneous differential equations describing the systems NPO-10019	B67-10193	06
Circuit automatically calibrates flowmeter against liquid-level gage reference M-FS-2194	B67-10376	01	A conceptual, parallel operating data compression processor NPO-10068	B67-10204	01
Algebraic Monte Carlo procedure reduces statistical analysis time and cost factors M-FS-1887	B67-10434	01	Master control data handling program uses automatic data input M-FS-2259	B67-10280	06
Material fatigue data obtained by card-programmed hydraulic loading system LANGLEY-10042	B67-10491	03	Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes NUC-10143	B67-10665	06
Input gate circuit converted for use as linear amplifier M-FS-14265	B68-10015	01	Reducing quantizer deadband with a **range switching** digital filter M-FS-20419	B69-10259	01
Tool reconstructs data input points corresponding to first order output graph M-FS-18003	B68-10154	02	LM lookangle program MSC-13179	B69-10370	06
Parallel-to-serial biphasic-data converter MSC-11600	B68-10241	01	Wide-band doubler and sine wave quadrature generator NPO-11133	B69-10383	01
Self-starting circuit for switching regulators LEWIS-10686	B69-10128	05	Simplified, reliable circuit sorts binary numbers in order of magnitude NPO-10112	B69-10503	01
MAGNTY - Program for calculating velocities in magnified region of turbomachines LEWIS-10789	B69-10132	06	INSECTS		
Encode/Decode facility for FORTRAN 4 ARG-10335	B69-10169	06	Investigation of temperature dependence of development and aging ARG-10145	B69-10022	04
Magnetically coupled emission regulator GSFC-10056	B69-10213	01	INSERTION		
Multichannel analyzers at high rates of input ARG-10355	B69-10214	02	Aerial-image enables diagrams and animation to be inserted in motion pictures ARG-165	B67-10398	02
Low-cost voltage-level detector LEWIS-10885	B69-10217	01	Insertion device for pressure testing MSC-15185	B69-10061	03
Simplified system displays complex curves corresponding to input data HQ-10073	B69-10247	01	INSERTION LOSS		
Root-cubing and general root-powering methods for finding the zeros of polynomials ARG-10444	B69-10424	02	Improved insertion-loss tester JPL-358	B64-10080	01
Special purpose computer provides			Microwave technique measures plasma characteristics LANGLEY-134	B65-10122	02
			Composite filter steepens rejection slopes in microwave application GSFC-480	B66-10393	01
			Low-loss C-band parasitic probe KSC-09348	B69-10251	01
			A compact rotary vane attenuator NPO-10562	B69-10427	01

INSERTS

SUBJECT INDEX

Rotary antenna attenuator NPO-10648	B69-10502	01	Training manuals for nondestructive testing using magnetic particles M-FS-20187	B68-10391	03
INSERTS			Reidentifying hardware after loss of serial number M-FS-18133	B69-10059	05
Gate valve with ceramic-coated base operates at high temperatures ARC-23	B63-10562	03	Improved combustion chamber optical probe MSC-10953	B69-10142	02
Expandable insert serves as screw anchor MSC-301	B66-10132	05	Surface irregularities detected by flare inspection instrument M-FS-20157	B69-10152	01
Insert sleeve prevents tube soldering contamination MSC-552	B66-10238	05	Instrumentation for nondestructive testing of composite honeycomb materials M-FS-20405	B69-10366	03
Study made to control depth of potting compound for honeycomb sandwich fasteners LEWIS-370	B66-10677	05	INSTALLING		
An improved nuclear magnetic resonance spectrometer JPL-762	B67-10234	01	Low-cost tool minimizes damage to O-rings during installation MSC-140	B65-10116	05
Flared-tube fittings with replaceable seat inserts MSC-15372	B69-10519	05	Microminiature thermocouple monitors own installation M-FS-1111	B66-10463	05
An electrical connector pin protector MSC-15660	B69-10742	01	Pressure probe compensates for dimensional tolerance variations LEWIS-302	B66-10599	01
INSPECTION			Thermocouples easily installed in hard-to- get-to places M-FS-1946	B66-10653	01
Crack detection method is safe in presence of liquid oxygen M-FS-236	B65-10107	03	Tool facilitates installation of Marmon clamps M-FS-2039	B67-10105	05
Surfactant for dye-penetrant inspection is insensitive to liquid oxygen M-FS-475	B66-10131	03	Application of distorted models in developing scaled structural models M-FS-2540	B67-10321	05
Ultrasonic recording scanner used for nondestructive weld inspection M-FS-284	B66-10220	01	Vacuum-jacketed transfer line installation technique M-FS-14496	B68-10125	05
Ultrasonic quality inspection of bonded honeycomb assemblies is automated MSC-859	B66-10544	01	Two-axis winch installer for heavy ducts in confined space M-FS-14254	B69-10062	05
System enables dimensional inspection of very large structures M-FS-2477	B67-10214	05	INSTRUMENT COMPENSATION		
Improved ultrasonic TV images achieved by use of Lamb-wave orientation technique ARG-203	B67-10295	02	Low-cost, fast-response drive circuit for electromagnetic torque motors LEWIS-10143	B68-10386	01
Thermal neutron image intensifier tube provides brightly visible radiographic pattern ARG-120	B67-10296	02	INSTRUMENT ERRORS		
Low-energy gamma ray inspection of brazed aluminum joints MSC-1189	B67-10337	02	Coincident switch closing reduces error in motor-driven timer JPL-182	B63-10143	05
Test and inspection for process control of monolithic circuits M-FS-13084	B67-10507	01	Computer program determines performance efficiency of remote measuring systems M-FS-1137	B66-10503	01
Plastic shoe facilitates ultrasonic inspection of thin wall metal tubing NUC-10010	B67-10542	02	INSTRUMENT LANDING SYSTEMS		
Connector shorting cap provides pin alignment, inspection, and stray voltage protection M-FS-13111	B67-10635	01	Literal readout of identification signals in Morse code LANGLEY-1C222	B69-10479	01
Optical system facilitates inspection of printed circuit boards GSFC-07971	B68-10021	02	INSTRUMENT ORIENTATION		
New camera tube improves ultrasonic inspection system ARG-90237	B68-10088	01	Instrument quickly transposes ground reference target to eye level MSC-275	B66-10061	05
Inspection criteria ensure quality control of parallel gap soldering M-FS-14530	B68-10257	05	Seismometer designed for remote operation in random orientation JPL-320	B66-10085	01
			Mount enables precision adjustment of optical-instrumentation mirror MSC-184	B66-10199	02
			Three-axis attitude and direction reference instrument has only one moving part M-FS-1819	B66-10644	01
			Improved ultrasonic TV images achieved by		

SUBJECT INDEX

INSULATION

use of Lamb-wave orientation technique ARG-203	B67-10295	02	high heat fluxes M-FS-150	B65-10357	03
INSTRUMENT PACKAGES			Nylon bit removes cork insulation without damage to substrate MSC-381		
New package for Belleville spring permits rate change, easy disassembly JPL-392	B63-10247	05	Argon purge gas cooled by chill box M-FS-560	B66-10152	05
Organic reactants rapidly produce plastic foam LANGLEY-37	B65-10288	03	Cold solid propellant motor has stop-restart capability JPL-836	B66-10153	02
INSTRUMENTS			Technique for stripping Teflon insulated wire M-FS-1774		
Instrument adjustment knob locks to prevent accidental maladjustment M-FS-190	B64-10249	05	Jacketed cryogenic piping is stress relieved M-FS-985	B67-10048	05
Compact assembly generates plastic foam, inflates flotation bag LANGLEY-96	B65-10090	05	Cut-through tester accurately measures insulation failure rates M-FS-12506	B67-10308	05
Gapped toroid provides infinite resolution of delay-line pickup GSFC-370	B65-10258	01	Mechanical properties of wire insulation automatically determined MSC-10983	B67-10354	03
Multiple meter monitoring circuits served by single alarm MSC-10984	B67-10369	01	Multiplexer uses insulated gate-field effect transistors M-FS-13096	B67-10370	01
Environmental test planning, selection and standardization aids available SAN-10028	B68-10445	06	Temperature-sensed cryogenic bleed maintains liquid state in transfer line M-FS-12681	B67-10396	01
Dewpoint temperature inversions analyzed ARG-10316	B69-10057	02	Adhesives for laminating polyimide insulated flat conductor cable M-FS-12066	B67-10424	01
Restricted-flow junction between liquids NPO-10682	B69-10332	02	Hand-operated plug insertion valve M-FS-12019	B67-10429	03
INSULATED STRUCTURES			High temperature thermocouple design provides gas cooling without increasing overall size of unit NUC-10515		
Vacuum chamber provides improved insulation and support for cryostat M-FS-415	B65-10368	02	Flat cable insulation stripping machine M-FS-13776	B67-10466	05
INSULATION			Method of measuring thermal conductivity of high performance insulation M-FS-14088		
Low-cost insulation system for cryostats eliminates need for a vacuum LEWIS-64	B63-10365	03	Panelized high performance multilayer insulation M-FS-14023	B68-10031	03
Composite, vacuum-jacketed tubing replaces bellows in cryogenic systems LEWIS-67	B63-10368	05	Simple test for physical stability of cryogenic tank insulation M-FS-12547	B68-10048	03
Ionization vacuum gage starts quickly, is unaffected by spurious currents JPL-304	B65-10036	02	Lightweight heater generates high temperatures from low current SAN-10004	B68-10223	01
Cutter and stripper reduces coaxial cable connection time ARC-40	B65-10094	05	Moebius resistor is noninductive and nonreactive SAN-10020	B68-10267	01
Spherical electrode eliminates high-voltage breakdown LEWIS-155	B65-10139	01	Fiber glass prevents cracking of polyurethane foam insulation on cryogenic vessels M-FS-20058	B68-10406	02
Refractory oxides evaluated for high-temperature use LANGLEY-121	B65-10167	03	Device for diode tuning in a stripline varactor harmonic multiplier M-FS-20153	B69-10013	01
Electronic modules easily separated from heat sink MSC-142	B65-10186	02	Thermal radiation shields for piping in vacuum environments LEWIS-10899	B69-10262	03
Thin transparent films formed from powdered glass GSFC-352	B65-10217	03	Development of structural test articles from magnesium-lithium and beryllium M-FS-14959	B69-10417	03
Insulation accelerates rate of cooling with cryogenic fluid MSC-161	B65-10240	02			
Closed fluid system without moving parts controls temperature LEWIS-222	B65-10331	02			
Soluble undercoating facilitates removal of foamed-in-place insulation LEWIS-193	B65-10344	03			
Air-cured ceramic coating insulates against					

INSULATORS

SUBJECT INDEX

Automated plotting of equipotentials NPO-11134	B69-10570	01	Field-effect transistor replaces bulky transformer in analog-gate circuit GSFC-351	B65-10284	01
Balloon batteries, charged and heated by solar energy GSFC-10769	B69-10585	01	Frequency divider is free of spurious outputs GSFC-308	B65-10334	05
Liquid oxygen-compatible insulation system M-FS-16113	B69-10599	03	Miniature bioelectric device accurately measures and telemeters temperature ARC-52	B66-10057	01
Reducing contact resistance at semiconductor to metal or aluminum to metal interfaces ERC-10254	B69-10689	01	Diffusion technique stabilizes resistor values MSC-205	B66-10142	01
INSULATORS			Binary fluid amplifier solves stability and load problems ERC-15	B66-10177	01
Welded pressure transducer made as small as 1/8th-inch in diameter ARC-11	B63-10429	03	Solid state thermostat has integral probe and circuitry M-FS-434	B66-10193	01
Modified RF coaxial connector ends vacuum chamber wiring problem GSFC-150	B64-10010	01	FET comparator detects analog signal levels without loading analog device M-FS-503	B66-10224	01
Standoff tool speeds placement of friction-fit electrical terminals WOO-029	B65-10348	05	Electronic phase-locked-loop speed control system is stable JPL-SC-084	B66-10232	01
Insulator-holder protects transistors in dense electronic assemblies MSC-214	B65-10389	01	High-performance RC bandpass filter is adapted to miniaturized construction ARC-60	B66-10309	01
Rugged switch responds to minute pressure differentials M-FS-12704	B67-10389	01	Circuit provides accurate four-quadrant multiplication WOO-272	B66-10331	02
Technique eliminates high voltage arcing at electrode-insulator contact area LEWIS-10133	B67-10470	01	Single channel pulse-height analyzer operates in subnanosecond range LEWIS-267	B66-10377	01
Simple switch actuated by force applied over wide solid angle INP-09808	B69-10032	01	Video signal processing system uses gated current mode switches to perform high speed multiplication and digital-to-analog conversion MSC-781	B66-10429	01
Pulsed high-voltage dc RF sputtering LEWIS-10920	B69-10699	01	Integrator can easily be set and reset with an electronic switch ARC-10002	B67-10135	01
INTAKE SYSTEMS			Solid state phase detector replaces bulky transformer circuit MSC-11007	B67-10253	01
Packless valve with all-metal seal handles wide temperature, pressure range JPL-361	B63-10228	05	Solid state circuit averages multiple signals and rejects those varying significantly from the average NUC-10066	B67-10262	01
Spherical pipe joint delivers loads equally to mating flange M-FS-807	B66-10665	05	Sensitive bridge circuit measures conductance of low-conductivity electrolyte solutions ARG-147	B67-10294	01
Concept for sleeve induction motor with 1-msec mechanical time constant ARG-10124	B68-10185	01	Method of improving contact bonds in silicon integrated circuits M-FS-1753	B67-10335	01
Method for predicting pump cavitation performance LEWIS-10916	B69-10446	02	Digital-to-analog converter operates from low level inputs JPL-907	B67-10357	01
INTEGERS			Transient sensor development M-FS-13370	B67-10471	01
Linear systems of equations solved using mathematical algorithms ARG-10146	B68-10292	06	Test and inspection for process control of monolithic circuits M-FS-13084	B67-10507	01
INTEGRAL EQUATIONS			Logic realization of simple majority voting connectives JPL-727	B67-10511	06
Calculation of resonance neutron absorption in two-region problems /the GAROL code/ NUC-10045	B67-10223	06	Development of reliability prediction technique for semiconductor diodes GSFC-10231	B67-10651	06
Computer program calculates the effective temperature for a crystalline solid /DETS/ NUC-10161	B69-10036	06			
Numerical inversion of finite Toeplitz matrices and vector Toeplitz matrices ARG-10445	B69-10415	02			
Finite element formulation for linear thermoviscoelastic materials NPO-11229	B69-10660	03			
INTEGRATED CIRCUITS					
Crystal measures short-term, large-magnitude forces JPL-77	B65-10187	01			

SUBJECT INDEX

INTEGRITY

Low cost SCR lamp driver indicates contents of digital computer registers
GSFC-10221 B67-10656 01

Dc pin-to-pin testing of integrated circuits
GSFC-10284 B68-10001 01

Small, low power analog-to-digital converter
M-FS-13954 B68-10016 01

Accumulator for shaft encoder
M-FS-13599 B68-10093 01

Piggy-back mounting would increase microcircuit packaging density
MSC-12059 B68-10114 01

Active rc networks of low sensitivity for integrated circuit transfer function
ARC-10146 B68-10210 01

Random access-random release relay switching matrix
M-FS-12590 B68-10301 01

Improved process for epitaxial deposition of silicon on prediffused substrates
M-FS-14910 B68-10390 03

Amplifier improvement circuit
LEWIS-10712 B68-10456 01

Microelectronic oscillator
GSFC-10375 B69-10064 01

Simple demodulator for telemetry phase-shift keyed subcarriers
NPO-11000 B69-10095 01

Integrated circuit with multiple collector current source
M-FS-20177 B69-10126 01

Tunable bandpass filter with variable selectivity
ARC-10191 B69-10130 01

Low-cost voltage-level detector
LEWIS-10885 B69-10217 01

Multiple-mask chemical etching
MSC-13114 B69-10221 01

An integrated circuit switch
NPO-11073 B69-10326 01

Automatic calorimetry system monitors RF power
NPO-11033 B69-10384 01

Dielectric materials for use in thin-film capacitors
M-FS-20471 B69-10387 02

Leads integral with the internal interconnection that penetrate the molded wall of a package
LANGLEY-10228 B69-10436 01

Improved method of dicing integrated circuit wafers into chips
ERC-10138 B69-10441 01

Modular packaging technique for combining integrated circuits and discrete components
GSFC-10369 B69-10453 01

Special purpose computer provides programmable digital filter for sampled-data control systems
M-FS-20290 B69-10454 06

Literal readout of identification signals in Morse code
LANGLEY-10222 B69-10479 01

Phase-locked-loop phase modulator with

high modulation index, low distortion
MSC-12247 B69-10487 01

Folded stick module
NPO-10854 B69-10498 01

Automatic frequency control of voltage-controlled oscillators
NPO-11064 B69-10569 01

Highly stable high-rate discriminator for nuclear counting
ARG-10483 B69-10614 01

Pulse-height analyzer with digital readout
ARG-10503 B69-10640 01

Microelectronic device data handbook
ERC-10322 B69-10687 01

INTEGRATORS

Inexpensive, stable circuit measures heart rate
MSC-95 B65-10010 01

System selects framing rate for spectrograph camera
LANGLEY-55 B65-10086 01

Simple circuit functions as frequency discriminator for PFM signals
GSFC-267 B65-10102 01

Solid-state switching used to speed up capacitive integrator
LANGLEY-104 B65-10159 01

Frequency correction device uses digital circuitry
GSFC-268 B65-10307 01

Electronic ampere-hour integrator is accurate to one percent
GSFC-203 B65-10308 01

Automatic system determines moments of inertia of asymmetrical objects
M-FS-1769 B66-10636 01

Integrator can easily be set and reset with an electronic switch
ARC-10002 B67-10135 01

Accuracy of laser measurements improved by pulse autocorrelator electronic system
MSC-10033 B67-10338 01

Digital voltage-controlled oscillator
GSFC-512 B67-10449 01

Recharge unit provides for optimum recharging of battery cells
GSFC-10688 B68-10273 01

Solution of differential equations by application of transformation groups
M-FS-14802 B68-10276 02

System measures arc energy dissipated in relay contact cycling
M-FS-14541 B68-10312 01

Improved phase-shift-keyed detector
M-FS-20064 B69-10101 01

Tracer of electrical conduit or pipes
MSC-15223 B69-10347 01

Measurement technique for the determination of antenna directivity
M-FS-12799 B69-10677 01

INTEGRITY

A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voigt line profile
ARC-10221 B69-10232 06

INTENSITY

SUBJECT INDEX

INTENSITY

Device to color modulate a stationary light beam gives high intensity
HQ-44 B66-10476 01

High intensity radiation heat source is capable of sustained operation
ARC-61 B66-10547 02

A radiometer-pyrometer
LEWIS-284 B66-10606 01

INTERACTIONS

Fluid logic control circuit operates nutator actuator motor
LEWIS-294 B66-10593 05

Device measures reaction engine thrust vector deviations
JPL-SC-163 B66-10642 05

Four pi-recoil proportional counter used as neutron spectrometer
ARG-10101 B68-10326 02

Shock and vibration response of multistage structure
M-FS-14972 B68-10353 05

INTERFACES

Seal allows blind assembly and thermal expansion of components
NU-0005 B65-10053 05

Brazing method produces solid-solution bond between refractory metals
LEWIS-212 B65-10370 05

Study made to establish parameters and limitations of explosive welding
M-FS-13006 B67-10393 05

Study of behavior of sterols at interfaces
ARG-10085 B68-10281 03

Fluidic-thermochromic display device
ERC-10031 B68-10350 01

Electrochemical study of aluminum corrosion in boiling high purity water
ARG-10306 B69-10033 03

A method for predicting interfacial freezing of a liquid flowing over a cold surface
LEWIS-10813 B69-10321 02

INTERFACIAL TENSION

Aluminum alloys protected against stress-corrosion cracking
M-FS-235 B65-10172 03

Tool pre-tensions covers prior to lacing
MSC-631 B66-10301 05

Sprayable birefringent coating enables strain measurements on large surfaces
M-FS-1484 B66-10578 03

Improved method of edge coating flat ribbon wire
M-FS-902 B66-10684 03

Optimetric system facilitates colorimetric and fluorometric measurements
NPO-10233 B68-10316 01

Dynamics of moving bubbles in single and binary component systems
M-FS-14845 B68-10339 02

A method for using surface tension to determine the size of holes in hardware
MSC-15194 B69-10595 03

INTERFERENCE

Point-source light sensor circuit is insensitive to background light
JPL-778 B66-10502 01

Measuring coplanarity of surfaces
MSC-12044 B67-10371 02

Interference effects eliminated in random oriented space station antenna system
MSC-11004 B67-10435 01

Improvement in recording and reading holograms
ERC-10151 B68-10347 02

PCM bit detection with correction for intersymbol interference
GSFC-10155 B69-10153 01

INTERFERENCE FACTOR TABLE

Basic suppression techniques are evaluated
M-FS-867 B66-10449 01

INTERFEROMETERS

Interferometer combines laser light source and digital counting system
MSC-151 B65-10161 01

Interferometer construction assures parallelism of critical components
JPL-704 B65-10292 02

Unique construction makes interferometer insensitive to mechanical stresses
JPL-725 B65-10295 02

Communication system uses modulated laser beam
GSFC-377 B65-10333 01

Motion drive system is accurately controlled in the 1-micron range
JPL-864 B66-10695 05

Fresnel diffraction plates are simple and inexpensive
M-FS-12731 B67-10297 02

An interferometer tracking radar system
MSC-10956 B69-10523 01

Laser interferometer micrometer system
M-FS-14747 B69-10633 02

INTERFEROMETRY

Measuring coplanarity of surfaces
MSC-12044 B67-10371 02

Multilayer infrared beamsplitter film system
XGS-11036 B69-10260 02

Two-color holography
HQ-10349 B69-10662 02

Fine-line sensitivity for holographic interferograms
HQ-10348 B69-10663 02

INTERGRANULAR CORROSION

Boron-deoxidized copper withstands brazing temperatures
M-FS-762 B66-10273 03

Weld microfissuring in Inconel 718 minimized by minor elements
M-FS-18185 B68-10251 03

Effects of high frequency current in welding aluminum alloy 6061
M-FS-18337 B68-10383 05

INTERLAYERS

Technique for measuring magnetic tape interlayer adhesion
NPO-10011 B67-10417 03

INTERMEDIATE FREQUENCY AMPLIFIERS

Automatic gain control circuit handles wide input range
MSC-166 B66-10089 01

INTERMETALLICS

Brazing process provides high-strength bond

SUBJECT INDEX

INVARIANCE

between aluminum and stainless steel M-FS-803	B66-10352	05	M-FS-20529	B69-10776	01
Preformed stiffeners used to fabricate structural components for pressurized tanks M-FS-1796	B66-10688	05	INTERPLANETARY SPACECRAFT Earth orbit rendezvous evaluation program M-FS-13016	B67-10407	06
Silver plating ensures reliable diffusion bonding of dissimilar metals M-FS-1975	B67-10124	03	Midcourse maneuver operations program NPO-10735	B69-10105	06
Thin film process forms effective electrical contacts on semiconductor crystals M-FS-2343	B67-10142	01	INTERPLANETARY TRAJECTORIES Space trajectories program for IBM 7090 NPO-10125	B67-10172	06
Method of improving contact bonds in silicon integrated circuits M-FS-1753	B67-10335	01	Computer program for interplanetary conic patching M-FS-14296	B68-10033	06
Crystal structure analysis of intermetallic compounds ARG-10092	B68-10198	03	INTERPOLATION Simple scale interpolator facilitates reading of graphs LANGLEY-88	B65-10070	05
High temperature alloy LEWIS-10377	B68-10253	03	Simple scale interpolator facilitates reading of graphs LEWIS-92	B66-10302	05
Microprobe investigation of brittle segregates in aluminum MIG and TIG welds M-FS-14720	B68-10334	03	Master control data handling program uses automatic data input M-FS-2259	B67-10280	06
Levitation-melting technique for metals and alloys ARG-10240	B69-10006	03	Computer program utilizes FORTRAN 4 subroutines for contour plotting NPO-10127	B67-10323	06
INTERNAL COMBUSTION ENGINES Indicator system provides complete data of engine cylinder pressure variation LEWIS-291	B66-10470	05	Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations NUC-10052	B67-10345	06
INTERNAL COMPRESSION INLETS Perforations in jet engine supersonic inlet increase shock stability NEO-8	B66-10530	05	Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06
INTERNAL CONVERSION Direct determination of lead-210 by liquid-scintillation counting ARG-10462	B69-10611	03	INTERROGATION Frequency offset in linear FM/CW transponder eliminates clutter M-FS-249	B65-10146	01
INTERNAL FRICTION Stress-corrosion-induced property changes in aluminum alloys M-FS-20209	B68-10568	03	INTERRUPTION Fatigue cracks detected and measured without test interruption LEWIS-266	B66-10178	02
INTERNAL PRESSURE Transmission system isolates pressure transducer from severe environment WOO-239	B66-10064	01	INTERSTICES Wire bundle formed into grids with minute interstices WOO-089	B65-10372	03
Improved system measures output energy of pyrotechnic devices WOO-256	B66-10159	01	INTERSTITIALS Isostatic compression process converts polyaromatics into structural material JPL-892	B67-10168	03
Control system maintains compartment at constant temperature JPL-SC-145	B66-10188	05	Preparation of superconducting thin films of transition-metal interstitial compounds HQ-10445	B69-10470	01
Diffusion bonding makes strong seal at flanged connector M-FS-637	B66-10250	05	INTERVALS Electronic circuit delivers pulse of high interval stability MSC-673	B66-10501	01
Hermetically sealed cells protected from internal gas pressure GSFC-555	B66-10692	01	Exposure Value /EV/ system expanded to include filter factors and transmittance LANGLEY-190	B66-10602	02
Investigation of pressurized toroidal shells HQ-27	B67-10117	05	Computer program generates averaged value data tapes M-FS-12728	B67-10411	06
Buckling strength of filament-wound cylinders under axial compression is investigated HQ-10032	B67-10659	03	INTRAVENOUS PROCEDURES Experimental study and evaluation of radioprotective drugs ARG-10196	B68-10320	04
A biaxial weld strength prediction method M-FS-20019	B69-10471	05	INVARIANCE Solution of differential equations by application of transformation groups M-FS-14802	B68-10276	02
INTERNATIONAL COOPERATION Solar activity history model					

INVENTORY CONTROLS

SUBJECT INDEX

INVENTORY CONTROLS

Computer program determines inventory size
M-FS-1135 B66-10506 01

INVERSIONS

Apparatus presents visual display of
semiconductor surface characteristics
JPL-665 B66-10200 01

Thermal and bias cycling stabilizes planar
silicon devices
ERC-48 B67-10176 01

Controllability of distributed-parameter
systems
M-FS-14929 B68-10346 02

Molecular radiation - Its application in
physical measurements and analyses
M-FS-14816 B69-10562 02

INVERTERS

Voltage generator sweeps oscillator frequency
linearly with time
M-FS-219 B64-10320 01

Signal generator converts direct current
to multiphase supplies
MSC-11043 B67-10368 01

Circuit automatically calibrates flowmeter
against liquid-level gage reference
M-FS-2194 B67-10376 01

Parallel-to-serial biphasic-data converter
MSC-11600 B68-10241 01

INVESTIGATION

Study of hydrogen slush-hydrogen gel
utilization
M-FS-13068 B67-10413 02

Heavy-gage bonded honeycomb sandwich as
primary load-bearing structure
M-FS-12060 B67-10427 05

Study made of acoustical monitoring for
mechanical checkout
M-FS-13372 B67-10430 02

Study made of pneumatic high pressure piping
materials /10,000 psi/
KSC-10133 B67-10437 03

Study made of large amplitude fuel sloshing
M-FS-12381 B67-10439 03

Study made of procedures for externally
loading and corrosion testing stress
corrosion specimens
M-FS-12064 B67-10451 03

Computer magnetic tape rehabilitation study
GSFC-10283 B68-10035 05

Glassy materials investigated for nuclear
reactor applications
ARG-10075 B68-10103 03

Automatic planning concept - An analysis of
optimum scheduling
M-FS-14198 B68-10127 06

Squeeze-film gas bearing technology
M-FS-14821 B68-10180 05

Study of convective magnetohydrodynamic
channel flow
ARG-10102 B68-10181 02

Reaction studied of steam with niobium and
tantalum
ARG-10051 B68-10189 03

Beryllium fastener technology
M-FS-20306 B69-10019 05

Instabilities encountered during heat
transfer to a supercritical fluid

ARG-10266 B69-10042 02

Fractography can be used to analyze failure
modes in polytetrafluoroethylene
M-FS-20294 B69-10066 03

Fatigue failure in metal bellows due to
flow-induced vibrations
M-FS-18383 B69-10071 05

Performance of low-pressure thermionic
converters is evaluated
ARG-10276 B69-10090 01

INVESTMENT CASTING

Vacuum forming of thermoplastic sheet results
in low-cost investment casting patterns
ARC-7 B63-10008 05

INVISCID FLOW

Large-amplitude inviscid fluid motion in an
accelerating container
MSC-11560 B68-10170 02

Axisymmetric two-phase perfect gas
performance program
MSC-11774 B68-10374 06

One-dimensional two-phase reacting gas
nonequilibrium performance program
MSC-11780 B68-10376 06

Computer simulation of high-frequency
combustion instability and its suppression
HQ-10391 B69-10368 06

IODIDES

New method used to fabricate gallium arsenide
photovoltaic device
W00-062 B64-10019 01

Cuprous selenide and sulfide form improved
photovoltaic barriers
W00-212 B66-10025 01

Improved retort for cleaning metal powders
with hydrogen
LEWIS-10718 B69-10468 03

IODINE

Static electricity of polymers reduced by
treatment with iodine
NPO-10062 B67-10132 03

Photovoltaic effect in organic
polymer-iodine complex
NPO-10373 B67-10634 03

IODINE ISOTOPES

An economical method for the continuous
production of iodine-123
LEWIS-10518 B68-10433 03

IODINE 131

Ion exchange determines iodine-131
concentration in aqueous samples
ARG-208 B67-10129 04

ION BEAMS

New apparatus increases ion beam power density
LEWIS-73 B63-10440 01

Highly sensitive solids mass spectrometer
uses inert-gas ion source
ERC-11 B66-10114 02

Epitaxial crystalline growth upon cold
substrates
MSC-11196 B69-10494 01

Monopole mass spectrometer with improved
sensitivity and reduced background
HQ-10476 B69-10666 01

ION CHARGE

Thin film thermal detector
JPL-943 B67-10505 01

SUBJECT INDEX

IONIZATION

ION CURRENTS

Cold cathode ionization gage has rigid metal housing
GSFC-445 B66-10041 01

ION DENSITY (CONCENTRATION)

New apparatus increases ion beam power density
LEWIS-73 B63-10440 01

A continuously operating source of vacuum ultraviolet below 500 angstrom
GSFC-545 B66-10576 01

Thin film thermal detector
JFL-943 B67-10505 01

Spherical ion source
INP-08898 B69-10186 01

Ion mass spectrometer for special uses
HQ-10418 B69-10510 02

ION EMISSION

New apparatus increases ion beam power density
LEWIS-73 B63-10440 01

Suppressor plate eliminates undesired arcing during electron beam welding
M-FS-1126 B66-10357 05

Detecting hydrogen-containing contaminants on metal surfaces
M-FS-20456 B69-10192 03

ION ENGINES

New apparatus increases ion beam power density
LEWIS-73 B63-10440 01

Apparatus measures very small thrusts
WOO-048 B64-10284 05

Wire winding increases lifetime of oxide coated cathodes
LEWIS-154 B65-10032 03

Wire bundle formed into grids with minute interstices
WOO-089 B65-10372 03

Study made of destructive sectioning of complex structures for examination
LEWIS-341 B66-10676 05

High power dc/dc and dc/ac electrical power conversion techniques developed
M-FS-13227 B67-10390 01

Reducing bubbles in glass coatings improves electrical breakdown strength
LEWIS-10278 B68-10214 03

Glass coated single grid for charged particle acceleration
LEWIS-10106 B68-10215 03

Full wave dc-to-dc converter using energy storage transformers
LEWIS-10375 B69-10140 01

Precise gimbaling mechanism
NPO-11057 B69-10270 01

ION EXCHANGE MEMBRANE ELECTROLYTES

Improved inorganic ion exchange membranes
LEWIS-10737 B69-10451 03

ION EXCHANGE RESINS

Nitric acid-organic mixtures surveyed for use in separation by anion exchange methods
ARG-10065 B68-10425 03

ION EXCHANGING

Ion exchange determines iodine-131 concentration in aqueous samples
ARG-208 B67-10129 04

Improved fuel-cell-type hydrogen sensor
M-FS-14656 B68-10263 01

Nitric acid-organic mixtures surveyed for use in separation by anion exchange methods
ARG-10065 B68-10425 03

Separation of the rare earths by anion-exchange in the presence of lactic acid
ARG-10436 B69-10377 03

Novel multipurpose timer for laboratories
ARG-10147 B69-10410 01

ION EXTRACTION

Ion-retarding lens improves the abundance sensitivity of tandem mass spectrometers
ARG-10365 B69-10166 02

Separation of traces of metal ions from sodium matrices
ARG-10341 B69-10168 03

ION IRRADIATION

Complex surfaces plated by thin-film deposition in one operation
LEWIS-292 B67-10006 05

Hydrogen peroxide etching proves useful for germanium
ARG-10170 B68-10454 03

ION MICROSCOPES

High-temperature thermionic emission microscope
NPO-10584 B68-10516 01

ION PUMPS

Ion pump provides increased vacuum pumping speed
NEO-13 B65-10239 02

Method for X-ray study under extreme temperature and pressure conditions
MSC-11232 B67-10474 02

ION SCATTERING

Electrochemical study of aluminum corrosion in boiling high purity water
ARG-10306 B69-10033 03

ION SOURCES

New apparatus increases ion beam power density
LEWIS-73 B63-10440 01

Magnetically coupled emission regulator
GSFC-10056 B69-10213 01

Miniaturized high-resolution mass/charge spectrograph /design study/
MSC-13279 B69-10554 02

IONIC MOBILITY

Ionene membrane battery separator
NPO-11091 B69-10501 03

IONIC REACTIONS

Improved fuel-cell-type hydrogen sensor
M-FS-14656 B68-10263 01

IONIZATION

Rapid helium-air analyzer can measure other binary gas mixtures
LANGLEY-16 B63-10557 03

Magnetic field controls carbon arc tail flame
MSC-139 B65-10108 01

Radon gas, useful for medical purposes, safely fixed in quartz
ARG-2 B66-10468 04

Complex surfaces plated by thin-film deposition in one operation
LEWIS-292 B67-10006 05

Primary cell uses neither liquid nor fused electrolytes
NPO-10001 B67-10275 01

Self-discharge in bimetallic cells

IONIZATION CHAMBERS

SUBJECT INDEX

containing alkali metal ARG-10347	B69-10631	01	Aluminized thin-window proportional-counter tube is stronger, more responsive in long wavelength region JPL-689	B67-10015	01
Handbook explaining the fundamentals of nuclear and atomic physics NUC-10330	B69-10705	02	Gage measures total radiation, including vacuum UV, from ionized high-temperature gases XNP-09802	B69-10028	02
IONIZATION CHAMBERS			IONIZING RADIATION		
Densitometer system for liquid hydrogen has high accuracy, fast response M-FS-909	B66-10438	01	Inorganic paint is durable, fireproof, easy to apply GSFC-366	B65-10156	03
Ion chambers simplify absolute intensity measurements in the vacuum ultraviolet ERC-10	B66-10439	01	Irradiation improves properties of an aromatic polyester LANGLEY-115	B65-10164	03
Logarithmic current simulator generates electrical currents accurately between 10 to the minus 11 ampere to 10 to the minus 3 ampere NU-0087	B66-10706	01	Polymer film exhibits thermal and radiation stability LANGLEY-100	B66-10043	03
Precision capacitor has improved temperature and operational stability ARG-189	B67-10313	01	Review of physics, instrumentation and dosimetry of radioactive isotopes ARG-10037	B67-10640	02
Fast framing cameras provide high-speed multi-channel data recording ARG-10252	B69-10102	02	Experimental study and evaluation of radioprotective drugs ARG-10196	B68-10320	04
Circuit counts pulses and indicates time of occurrence of slow pulses XNP-06234	B69-10313	01	Rate constants measured for hydrated electron reactions with peptides and proteins ARG-10195	B68-10424	04
Accurate nine-decade temperature-compensated logarithmic amplifier ARG-10480	B69-10429	01	Readout system for radiation detector MSC-90180	B68-10501	01
IONIZATION GAGES			Vacuum gage system for radiation environment LEWIS-10797	B69-10156	01
Precision gage measures ultrahigh vacuum levels GSFC-114	B63-10597	01	Primary radical yields in pulse irradiated alkaline aqueous solution ARG-10322	B69-10167	02
Ionization vacuum gage starts quickly, is unaffected by spurious currents JPL-304	B65-10036	02	Production of solvated electrons ARG-10416	B69-10430	03
Cold cathode ionization gage has rigid metal housing GSFC-445	B66-10041	01	Pulse-height defect due to electron interaction in dead layers of Ge/Li/gamma-ray detectors ARG-10362	B69-10767	02
Rod and dish cathode improves penning-type vacuum gage GSFC-447	B66-10082	01	IONS		
Volume-ratio calibration system for vacuum gages LEWIS-303	B66-10640	01	Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination ARG-262	B67-10421	03
Electron multiplier has improved performance and stability GSFC-546	B67-10060	01	Fuel cell life improved by metallic sinter activation after electrode assembly welding MSC-10965	B67-10436	03
Solar X-ray spectrum reproduced in vacuum MSC-228	B67-10164	02	Ion plating technique improves thin film deposition SAN-10006	B68-10212	03
Vacuum gage system for radiation environment LEWIS-10797	B69-10156	01	Pulsed high-voltage dc RF sputtering LEWIS-10920	B69-10699	01
Automated measurement of thermal conductivity M-FS-20454	B69-10283	03	IRIDIUM		
IONIZATION POTENTIALS			Intergranular metal phase increases thermal shock resistance of ceramic coating M-FS-1862	B66-10651	03
High-intensity flashing beacon powered by mercury cells LANGLEY-80	B65-10361	01	IRISES (MECHANICAL APERTURES)		
Spherical ion source XNP-08898	B69-10186	01	Variable light source with a million-to-one intensity ratio JPL-W00-008	B63-10424	03
Fuse protects circuit from voltage and current overloads MSC-12135	B69-10490	01	Camera shutter is actuated by electric signal ARC-20	B63-10560	05
IONIZED GASES			Iris-leaf core retainer for a surface drill MSC-11402	B69-10496	05
Highly sensitive solids mass spectrometer uses inert-gas ion source ERC-11	B66-10114	02			

SUBJECT INDEX

IRREGULARITIES

IRON

- Modified filter prevents conduction of microwave signals along high-voltage power supply leads
JPL-63 B63-10091 01
- Fine-mesh screen made by simplified method
WOO-104 B64-10282 03
- Submicron metal powders produced by ball milling with grinding aids
LEWIS-188 B66-10221 03
- Hollow spherical rotors fabricated by electroplating
JPL-SC-117 B66-10366 05
- A continuously operating source of vacuum ultraviolet below 500 angstrom
GSFC-545 B66-10576 01
- Zirconium alloys with small amounts of iron and copper or nickel show improved corrosion resistance in superheated steam
ARG-226 B67-10050 03
- RF inductor has high Q, is stable at higher temperatures
JPL-1019 B67-10106 01
- Iron serves as diffusion barrier in thermally regenerative galvanic cell
ARG-29 B67-10189 03
- Simplified technique demonstrates magnetic domain switching
M-FS-13153 B67-10342 02
- Eddy current probe measures size of cracks in nonmetallic materials
M-FS-14059 B67-10645 03
- High-emittance coatings on metal substrates
LEWIS-10325 B68-10381 03
- Improved ferrous shielding for flat cables
M-FS-14524 B69-10401 01
- Electron interaction in matter
M-FS-14886 B69-10674 02

IRON ALLOYS

- Improved variable-reluctance transducer measures transient pressures
LANGLEY-10 B63-10321 01
- Gage of 6.5 per cent Si-Fe sheet is chemically reduced
MSC-537 B66-10454 03
- Process yield Co-Fe alloys with superior high temperature magnetic properties
LEWIS-333 B66-10535 03
- Study reveals effect of aluminum on saturation moment of Fe-Ni alloys
ARG-90259 B68-10172 03
- Inspection criteria ensure quality control of parallel gap soldering
M-FS-14530 B68-10257 05
- Handbook for design of containers of fluids and gases for spacecraft
M-FS-20502 B69-10279 05

IRON CHLORIDES

- Crack detection method is safe in presence of liquid oxygen
M-FS-236 B65-10107 03
- Imprinting of confining sites for cell cultures on thermoplastic substrates
LANGLEY-10495 B69-10236 04

IRON COMPOUNDS

- New class of compounds have very low vapor pressures
ARG-115 B67-10184 03

- Ceric and ferrous dosimeters show precision for 50-5000 rad range
ARG-10173 B68-10426 02

IRON CYANIDES

- Separation technique provides rapid quantitative determination of cesium-137 in irradiated nuclear fuel
NUC-10047 B67-10194 03

IRON OXIDES

- Cryogenic filter method produces super-pure helium and helium isotopes
JPL-374 B63-10235 03
- Magnetic fluid readily controlled in zero gravity environment
LEWIS-126 B65-10335 03
- The thermodynamic properties of the wustite phase are studied
ARG-10200 B68-10408 03
- Ambient temperature catalyst for hydrogen ignition
LEWIS-10551 B68-10520 03

IRON 57

- Vibration analysis utilizing Mossbauer effect
M-FS-11974 B67-10339 01

IRRADIATION

- Irradiated gases transferred without contamination or dilution
LEWIS-278 B67-10044 03
- Separation technique provides rapid quantitative determination of cesium-137 in irradiated nuclear fuel
NUC-10047 B67-10194 03
- Simplified method measures changes in tensile yield strength using least number of specimens
NUC-10075 B67-10266 03
- Test system accurately determines tensile properties of irradiated metals at cryogenic temperatures
NUC-10521 B67-10617 02
- High-voltage pulse generator developed for wide-gap spark chambers
ARG-10136 B68-10283 01
- Detection sensitivities in 3-8 MeV neutron activation
ARG-10210 B68-10298 02
- Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/
ARG-10148 B68-10368 03
- Shortened processing time technique for color industrial radiography
ARG-10235 B69-10001 02
- A prototype high power portable lamp
M-FS-20229 B69-10189 02
- Tungsten thermal neutron dosimeter
LEWIS-10880 B69-10249 02
- Heparin insolubilized with crosslinking agent
NPO-10834 B69-10299 03

IRREGULARITIES

- Swiveling lathe jaw concept for holding irregular pieces
M-FS-783 B66-10321 05
- Special mandrel permits uniform welding of out-of-round tubing
M-FS-706 B66-10323 05
- Special purpose reflectometer uses modified ulbricht sphere

ISENTROPIC PROCESSES

SUBJECT INDEX

MSC-1135 B67-10109 02

ISENTROPIC PROCESSES

Computer program for high pressure real gas effects
LEWIS-10820 B69-10222 06

High pressure real gas effects for helium and nitrogen
LEWIS-10819 B69-10669 06

Natural gas flow through critical nozzles
LEWIS-11031 B69-10712 02

ISOCYANATES

Storage-stable foamable polyurethane is activated by heat
LANGLEY-187 B66-10111 03

Process produces chlorinated aromatic isocyanate in high yield
M-FS-1658 B66-10646 03

Improved primer for bonding polyurethane adhesives to metals
M-FS-90591 B69-10540 03

ISOLATION

High-pass RF coaxial filter rejects dc and low frequency signals
GSFC-73 B64-10173 01

Field-effect transistor replaces bulky transformer in analog-gate circuit
GSFC-351 B65-10284 01

Transmission system isolates pressure transducer from severe environment
WOO-239 B66-10064 01

Mechanism isolates load weighing cell during lifting of load
MSC-297 B66-10071 05

Study of fast response thermocouple measurement of temperatures in cryogenic gases
M-FS-1659 B66-10661 01

Amplifier provides dual outputs from a single source with complete isolation
NUC-10056 B67-10221 01

Remotely operated high pressure valve protects test personnel
MSC-11010 B67-10291 05

Method of improving contact bonds in silicon integrated circuits
M-FS-1753 B67-10335 01

Pocket-size manual tape reader device aids computer tape checking
KSC-10058 B67-10361 01

Multiple meter monitoring circuits served by single alarm
MSC-10984 B67-10369 01

Conceptual nonorthogonal gyro configuration for guidance and navigation
MSC-11363 B67-10433 01

Biological isolation garment
MSC-12206 B68-10500 04

Isolated, multiple-output voltage dc-to-dc converter
M-FS-14976 B69-10014 01

Conceptual techniques for reducing parasitic current gain of lateral pnp transistors
MSC-13199 B69-10244 01

Self-shielding printed circuit boards for high frequency amplifiers and transmitters
HQ-10433 B69-10314 01

Modification to improve self-isolating transistor arrays
M-FS-20499 B69-10678 01

ISOLATORS

Electropneumatic rheostat regulates high current
ARC-44 B65-10299 01

Accumulator isolator prevents malfunctioning of faulty hydraulic system
M-FS-1415 B67-10528 05

Analog buffer isolates high impedance source from low impedance load
M-FS-13481 B67-10544 01

Solid state single-ended switching dc-to-dc converter
M-FS-13598 B67-10558 01

Improved traveling wave maser amplifier
NPO-10548 B68-10244 01

ISOPROPYL ALCOHOL

Thin transparent films formed from powdered glass
GSFC-352 B65-10217 03

ISOSTATIC PRESSURE

Isostatic compression process converts polyaromatics into structural material
JPL-892 B67-10168 03

Porous mandrels provide uniform deformation in hydrostatic powder metallurgy
M-FS-1972 B67-10209 03

ISOTHERMAL FLOW

Study of thermal effects on nickel-cadmium batteries
GSFC-10003 B67-10614 01

Improved calorimeter provides accurate thermal measurements of space batteries
GSFC-10003A B67-10615 01

ISOTHERMAL PROCESSES

Superconductivity in zirconium-rhodium alloys
ARG-10223 B69-10010 03

Prediction of thermal radiation from a rocket's exhaust plume
M-FS-20414 B69-10371 02

ISOTHERMS

Computer program calculates steady-state temperature distribution within plane or axisymmetric solids
NUC-10049 B67-10224 06

Real fluid properties of normal and parahydrogen
LEWIS-10458 B68-10361 06

Isothermal drop calorimeter provides measurements for alpha active, pyrophoric materials
ARG-10186 B69-10002 02

ISOTOPES

Calculation of resonance neutron absorption in two-region problems /the GAROL code/
NUC-10045 B67-10223 06

Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes
NUC-10143 B67-10665 06

Portable, high intensity isotopic neutron source provides increased experimental accuracy
ARG-90250 B68-10243 02

Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide

SUBJECT INDEX

JET AMPLIFIERS

ARG-10154	B68-10293	02	M-FS-14915	B68-10348	02		
Ion-retarding lens improves the abundance sensitivity of tandem mass spectrometers	ARG-10365	E69-10166	02	FORTRAN optical lens design program	NPO-10603	B68-10354	06
Substitution of stable isotopes in Chlorella	ARG-10258	B69-10197	04	Computer program analyzes whirl critical speeds and bearing loads for shafts coupled by nonlinear springs to machine housing	NUC-10308	B69-10034	06
GAMBIT program	NUC-10243	B69-10433	06	FORTRAN 4 program calculates velocities and streamlines in a tandem blade turbomachine	LEWIS-10743	B69-10219	06
Measurement of gas flow at extremely low pressures	MSC-13261	B69-10522	03	GAMBIT program	NUC-10243	B69-10433	06
Handbook explaining the fundamentals of nuclear and atomic physics	NUC-10330	B69-10705	02	Water-glycol system volume calculation	MSC-15193	B69-10563	02
ISOTOPIC LABELING			J				
Experiments shed new light on nickel-fluorine reactions	ARG-10008	B67-10397	03	J- 2 ENGINE			
The preparation, identification and properties of chlorophyll derivatives	ARG-10205	B68-10409	03	Solid state annunciator facilitates complex system troubleshooting	M-FS-1258	B66-10505	01
ISOTROPIC TURBULENCE			Computer optimization program finds values for several independent variables that minimize a dependent variable	M-FS-13030	B67-10328	06	
Experimental design for research on shock-turbulence interaction	M-FS-20031	B69-10604	02	Dynamically stable check valve concept for wide flow range	M-FS-14579	B68-10247	05
ISOTROPY			JACKETS				
Structure of the isotropic transport operators in three independent space variables	ARG-10448	B69-10432	06	Leak locator for vacuum jacketed pipelines eliminates need for removal of outer jacket	M-FS-888	B66-10412	01
ITERATION			Electrical cabling withstands severe environmental conditions	M-FS-1585	B66-10427	01	
Computer modification reduces time of performing iterative division	M-FS-166	B65-10005	01	Technique cuts time and cost of bending jacketed piping	WSO-333	B67-10018	05
Computer program for network synthesis by frequency response fit	M-FS-12686	B67-10406	06	Inexpensive cryogenic insulation replaces vacuum jacketed line	NUC-10061	B67-10264	02
ITERATIVE SOLUTION			Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/	ARG-10148	B68-10368	03	
Computer program reduces calculation time of normal response functions	M-FS-1517	B67-10108	01	Automatic calorimetry system monitors RF power	NPO-11033	B69-10384	01
Computer subroutine ISUDS accurately solves large system of simultaneous linear algebraic equations	NUC-10051	B67-10344	06	Heat-shrinkable jacket holds fluid in contact with tensile test specimen	MSC-13195	B69-10495	05
Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations	NUC-10052	B67-10345	06	A new method for fabrication of flexible vacuum purge jackets	M-FS-12646	B69-10564	03
Computer program provides steady state analysis for liquid propellant propulsion systems	MSC-10064	B67-10414	06	JACKS (LIFTS)			
Computer program analyzes generalized environmental control and life support systems	MSC-1157	B67-10415	06	Heavy duty precision leveling jacks expedite setup time on horizontal boring mill	M-FS-1084	B66-10411	05
Computer program MCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid	NUC-10042	B67-10456	06	Combination double door high-vacuum valve provides access to vacuum chamber	JPL-849	B66-10697	05
Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid	NUC-10043	B67-10457	06	JET AIRCRAFT			
Study of optimum discrete estimators in measurement analysis				Nickel base alloy with improved stress rupture properties	LEWIS-10283	B68-10344	03
				JET AMPLIFIERS			
				Binary fluid amplifier solves stability and load problems	ERC-15	B66-10177	01

JET CONTROL

SUBJECT INDEX

JET CONTROL				NU-0008	B65-10245	05
Control jet placement on spacecraft				Packaging of electronic modules		
MSC-13365	B69-10671	01		JPL-801	B66-10664	01
JET ENGINE FUELS				Method of improving contact bonds in		
Centrifugal device separates liquid from gas				silicon integrated circuits		
MSC-282	B65-10394	05		M-FS-1753	B67-10335	01
Run-in with chemical additive protects gear				Standards for compatibility of printed		
surface				circuit and component lead materials		
M-FS-548	B66-10069	05		M-FS-14531	B68-10310	01
Vapor condensation process produces slurry of				Tube welding and brazing		
magnesium particles in liquid hydrocarbons				M-FS-20348	B69-10085	05
LEWIS-263	B66-10104	03		Tool repairs tube components in situ		
Properties of air and combustion products				MSC-15348	B69-10379	05
of fuels with air				Magnetomotive forming for precision sizing		
LEWIS-11030	B69-10711	03		and joining of large-diameter tubes		
JET ENGINES				M-FS-20481	B69-10422	05
Perforations in jet engine supersonic inlet				JOINTS (JUNCTIONS)		
increase shock stability				Modular chassis simplifies packaging and		
NEO-8	B66-10530	05		interconnecting of circuit boards		
Pre-weld heat treatment improves welds in				JPL-236A	B63-10174	01
Rene 41				Lightweight universal joint transmits both		
M-FS-18174	B68-10285	03		torque and thrust		
New rapid-curing, stable polyimide				JPL-375	B63-10236	05
polymers with high-temperature strength				Special pliers connect hose containing liquid		
and thermal stability				under pressure		
LEWIS-10576	B69-10118	03		JPL-IT-1003	B63-10291	05
Improved design of item in high speed				New method used to fabricate light-weight heat		
rotating machinery				exchanger for rocket motor		
M-FS-18441	B69-10373	05		LEWIS-43	B63-10346	02
JET EXHAUST				Stainless-steel elbows formed by spin forging		
Jet engine powers large, high-temperature				M-FS-122	B63-10590	05
wind tunnel				Circuit reliability boosted by soldering pins		
M-FS-13544	B67-10621	02		of disconnect plugs to sockets		
JET FLOW				JPL-447	B64-10002	01
Binary fluid amplifier solves stability and				Flexible fastener allows thermal expansion		
load problems				LANGLEY-4C	B64-10145	05
ERC-15	B66-10177	01		Viscous-pendulum damper suppresses structural		
JET MIXING FLOW				vibrations		
Computer program calculates peripheral				LANGLEY-45	B64-10272	05
water injection cooling of axisymmetric				Knob linkage permits one-hand control of		
subsonic diffuser				several operations		
NUC-10541	B67-10543	06		MSC-30	B65-10022	05
JIGS				Titanium treatment improves brazed joints		
Jig and fixture aid fabrication of tungsten				MSC-127	B65-10153	05
rivets				Splice plate design assures structural		
LEWIS-185	B65-10101	05		separation by mild explosive		
Peel resistance of adhesive bonds accurately				MSC-137	B65-10166	05
measured				Ball and socket joints provide accurate		
GSFC-320	B65-10173	03		biaxial gimbal		
Spiral heater coils hand-formed with fixture				JPL-658	B65-10205	05
LEWIS-208	B65-10192	05		Thoriated nickel bonded by solid-state		
Assembly jig assures reliable solar cell				diffusion method		
modules				LANGLEY-116	B65-10220	03
GSFC-455	B66-10040	05		Thermocouple-to-instrumentation connector		
Tool provides constant purge during tube				features quick assembly		
welding				NU-0022	B65-10246	05
M-FS-547	B66-10093	05		Universal bellows joint restraint permits		
Depth indicator and stop aid machining to				angular and offset movement		
precise tolerances				WOO-102	B65-10371	05
M-FS-553	B66-10149	05		Photosensors used to maintain welding		
Jig protects transistors from heat while				electrode-to-joint alignment		
tinning leads				MSC-243	B65-10401	05
MSC-515	B66-10240	05		Flexible coiled spline securely joins mating		
Heat treatment stabilizes welded aluminum				cylinders		
jigs and tool structures				WOO-270	B66-10172	05
MSC-800	B66-10458	03				
JOINING						
Captive nut fastener securely joins brittle						
materials						

SUBJECT INDEX

JUNCTION DIODES

Mount enables precision adjustment of optical-instrumentation mirror MSC-184	B66-10199	02	Conceptual apparatus for detecting leaks of nonconductive liquids M-FS-14713	B68-10303	01
Pressure seal ring may be effective over wide temperature range M-FS-486	B66-10211	05	Determining gas leakage from bubble formations M-FS-14841	B68-10393	05
External linkage tie permits reduction in ducting system flange thickness M-FS-823	B66-10326	05	Hand-tightened, high-pressure seal M-FS-18416	B68-10417	05
Bellows joint absorbs torsional deflections in duct system M-FS-882	B66-10332	04	Tube joint leak repair coupling MSC-15022	B68-10540	05
Spherical pipe joint delivers loads equally to mating flange M-FS-807	B66-10665	05	Teflon-packed flexible joint LEWIS-90252	B69-10049	03
Polaroid film helps locate objects in inaccessible areas quickly MSC-960	B67-10008	02	Materials data handbook, aluminum alloy 6061 M-FS-20381	B69-10065	03
Spherical joint connects axially misaligned flanges M-FS-2238	B67-10273	05	Tool simplifies machining of pipe ends for precision welding KSC-10361	B69-10231	05
Materials data handbook, aluminum alloy 7075 M-FS-2349	B67-10301	03	Segmented SiGe-PbTe couples GSFC-10746	B69-10233	01
Braze joint quality tested electromagnetically M-FS-12795	B67-10333	01	Finite element analysis of compressible solids with nonlinear material properties NUC-10342	B69-10238	06
Low-energy gamma ray inspection of brazed aluminum joints MSC-1189	B67-10337	02	Thermal Network Analyzer Program NUC-10540	B69-10239	06
Reparable, high-density microelectronic module provides effective heat sink M-FS-13075	B67-10356	01	Quick-release hook-and-loop fastener MSC-10950	B69-10388	05
Resilient bearing supports are gas controlled LEWIS-10109	B67-10364	05	JOURNAL BEARINGS		
Heavy-gage bonded honeycomb sandwich as primary load-bearing structure M-FS-12060	B67-10427	05	Ohmmeter senses depletion of lubricant in journal bearings LEWIS-37	B64-10042	01
Technique eliminates high voltage arcing at electrode-insulator contact area LEWIS-10133	B67-10470	01	Slit feeds reduce unbalanced torques in gas-lubricated bearings JPL-264	B65-10099	05
Aluminum and stainless steel tubes joined by simple ring and welding process M-FS-13120	B67-10472	05	A conceptual design for squeeze film bearings M-FS-573	B66-10226	05
Lead plated aluminum ring provides static high pressure seal for large diameter pressure vessel NUC-10008	B67-10539	05	Resilient bearing supports are gas controlled LEWIS-10109	B67-10364	05
Self-aligning rod prevents eccentric loading of tensile specimens NUC-10525	B67-10594	05	Shallow grooves in journal improve air bearing performance LEWIS-10396	B68-10134	05
Development of helical seal for high temperature /2000 degrees F/ application M-FS-13304	B67-10655	05	Low cost techniques for fabricating lobed bearings LEWIS-10296	B68-10441	05
Flare angles measured with ball gage M-FS-14690	B68-10030	01	Journal gas bearing for curved surfaces M-FS-20423	B69-10182	05
Heat-shrink plastic tubing seals joints in glass tubing LEWIS-10329	B68-10040	05	Study of high temperature bearing materials LEWIS-10829	B69-10252	03
Method for reinforcing tubing joints MSC-11108	B68-10115	05	Hermetically sealed pump LEWIS-10837	B69-10320	05
Asbestos and Inconel combined to form hot-gas seal M-FS-14004	B68-10162	05	JP-4 JET FUEL		
Tube swaging device uses explosive force LANGLEY-10092	B68-10235	05	Magnetic fluid readily controlled in zero gravity environment LEWIS-126	B65-10335	03
			Test instrumentation evaluates electrostatic hazards in fluid system M-FS-2277	B67-10145	01
			JUMPERS		
			Modular chassis simplifies packaging and interconnecting of circuit boards JPL-236A	B63-10174	01
			JUNCTION DIODES		
			Logarithmic amplifier uses field effect transistors JPL-509	B65-10145	01

JUNCTION TRANSISTORS

SUBJECT INDEX

Efficient millimeter wave 1140 GHz/ diode for harmonic power generation HQ-61	B67-10166	01	Run-in with chemical additive protects gear surface M-PS-548	B66-10069	05
Development of reliability prediction technique for semiconductor diodes GSFC-10231	B67-10651	06	Thermoplastic rubberlike material produced at low cost JPL-793	B66-10453	03
JUNCTION TRANSISTORS			KERR CELLS		
Economical fabrication process produces high quality junction transistors JPL-SC-065	B64-10330	01	Nulling pyrometer uses Kerr cell shutter for fast responses NU-0010	B65-10050	01
Increased junction lead inductance ballasts high-frequency transistors GSFC-387	B65-10259	01	Synthesis of electro-optic modulators for amplitude modulation of light M-PS-14268	B68-10275	02
Low-power ring counter drives high-level loads GSFC-431	B66-10106	01	KERR ELECTROOPTICAL EFFECT		
Improved chopper circuit uses parallel transistors M-PS-468	B66-10113	01	Two-color holography HQ-10349	B69-10662	02
Electrically controlled optical latch and switch requires less current JPL-SC-111	B66-10414	01	KERR MAGNETOOPTICAL EFFECT		
Equivalent circuit for a field effect transistor established for computer simulation M-PS-1752	B66-10690	01	Simplified technique demonstrates magnetic domain switching M-PS-13153	B67-10342	02
Instrument sequentially samples ac signals from several accelerometers JPL-884	B67-10029	01	Optically exciting a magnetic memory - A feasibility study M-PS-14854	B69-10060	02
Schmitt trigger multivibrator MSC-10955	B69-10143	01	KETONES		
Modification to improve self-isolating transistor arrays M-PS-20499	B69-10678	01	Sprayable birefringent coating enables strain measurements on large surfaces M-PS-1484	B66-10578	03
Lateral PNP bipolar transistor with aiding field diffusions MSC-13072	B69-10741	01	Degreasing of titanium to minimize stress corrosion LEWIS-382	B67-10147	03
JUNCTIONS			Photosensitive filler minimizes internal stresses in epoxy resins M-PS-1880	B67-10227	03
New method used to fabricate gallium arsenide photovoltaic device WOO-062	B64-10019	01	Welded repairs of punctured thin-walled aluminum pressure vessels M-PS-14836	B69-10051	05
Multiple temperatures sampled using only one reference junction GSFC-485	B66-10260	01	KEYING		
Thermoelectric metal comparator determines composition of alloys and metals ARG-235	B67-10035	01	Keyed plugs and sockets prevent improper connections MSC-231	B65-10381	01
JUPITER (PLANET)			Polarizing keys prevent mismatch of connector plugs and receptacles MSC-443	B66-10251	01
Space trajectories program for IBM 7090 NPO-10125	B67-10172	06	KIDNEYS		
Trajectory optimization using regularized variables MSC-13370	B69-10810	02	Large volume continuous counterflow dialyzer has high efficiency HQ-10055	B67-10395	04
K			KINEMATICS		
KALMAN-SCHMIDT FILTERING			Tester for study of rolling element bearings LEWIS-305	B67-10009	01
New technique for optimal smoothing of data MSC-11354	B68-10060	02	Study made of large amplitude fuel sloshing M-PS-12381	B67-10439	03
KEPLER LAWS			Propagation of density disturbances in air-water flow ARG-10260	B69-10043	02
Fortran 4 program for two-impulse rendezvous analysis M-PS-13971	B67-10479	06	KINETIC ENERGY		
KERNEL FUNCTIONS			Kinetic-energy absorber employs frictional force between mating cylinders LEWIS-75	B63-10442	05
Bell nozzle kernel analysis program M-PS-18456	B69-10146	06	Shock absorber operates over wide range MSC-168	B65-10241	05
KEROSENE			Magnetohydrodynamic generators using two-phase liquid-metal flows ARG-10168	B69-10162	01
Protective coating withstands high temperature in oxidizing atmosphere M-PS-529	B66-10044	03	Studies of cycles for liquid-metal magnetohydrodynamic generation of power ARG-10250	B69-10194	02
			Storage of electric and magnetic energy		

SUBJECT INDEX

LABORATORY EQUIPMENT

in passive nonreciprocal networks ARG-10360	B69-10630	01	
KINETIC FRICTION			
Friction device damps linear motion of rotating shaft WOO-214	B66-10030	05	
Machine tests slow-speed sliding friction in high vacuum M-FS-12341	B67-10379	05	
Device measures static friction of magnetic tape GSFC-10360	B67-10586	03	
KINETICS			
Experiments shed new light on nickel-fluorine reactions ARG-10008	B67-10397	03	
Multidimensional reaction kinetic ablation program /REKAP/ MSC-10079	B67-10495	06	
Reaction studied of steam with niobium and tantalum ARG-10051	B68-10189	03	
Study of radiation effects on mammalian cells in vitro ARG-10191	B68-10294	02	
One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06	
One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06	
Reduction by monovalent zinc, cadmium, and nickel cations ARG-10328	B69-10170	03	
Purification and characterization of two fully deuterated enzymes ARG-10314	B69-10207	04	
Production of solvated electrons ARG-10416	B69-10430	03	
KITS			
Special tool kit aids heavily garmented workers MSC-163	B66-10403	05	
KLYSTRONS			
Apparatus makes klystron operating frequency adjustable from remote point WFO-09831	B67-10514	01	
Solid state high-voltage pulser operates with low supply voltage M-FS-14034	B68-10308	01	
Automatic frequency control of voltage-controlled oscillators WFO-11064	B69-10569	01	
Long range holographic contour mapping concept HQ-10350	B69-10700	02	
KNEE (ANATOMY)			
Adjustable hinge permits movement of knee in plaster cast M-FS-1756	B67-10056	04	
KNOBS			
Instrument adjustment knob locks to prevent accidental maladjustment M-FS-190	B64-10249	05	
Knob linkage permits one-hand control of several operations MSC-30	B65-10022	05	
			KNUDSEN FLOW
			Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique ARG-277
			B67-10324 03
			KNUDSEN GAGES
			Metallic diffusion measured by a modified Knudsen technique HQ-10145
			B69-10309 03
			KOVAR (TRADEMARK)
			Multichip packaging with thermal insulation M-FS-14076
			B68-10119 02
			Indium adhesion provides quantitative measure of surface cleanliness SAN-10024
			B68-10342 01
			KRYPTON
			Electrodeless discharge lamp is easily started, has high stability WOO-030
			B66-10015 01
			KRYPTON 85
			Radioactive method enables determination of surface areas rapidly and accurately NU-0088
			B66-10710 03
			L
			LABORATORIES
			Experiments to investigate particulate materials in reduced gravity fields M-FS-13308
			B67-10394 02
			Computer program conducts facilities utilization and occupancy survey WFO-10326
			B67-10476 06
			Chemistry laboratory safety manual available SAN-10030
			B68-10419 03
			Rotary-knife stripper facilitates removal of X-ray film from pack M-FS-14837
			B68-10509 05
			LABCON - Laboratory Job Control
			program M-FS-18141
			B69-10106 06
			An improved atomic hydrogen frequency and time standard GSFC-10706
			B69-10341 02
			LABORATORY EQUIPMENT
			Mouthpiece adapter for pipettes protects mouth from harmful liquids LANGLEY-47
			B65-10043 03
			Double gloves reduce contamination of dry box atmosphere LEWIS-211
			B65-10117 03
			Multiple test tubes stirred mechanically ARC-42
			B65-10120 01
			Flowmeter measures low gas-flow rates M-FS-215
			B66-10036 01
			Apparatus enables accurate determination of alkali oxides in alkali metals LEWIS-256
			B66-10296 03
			Apparatus enables automatic microanalysis of body fluids JPL-962
			B66-10515 04
			Automated microsyringe is highly accurate and reliable WFO-10142
			B67-10203 01
			Thermodynamic properties of saturated liquid parahydrogen charted for important temperature range NUC-10018
			B67-10346 03
			Color-televized medical microscopy

LABYRINTH

SUBJECT INDEX

MSC-13086	B68-10314	01	Flow properties of suspensions rich in solids		
Product identification techniques used as training aids for analytical chemists			ARG-10481	B69-10622	02
SAN-10025	B68-10373	03	LAMINATES		
Heat-load simulator for heat sink design			Flexible curtain shields equipment from intense heat fluxes		
MSC-15170	B68-10510	02	M-FS-48	B65-10044	03
Dispensing graduate for butadiene			Peel resistance of adhesive bonds accurately measured		
NPO-10070	B68-10524	03	GSFC-320	B65-10173	03
Mass culture of photobacteria to obtain luciferase			Device detects unbonded areas in plastic laminates		
GSFC-10563	B69-10294	04	WOO-206	B65-10380	01
Novel multipurpose timer for laboratories			Drill bit design assures clean holes in laminated materials		
ARG-10147	B69-10410	01	WOO-098	B65-10386	05
Life detection			Polymer film exhibits thermal and radiation stability		
NPO-10510	B69-10475	04	LANGLEY-100	B66-10043	03
LABYRINTH			Coating permits use of strain gage in water and liquid hydrogen		
Labyrinth-type valve seat increases valve life by decreasing fluid velocity			M-FS-594	B66-10192	01
M-FS-1051	B66-10424	05	Silazane polymers show promise for high-temperature application		
LACQUERS			M-FS-466	B66-10194	03
Modification increases light output of injection-luminescent diodes			Self-contained clothing system provides protection against hazardous environments		
M-FS-192	B65-10006	01	M-FS-536	B66-10201	05
Inexpensive infrared source improvised from flashlight			Inexpensive insulation is effective for cryogenic transfer lines		
M-FS-494	B66-10096	02	MSC-618	B66-10348	02
Coating permits use of strain gage in water and liquid hydrogen			Aluminum core structures brazed without use of flux		
M-FS-594	B66-10192	01	M-FS-659	B66-10360	05
LACTIC ACID			Impact and puncture resistant material protects parts from damage		
Separation of the rare earths by anion-exchange in the presence of lactic acid			MSC-747	B66-10375	05
ARG-10436	B69-10377	03	Composite gaskets are compatible with liquid oxygen, resist compression set		
LADDERS			M-FS-455	B66-10395	03
Adjustable, self-locking ladder includes optional work platform			Multilayer refractory nozzles produced by plasma-spray process		
M-FS-1922	B67-10067	05	WOO-318	B66-10611	05
LAMB WAVES			Dispersion of borax in plastic is excellent fire-retardant heat insulator		
Improved ultrasonic TV images achieved by use of Lamb-wave orientation technique			ARG-5	B67-10016	03
ARG-203	B67-10295	02	Thin film process forms effective electrical contacts on semiconductor crystals		
Lamb waves increase sensitivity in nondestructive testing			M-FS-2343	B67-10142	01
ARG-10009	B67-10605	02	Oxide film on metal substrate reduced to form metal-oxide-metal layer structure		
LAMINAR BOUNDARY LAYER			ARG-48	B67-10187	03
Thin-film gage measures low heat-transfer rates			Liquid crystals detect voids in fiber glass laminates		
LANGLEY 205	B66-10180	01	LEWIS-10104	B67-10286	03
LAMINAR FLOW			Reparable, high-density microelectronic module provides effective heat sink		
Concept for passive system to control gas flow independently of temperature			M-FS-13075	B67-10356	01
M-FS-982	B66-10343	05	Polarized light reveals stress in machined laminated plastics		
High pressure cryogenic liquid flow sight assembly provides streamlined flow for easy observation			LEWIS-10018	B67-10383	03
LEWIS-310	B66-10394	01	Adhesives for laminating polyimide insulated flat conductor cable		
Improved atmospheric particle analyzer			M-FS-12066	B67-10429	03
ERC-33	B67-10231	01	Warpage eliminated in copper-clad microwave circuit laminates		
Computer program calculates velocities and streamlines in turbomachines			M-FS-13892	B67-10454	03
LEWIS-10252	B68-10097	06			
Prediction of friction coefficients for gases					
LEWIS-10774	B69-10112	02			
Microbiological aspects of sterilization development laboratories					
NPO-11197	B69-10593	04			

SUBJECT INDEX

LASER OUTPUTS

Panelized high performance multilayer insulation M-FS-14023	B68-10031	03	Solar cell submodule design facilitates assembly of lightweight arrays JPL-728	B66-10231	02
Molding a high-density laminate LANGLEY-10051	B68-10092	03	Differential expansion provides pressure for diffusion bonding of large diameter rings M-FS-588	B66-10269	05
Laminated sheet composites reinforced with modular filament sheet M-FS-14575	B68-10146	03	Mechanical properties of a lap joint under uniform clamping pressure M-FS-14538	B69-10141	05
Multilayer plated wire shows promise as memory device MSC-11587	B68-10205	01	Tool repairs tube components in situ MSC-15348	B69-10379	05
Improved process for epitaxial deposition of silicon on prediffused substrates M-FS-14910	B68-10390	03	LAPLACE EQUATION Computer program simplifies transient and steady-state temperature prediction for complex body shapes MSC-989	B66-10619	01
Conditioning flat conductors for flat conductor cable production M-FS-14914	B68-10429	01	LAPLACE TRANSFORMATION Computer determines high-frequency phase stability GSFC-113	B63-10555	01
Diffusion bond method of joining steel and a TFE-bronze composite M-FS-20482	B69-10237	03	Polynomial manipulator AP-168 MSC-1231	B67-10103	01
Multilayer infrared beamsplitter film system XGS-11036	B69-10260	02	General frequency response program calculates frequency response of system, open at any specified element M-FS-12817	B67-10521	06
A method for observing gas evolution during plastic laminate cure MSC-15592	B69-10530	03	Symbolic reduction of block diagrams using FORMAC LEWIS-10409	B68-10423	06
LAND Land landing couch dynamics computer program MSC-1210	B67-10233	06	One-dimensional Coulomb-damped wave motion in prismatic bars M-FS-14815	B68-10548	02
LANDING AIDS Break-up of metal tube makes one-time shock absorber, bars rebound LANGLEY-1A	B63-10304	05	Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes ARG-10274	B69-10047	02
Land landing couch dynamics computer program MSC-1210	B67-10233	06	Aerodynamic forces of fluttering cylindrical and/or planar structures M-FS-20497	B69-10781	02
LANDING GEAR Kinetic-energy absorber employs frictional force between mating cylinders LEWIS-75	B63-10442	05	LARGE SCALE INTEGRATION Literal readout of identification signals in Morse code LANGLEY-10222	B69-10479	01
LANGUAGE PROGRAMMING FORTRAN program flow chart is automatically produced M-FS-369	B66-10062	01	LASER MODES Neon isotopes cancel errors in gas laser M-FS-1476	B66-10583	02
Assembly processor program converts symbolic programming language to machine language M-FS-13262	B67-10493	06	Absolute frequency stabilization of laser oscillator against laser amplifier M-FS-2559	B67-10255	01
JFLIP-JPL FORTRAN language with interval pre-processor NPO-10835	B69-10187	06	LASER OUTPUTS Design concepts using ring lasers for frequency stabilization M-FS-2448	B67-10143	01
Determination of quadric equation coefficients describing three-dimensional surfaces, their constraint and skewed planes, and view point areas M-FS-15043	B69-10435	06	Absolute frequency stabilization of laser oscillator against laser amplifier M-FS-2559	B67-10255	01
Automatic computation of data-set definitions ARG-10475	B69-10608	06	Laser system generates single-frequency light M-FS-2556	B67-10288	02
COGENT programming manual ARG-10463	B69-10656	06	Wideband, high efficiency optical modulator requires less than 10 watts drive power M-FS-12733	B67-10289	01
LANTHANUM COMPOUNDS Nitric acid-organic mixtures surveyed for use in separation by anion exchange methods ARG-10065	B68-10425	03	Nonreciprocal gain control for ring laser M-FS-14041	B67-10653	02
LAP JOINTS Lightweight door seals cryogenic container against diaphragm type loading M-FS-476	B65-10402	05	Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01

LASERS

SUBJECT INDEX

Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02	Electrolytic separation of crystals of transition-metal oxides ARG-10506	B69-10642	03
Digital laser-beam deflection sensor M-FS-14785	B68-10525	01	Fine-line sensitivity for holographic interferograms HQ-10348	B69-10663	02
Optical frequency waveguide and ion transmission system HQ-10541	B69-10746	01	Long range holographic contour mapping concept HQ-10350	B69-10700	02
LASERS			LATCHES		
Modification increases light output of injection-luminescent diodes M-FS-192	B65-10006	01	Magnetic latches provide positive overpressure control NU-0057	B66-10279	05
Laser beam transmits electric power GSFC-293	B65-10158	01	Latching mechanism operates in limited access area MSC-230	B66-10338	05
Interferometer combines laser light source and digital counting system MSC-151	B65-10161	01	Electrically controlled optical latch and switch requires less current JPL-SC-111	B66-10414	01
Communication system uses modulated laser beam GSFC-377	B65-10333	01	Work platform is supported by self-locking blades M-FS-2297	B67-10180	05
Laser measuring system accurately locates point coordinates on photograph ARG-74	B66-10560	02	Combined actuator and latch for cartridge powered actuator MSC-11242	B67-10488	05
Optical superheterodyne receiver uses laser for local oscillator M-FS-1605	B66-10584	01	Toggle operated double latch MSC-11377	B68-10117	05
Concept for using laser beams to measure electron density in plasmas M-FS-965	B66-10645	01	Boydolt, a positive-latch, simple-release fastener MSC-13061	B68-10512	05
Accuracy of laser measurements improved by pulse autocorrelator electronic system MSC-10033	B67-10338	01	Astronaut's tool for withdrawing/replacing computer cards M-FS-20453	B69-10183	05
Proposed method of rotary dynamic balancing by laser M-FS-12422	B67-10452	02	Electrothermal linear actuator NPO-10637	B69-10296	05
Laser communication system is insensitive to atmospherically induced noise GSFC-10396	B67-10587	01	LATERAL CONTROL		
Development of Curie point switching for thin film, random access, memory device NPO-10402	B67-10633	02	Conceptual techniques for reducing parasitic current gain of lateral pnp transistors MSC-13199	B69-10244	01
Flow tube used to cool solar-pumped laser MSC-11026	B68-10010	02	LATERAL STABILITY		
Electronic gating circuit and ultraviolet laser excitation permit improved dosimeter sensitivity ARG-10109	B68-10077	02	Sleeve and cutter simplify disconnecting welded joint in tubing JPL-384	B63-10240	05
Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01	Lateral ring metal elastic wheel absorbs shock loading M-FS-1312	B66-10663	05
Improved electro-optical tracking system M-FS-14791	B68-10311	01	LATEX		
Rapid-response, light-exposure control system NPO-10238	B68-10502	01	Refractory thermal insulation for smooth metal surfaces M-FS-160	B64-10099	03
Digital laser-beam deflection sensor M-FS-14785	B68-10525	01	Submicron holes in thin films increase sampling range of mass spectrometers JPL-SC-097	B66-10380	03
Optically induced free carrier light modulator GSFC-10216	B69-10114	01	Method accurately measures mean particle diameters of monodisperse polystyrene latexes ARG-207	B67-10054	02
Welding, brazing, and soldering handbook M-FS-20504	B69-10264	05	LATHES		
Laser action from a terbium beta-ketoenolate at room temperature GSFC-10593	B69-10324	02	Lathe converted for grinding aspheric surfaces GSFC-115	B63-10556	05
Laser interferometer micrometer system M-FS-14747	B69-10633	02	Collar positions strip stock used to form coil on mandrel JPL-198	B65-10130	05
			Metal bellows custom-fabricated from tubing LEWIS-192	B65-10150	05
			Lathe attachment used to machine elliptical cones		

SUBJECT INDEX

LEAD ALLOYS

MSC-100	B65-10168	05	M-FS-15028	B69-10041	06
Spiral heater coils hand-formed with fixture LEWIS-208	B65-10192	05	Programmed schedule holds for improving launch vehicle holds	M-FS-14502	B69-10602 03
Self-aligning fixture used in lathe chuck jaw refacing FRC-21	B65-10198	05	LAUNCHERS Device disconnects several couplings simultaneously JPL-226	B65-10163	05
Lathe chuck key incorporates safety feature MSC-506	B66-10243	05	LAUNCHING Controlled release device prevents damage from dynamic stresses KSC-66-14	B66-10628	05
Device facilitates centering of workpieces in lathe chuck M-FS-685	B66-10277	05	LAUNCHING SITES Modified cryogenic storage tank subsystem KSC-10380	B69-10556	02
Swiveling lathe jaw concept for holding irregular pieces M-FS-783	B66-10321	05	LAYERS Improved radiographic image amplifier panel M-FS-14522	B68-10363	02
Cold machining of high density tungsten and other materials ARG-10289	B69-10110	05	LAYOUTS Modified procedure speeds camera copy layout for offset printing GSFC-424	B65-10373	02
LATITUDE Theory of a refined earth model M-FS-14679	B68-10228	02	Areas of irregular, discontinuous patterns rapidly and accurately measured GSFC-10184	B67-10674	01
LATTICE PARAMETERS Crystal structure analysis of intermetallic compounds ARG-10092	B68-10198	03	LC CIRCUITS High-performance RC bandpass filter is adapted to miniaturized construction ARC-60	B66-10309	01
LATTICE VIBRATIONS Study of lattice defect vibration ARG-10221	B69-10078	02	Multipulse current source offers low power losses and high reliability LANGLEY-68	B67-10603	01
LATTICES Measurements of thermoelectric power in annealed and quenched gold-platinum alloys ARG-10303	B69-10206	03	Improved limiter for turn-on current transient GSFC-10413	B68-10384	01
LATTICES (MATHEMATICS) Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds LANGLEY-10191	B67-10666	06	LEACHING Porous mandrels provide uniform deformation in hydrostatic powder metallurgy M-FS-1972	B67-10209	03
LAUE METHOD Spherical model provides visual aid for cubic crystal study LEWIS-108	B65-10065	03	LEAD (METAL) Metals plated on fluorocarbon polymers JPL-544	B63-10612	03
LAUNCH DATES Advanced mission analysis programs GSFC-10575	B69-10171	06	Solder flux leaves corrosion-resistant coating on metal JPL-611	B64-10206	03
LAUNCH VEHICLE CONFIGURATIONS Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles LANGLEY-10093	B67-10531	06	Superconductor shields test chamber from ambient magnetic fields JPL-627	B65-10297	02
LAUNCH VEHICLES Method for predicting frictional loss in metal bellows and flexible hose M-FS-883	B66-10662	05	Method prevents secondary radiation in radiographic inspection M-FS-13383	B67-10391	02
System automatically provides dynamic launch decision criteria M-FS-13063	B67-10363	01	Lead plated aluminum ring provides static high pressure seal for large diameter pressure vessel NUC-10008	B67-10539	05
Earth orbit rendezvous evaluation program M-FS-13016	B67-10407	06	X-ray film holder permits single continuous picture of tubing joint LEWIS-10382	B68-10343	05
Fortran 4 program for two-impulse rendezvous analysis M-FS-13971	B67-10479	06	Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna ARG-10345	B69-10258	02
Concept to standardize space vehicle piggyback experiment modules M-FS-1697	B68-10038	05	Precisely repeatable rotary mechanism NPO-10679	B69-10696	05
Assembly, checkout, and operation optimization analysis technique for complex systems M-FS-14105	B68-10222	05	LEAD ALLOYS Vacuum chamber is remotely sealed by eutectic metal NU-0091	B67-10059	05
Weight Control System					

LEAD COMPOUNDS

SUBJECT INDEX

LEAD COMPOUNDS

Lead oxide ceramic makes excellent
high-temperature lubricant
LEWIS-144 B64-10116 03

Analyses of silicon dioxide, magnesium
oxide, lead fluoride, bismuth as low-pass
velocity filters for neutrons
ARG-10220 B69-10211 02

Segmented SiGe-PbTe couples
GSFC-10746 B69-10233 01

Quality-weld parameters for microwelding
techniques and equipment
M-FS-20484 B69-10303 05

LEAD ISOTOPES

Direct determination of lead-210 by
liquid-scintillation counting
ARG-10462 B69-10611 03

LEAD SULFIDES

Advances in aluminum anodizing
M-FS-14600 B69-10144 05

LEAD TELLURIDES

Thermoelectric elements diffusion-bonded to
tungsten electrodes
GSFC-346 B65-10309 01

LEAD TITANATES

Phonocardiograph microphone is rugged and
moistureproof
MSC-212 B66-10314 04

Ultrasonic wrench produces leaktight
connections
M-FS-12561 B67-10353 05

LEAKAGE

Vented piston seal prevents fluid leakage
between two chambers
JPL-179 B63-10141 05

Device transmits rotary motion through
hermetically sealed wall
JPL-303 B63-10198 05

Self sealing disconnect for tubing forms metal
seal after breakaway
JPL-354 B63-10226 05

Fluid-pressure meter can be calibrated without
removal from flow line
M-FS-98 B63-10502 05

Sensitive low-pressure relief valve has
positive seating against leakage
WOO-041 B64-10278 05

Valve designed with elastic seat
JPL-442 B65-10040 05

Fuel cell serves as oxygen level detector
JPL-SC-072 B65-10066 01

Low-cost seal compensates for surface
irregularities
NU-0016 B65-10160 05

Superconductor magnets used for stagger-tuning
traveling-wave maser
GSFC-292 B65-10165 01

Diaphragm eliminates leakage in cryogenic
fluid duct coupling
WOO-142 B65-10227 05

Weld leaks rapidly and safely detected
M-FS-362 B65-10265 01

Composite seal reduces alkaline battery
leakage
GSFC-337 B65-10271 01

O-ring tube fittings form leakproof seal in
hydraulic systems
M-FS-481 B66-10020 05

Resilient clamp holds fuel cell stack through
resilient clamp holds fuel cell stack through
thermal cycle
MSC-313 B66-10035 05

Control system maintains selected liquid level
M-FS-470 B66-10039 01

High-pressure, low temperature electrical
connector makes no-leak seal
MSC-276 B66-10079 02

Capacitive system detects and locates fluid
leaks
M-FS-478 B66-10099 01

Dispenser leak-tests and sterilizes rubber
gloves
MSC-285 B66-10166 03

Wide-range instrument monitors flow rates
of chemically active fluids
MSC-186 B66-10205 01

Special tool seals conductors with combination
of plastic sleeves
M-FS-579 B66-10209 05

Soft-seal valve holds hazardous fluids
safely
LEWIS-275 B66-10216 05

Expandable rubber plug seals openings for
pressure testing
NU-0048 B66-10229 05

Brazing process using Al-Si filler alloy
reliably bonds aluminum parts
MSC-448 B66-10241 05

Pressure-welded flange assembly provides
leaktight seal at reduced bolt loads
M-FS-640 B66-10247 05

Flow ring valve is simple, quick-acting
M-FS-752 B66-10255 05

Vacuum test fixture improves leakage rate
measurements
MSC-271 B66-10286 01

Flexible fastener effects airtight material
closure
JPL-684 B66-10304 05

Union would facilitate joining of tubing,
minimize braze contamination
MSC-777 B66-10311 05

Valve seat pores sealed with thermosetting
monomer
M-FS-900 B66-10322 03

Sniffer used as portable hydrogen leak
detector
M-FS-846 B66-10356 01

Diaphragm valve for corrosive and high
temperature fluid flow control has unique
features
LEWIS-304 B66-10365 05

Minimum permissible leakage resistance
established for instrumentation systems
M-FS-848 B66-10397 01

Leak locator for vacuum jacketed pipelines
eliminates need for removal of outer jacket
M-FS-888 B66-10412 01

Electroplating eliminates gas leakage in
brazed areas
M-FS-923 B66-10415 05

Large diameter metal ring seal prevents gas
leakage at 5000 psi
M-FS-1064 B66-10422 05

Gas leak detector is simple and

SUBJECT INDEX

LEAST SQUARES METHOD

inexpensive M-FS-1206	B66-10669	01	Between-bearing shaft seal, a concept M-FS-18179	B68-10286	05
Silver plating technique seals leaks in thin wall tubing joints NU-0090	B66-10703	05	Conceptual apparatus for detecting leaks of nonconductive liquids M-FS-14713	B68-10303	01
Orbital tube flaring system produces tubing connectors with zero leakage M-FS-2016	B67-10019	05	Determining gas leakage from bubble formations M-FS-14841	B68-10393	05
Visco seal design offers zero-leakage and wear-free characteristics WSO-329	B67-10047	05	Nondestructive testing of brazed rocket engine components M-FS-18191	B68-10394	03
Portable detector set discloses helium leak rates M-FS-1733	B67-10065	01	Tube joint leak repair coupling MSC-15022	B68-10540	05
Portable fixture facilitates pressure testing of instrumentation fittings M-FS-2032	B67-10121	03	Reliable method for testing gross leaks in semiconductor component packages ERC-10150	B68-10562	01
Cryogenic seal remains leaktight during thermal displacement ARG-96	B67-10134	02	Semitoroidal-diaphragm cavitating valve designed for bipropellant flow control XNP-09704	B69-10016	05
Cracks in glass electrical connector headers removed by dry blasting with fine abrasive LEWIS-381	B67-10148	03	Diffusion of trace gases for leak detection - A study M-FS-20254	B69-10067	03
Fixture facilitates helium leak testing of pipe welds M-FS-2167	B67-10178	05	Leakage tester for flat conductor cable connector M-FS-20427	B69-10284	05
Apparatus for fabrication of americium- beryllium neutron sources prevents capsule contamination ARG-184	B67-10202	05	Sealing a rubber bladder between two sections of an accumulator M-FS-20403	B69-10355	05
Segmented, arch-bound carbon seal is pressure loaded M-FS-12777	B67-10325	05	Leakage measuring method M-FS-14722	B69-10438	01
Ultrasonic wrench produces leaktight connections M-FS-12561	B67-10353	05	Piezoelectric linear actuator MSC-13194	B69-10469	02
Stabilizing stainless steel components for cryogenic service M-FS-13127	B67-10377	05	Flared-tube fittings with replaceable seat inserts MSC-15372	B69-10519	05
Aluminum and stainless steel tubes joined by simple ring and welding process M-FS-13120	B67-10472	05	Burst diaphragm leak detector M-FS-14500	B69-10543	03
Dynamic valve seal is reliable at cryogenic temperatures M-FS-12987	B67-10526	05	Integral valve provides automatic relief and remote venting M-FS-12134	B69-10545	05
Fluorocarbon seal replaces metal piston ring in low density gas environment LEWIS-10277	B67-10591	05	Two-functional seal for hose connection M-FS-14062	B69-10588	05
Dynamic captive plastic seal M-FS-12988	B67-10600	03	LEAST SQUARES METHOD		
Cryogenic seal concept for static and dynamic conditions M-FS-12986	B67-10673	05	Method accurately measures mean particle diameters of monodisperse polystyrene latexes ARG-207	B67-10054	02
Vent and relief valve maintains low leakage rate over broad temperature range M-FS-12807	B68-10014	05	Solubility data are compiled for metals in liquid zinc ARG-149	B67-10191	03
Locating and sealing air leaks in multiroomed buildings NUC-10304	B68-10024	05	Computer program for network synthesis by frequency response fit M-FS-12686	B67-10406	06
Device provides controlled gas leaks NFO-10298	B68-10142	03	Numerical least-square method for resolving complex pulse height spectra GSFC-10142	B67-10480	06
Tube swaging device uses explosive force LANGLEY-10092	B68-10235	05	Automatic design of optical systems by digital computer NPO-10265	B67-10632	06
Spiral-grooved shaft seals substantially reduce leakage and wear LEWIS-10397	B68-10270	05	Computer graphics data conditioning M-FS-14695	B68-10296	06
			FORTRAN optical lens design program NPO-10603	B68-10354	06
			Frequency domain analysis and synthesis of lumped parameter systems using nonlinear least squares techniques		

LEATHER

SUBJECT INDEX

M-FS-15033	B69-10577	02	M-FS-472	B66-10112	01
LEATHER			Optical gyro pickoff operates at cryogenic temperatures		
Protective clothing for workers with 5-kW and 20-kW short-arc lamps			M-FS-407	B66-10128	01
NPO-11155	B69-10218	01	Circular, explosion-proof lamp provides uniform illumination		
LEAVES			MSC-382	B66-10156	02
Comparative chromatography of chloroplast pigment			Offset lenses add versatility to phototypesetting machine		
ARG-10415	B69-10425	03	HQ-9	B66-10173	02
LECTURES			Panels illuminated by edge-lighted lens technique		
Study of lattice defect vibration			MSC-871	B66-10507	02
ARG-10221	B69-10078	02	Laser Doppler flowmeter measures gas velocity		
LEG (ANATOMY)			M-FS-1747	B66-10693	02
Adjustable hinge permits movement of knee in plaster cast			Electronic filter discriminates between true and false reflections		
M-FS-1756	B67-10056	04	HQ-55	B67-10071	02
LEGENDRE FUNCTIONS			Star/horizon simulator used to test space guidance system		
Computer program ETC improves computation of elastic transfer matrices of Legendre polynomials P ₀ / and P ₁ /			MSC-407	B67-10110	02
NUC-10070	B67-10566	06	Design concept for improved photo-scan tube		
LEGIBILITY			JPL-818	B67-10157	01
Disk calculator indicates legible lettering size for slide projection			Aerial-image enables diagrams and animation to be inserted in motion pictures		
GSFC-409	B65-10339	05	ARG-165	B67-10398	02
Legibility of electroluminescent instrument panels investigated			Camera lens adapter magnifies image		
MSC-494	B66-10316	02	M-FS-11955	B67-10431	02
LENGTH			Ballpoint probe gives optimum results in ultrasonic testing		
Pressure probe compensates for dimensional tolerance variations			M-FS-13590	B67-10620	01
LEWIS-302	B66-10599	01	Electron beam deflected to determine focal point location		
System enables dimensional inspection of very large structures			M-FS-14107	B67-10649	01
M-FS-2477	B67-10214	05	Feasibility study of wireless power transmission systems		
LENS DESIGN			M-FS-14691	B68-10309	01
Optimetric system facilitates colorimetric and fluorometric measurements			Color-televised medical microscopy		
NPO-10233	B68-10316	01	MSC-13086	B68-10314	01
Improved method of optical design			Improvement in recording and reading holograms		
GSFC-10743	B69-10405	02	ERC-10151	B68-10347	02
LENSES			FORTAN optical lens design program		
Mirror device aligns machine surface perpendicular to sight lines			NFO-10603	B68-10354	06
WOO-5	B63-10421	02	UV detector monitors organic contamination of optical surfaces		
Attachment converts microscope to point source autocollimator			M-FS-20246	B68-10413	01
JPL-499	B64-10124	05	Digital laser-beam deflection sensor		
Optical arrangement increases useful light output of semiconductor diodes			M-FS-14785	B68-10525	01
JPL-SC-064	B65-10020	05	Improved combustion chamber optical probe		
Wide-aperture solar energy collector is light in weight			MSC-10953	B69-10142	02
JPL-SC-055	B65-10046	02	Ion-retarding lens improves the abundance sensitivity of tandem mass spectrometers		
Ball and socket joints provide accurate biaxial gimbal			ARG-10365	B69-10166	02
JPL-658	B65-10205	05	Spherical ion source		
Communication system uses modulated laser beam			INP-08898	B69-10186	01
GSFC-377	B65-10333	01	Flexible high-voltage supply for experimental electron microscope		
Optical output enhances flowmeter accuracy			ARG-10482	B69-10603	01
M-FS-482	B65-10395	02	Two-color holography		
Vibration tests on vidicons made by improved method			HQ-10349	B69-10662	02
JPL-SC-115	B66-10042	01	Fine-line sensitivity for holographic interferograms		
Screen of cylindrical lenses produces stereoscopic television pictures			HQ-10348	B69-10663	02
M-FS-273	B66-10086	02			
New television camera eliminates vidicon tube					

SUBJECT INDEX

LIFE SUPPORT SYSTEMS

LEUCINE

Effect of preparation procedures on
intensity of radioautographic labeling is
studied
ARG-10032 B67-10500 04

LEVEL (HORIZONTAL)

Instrument quickly transposes ground reference
target to eye level
MSC-275 B66-10061 05

Alignment tool facilitates pin placement on
irregular horizontal surfaces
LANGLEY-219 B66-10410 05

LEVEL (QUANTITY)

Level of super-cold liquids automatically
maintained by levelometer
JPL-397 B63-10250 01

Low-cost voltage-level detector
LEWIS-10885 B69-10217 01

LEVELING

Sensitive level sensor made with spirit
level, gives electrical output
LANGLEY-49 B65-10067 01

Rotary valve controls multiple hydraulic
leveling cylinders
M-FS-361 B66-10402 05

Heavy duty precision leveling jacks expedite
setup time on horizontal boring mill
M-FS-1084 B66-10411 05

Steel test panel helps control additives in
pyrophosphate copper plating
LEWIS-10101 B67-10358 05

Automatic Gaussian random-noise limiter
NPO-10169 B69-10349 01

Automatic leveling and equalizing hoist
device
M-FS-16549 B69-10514 05

LEVERS

Solenoid permits remote control of stop watch
and assures restarting
FRC-17 B63-10024 01

Fatigue tester achieves true axial motion
through flex plates and bars
NU-0021 B66-10164 01

Tool facilitates installation of Marmon
clamps
M-FS-2039 B67-10105 05

Single-source mechanical loading system
produces biaxial stresses in cylinders
M-FS-12530 B67-10380 05

Technique for measuring magnetic tape
interlayer adhesion
NPO-10011 B67-10417 03

Battery case shear
GSFC-10783 B69-10127 05

Detachable caster adapter
MSC-91215 B69-10164 05

LEVITATION

Levitation-melting technique for metals
and alloys
ARG-10240 B69-10006 03

LEWIS BASE

Electrolytic separation of crystals of
transition-metal oxides
ARG-10506 B69-10642 03

LIBRARIES

JPKNIC - General key word in context and
subject index report generator
NPO-10589 B68-10208 06

LIE GROUPS

Solution of differential equations by
application of transformation groups
M-FS-14802 B68-10276 02

LIFE (DURABILITY)

New cobalt alloys have high-temperature
strength and long life in vacuum
environments
LEWIS-47 B63-10351 03

Improved fluid control valve extends diaphragm
life
JPL-345 B65-10147 05

Graphite element serves as radiant heat source
M-FS-105 B65-10218 01

Improved electrode paste provides reliable
measurement of galvanic skin response
MSC-146 B66-10049 04

New energy storage concept uses tapes
LEWIS-239 B66-10098 02

Plasma jet electrode has longer operating
life
NU-0098 B67-10024 02

Honeycomb seal backing ring increases
turbopump disk life
M-FS-13303 B67-10607 05

Predicting fatigue life of metal bellows
M-FS-14096 B68-10026 05

Study of fluoride corrosion of nickel alloys
ARG-10224 B65-10048 03

High-energy, high-power, long-life battery
LEWIS-10724 B69-10131 01

Design and sparing techniques to meet
specified performance life
HQ-10200 B69-10528 02

Monte Carlo simulation by computer for
life-cycle costing
M-FS-14754 B69-10590 05

LIFE DETECTORS

Life detection
NPO-10510 B69-10475 04

Quantitative determination of flavin nucleotide
using the bacterial bioluminescent reaction
GSFC-10565 B69-10715 04

LIFE RAFTS

New inflatable liferaft is nontippable
MSC-4A B64-10001 05

Storage-stable foamable polyurethane is
activated by heat
LANGLEY-187 B66-10111 03

LIFE SPAN

Investigation of temperature dependence of
development and aging
ARG-10145 B69-10022 04

LIFE SUPPORT SYSTEMS

One-piece transparent shell improves design of
helmet assembly
MSC-187 B66-10390 05

Computer program analyzes generalized
environmental control and life support
systems
MSC-1157 B67-10415 06

Concept to comfort-condition subjects
wearing restrictive clothing
MSC-10964 B68-10178 02

Electrolytic silver ion cell sterilizes
water supply
MSC-11827 B68-10555 01

LIFT DEVICES

SUBJECT INDEX

Miniature oxygen resuscitator KSC-10398	B69-10319	04	and velocity in fluid stream M-FS-1536	B66-10668	01
Rate of heat extraction controller for environmental control HQ-10318	B69-10516	01	Laser Doppler flowmeter measures gas velocity M-FS-1747	B66-10693	02
LIFT DEVICES			Design concept for improved photo-scan tube JPL-818	B67-10157	01
Buckle joins web straps quickly, adjusts easily LANGLEY-21	B64-10119	05	Simplified technique demonstrates magnetic domain switching M-FS-13153	B67-10342	02
Mechanism isolates load weighing cell during lifting of load MSC-297	B66-10071	05	Aerial-image enables diagrams and animation to be inserted in motion pictures ARG-165	B67-10398	02
Simulator effects partial gravity conditions MSC-152	B66-10339	05	Optical integrating sphere operates at visible and infrared wavelengths M-FS-14248	B68-10126	02
Self-actuating grapple automatically engages and releases loads from overhead cranes ARG-81	B66-10522	05	Improved gas ring laser MSC-11584	B68-10304	02
Hoist is automatically stopped at low deceleration rate M-FS-1639	B66-10545	05	System converts optical phase changes to RF phase changes M-FS-20091	B68-10430	01
Conceptual dead weight device to provide pressure calibration M-FS-14672	B68-10264	01	Occulting-filter method for obtaining flashing-light visibility data MSC-13097	B69-10107	02
Fifth-wheel fork truck adapter M-FS-14460	B69-10021	05	Method for copper staining of germanium crystals ARG-10403	B69-10257	03
Detachable caster adapter MSC-91215	B69-10164	05	Concept for improved vacuum pressure measuring device M-FS-20172	B69-10421	02
Automatic leveling and equalizing hoist device M-FS-16549	B69-10514	05	LIGHT AMPLIFIERS		
LIFTS			Synthesis of electro-optic modulators for amplitude modulation of light M-FS-14268	B68-10275	02
Hydrostatic force used to handle outsized, heavy objects HQ-90	B67-10167	05	LIGHT BEAMS		
Square tubing reduces cost of telescoping bridge crane hoist ARG-13	B67-10293	05	Servo system facilitates photoelastic strain measurements on resins JPL-504	B64-10280	01
LIGANDS			System measures angular displacement without contact LANGLEY-46	B65-10073	01
Aggregation of metallochlorophylls - Examination by spectroscopy ARG-10273	B69-10163	04	Light-sensitive potentiometer measures product of two variables GSFC-240	B65-10076	01
LIGHT (VISIBLE RADIATION)			Photoelectric system continuously monitors liquid level M-FS-417	B65-10382	01
Instrument accurately measures extremely low air densities M-FS-193	B65-10221	01	Device to color modulate a stationary light beam gives high intensity HQ-44	B66-10476	01
Unique construction makes interferometer insensitive to mechanical stresses JPL-725	B65-10295	02	High-speed camera synchronization M-FS-18062	B68-10282	02
Inexpensive infrared source improvised from flashlight M-FS-494	B66-10096	02	Modified sine bar device measures small angles with high accuracy GSFC-438	B68-10322	02
Plastic scintillator converts standard photomultiplier to ultraviolet range ERC-9	B66-10108	02	Improvement in recording and reading holograms ERC-10151	B68-10347	02
Optical device enables small detector to see large field of view WOO-253	B66-10263	02	Ring laser angle encoder MSC-13099	B69-10115	01
Sensors measure surface ablation rate of reentry vehicle heat shield LANGLEY-287	B66-10592	01	Laser interferometer micrometer system M-FS-14747	B69-10633	02
Optical automatic gain channel M-FS-1550	B66-10596	02	Fine-line sensitivity for holographic interferograms HQ-10348	B69-10663	02
Exposure Value /EV/ system expanded to include filter factors and transmittance LANGLEY-190	B66-10602	02	Optical frequency waveguide and ion		
Photographic method measures particle size					

SUBJECT INDEX

LIGHT SOURCES

transmission system HQ-10541	B69-10746	01	laminates LEWIS-10104	B67-10286	03
Image position sensor M-FS-14101	B69-10783	02	Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02
LIGHT EMISSION			Detection of effect of deposits on optical windows of pyrometer measurements LEWIS-10366	B68-10367	01
Optical arrangement increases useful light output of semiconductor diodes JPL-SC-064	B65-10020	05	LIGHT SOURCES		
Practical new method of measuring thermal-neutron fluence NUC-10086	B67-10352	02	Fresnel cup reflector directs maximum energy from light source JPL-424	B63-10263	03
Fluidic-thermochromic display device ERC-10031	B68-10350	01	Liquid-level meter has no moving parts M-FS-3	B63-10378	03
Improved radiographic image amplifier panel M-FS-14522	B68-10363	02	Mirror device aligns machine surface perpendicular to sight lines WOO-5	B63-10421	02
Silicon carbide diode for increased light output M-FS-20063	B69-10096	01	Variable light source with a million-to-one intensity ratio JPL-WOO-008	B63-10424	03
Optical frequency waveguide and ion transmission system HQ-10541	B69-10746	01	Low-cost tape system measures velocity of acceleration GSFC-85	B63-10512	01
LIGHT GAS GUNS			Camera shutter is actuated by electric signal ARC-20	B63-10560	05
Advances in light-gas gun technology M-FS-14270	B68-10288	05	Analog device simulates physiological waveforms MSC-51	B64-10109	01
LIGHT MODULATION			Attachment converts microscope to point source autocollimator JPL-499	B64-10124	05
Light ray modulation controls optical system alignment GSFC-171	B65-10211	02	Compact cartridge drives coded tape at constant readout speed JPL-472	B64-10222	01
Communication system uses modulated laser beam GSFC-377	B65-10333	01	Modification increases light output of injection-luminescent diodes M-FS-192	B65-10006	01
Device to color modulate a stationary light beam gives high intensity HQ-44	B66-10476	01	Sensitive level sensor made with spirit level, gives electrical output LANGLEY-49	B65-10067	01
Improved design provides faster response time in photomultiplier GSFC-451	B66-10526	01	Simple optical system used to align spectrograph LANGLEY-92	B65-10071	02
Light-intensity modulator withstands high heat fluxes MSC-246	B66-10532	02	Instrument calibrates low gas-rate flowmeters MSC-134	B65-10137	01
Electronic filter discriminates between true and false reflections HQ-55	B67-10071	02	Interferometer combines laser light source and digital counting system MSC-151	B65-10161	01
Wideband, high efficiency optical modulator requires less than 10 watts drive power M-FS-12733	B67-10289	01	Brushless dc motor uses electron beam switching tube as commutator GSFC-345	B65-10237	01
Optically induced free carrier light modulator GSFC-10216	B69-10114	01	Photoresistance analog multiplier has wide range GSFC-360	B65-10287	01
LIGHT SCATTERING			Photoelectric system continuously monitors liquid level M-FS-417	B65-10382	01
Thin carbon film serves as UV bandpass filter ERC-8	B66-10060	02	Optical output enhances flowmeter accuracy M-FS-482	B65-10395	02
Solvent residue content measured by light scattering technique M-FS-850	B66-10320	01	Photosensors used to maintain welding electrode-to-joint alignment MSC-243	B65-10401	05
Laser Doppler flowmeter measures gas velocity M-FS-1747	B66-10693	02	Small, high-intensity flasher permits continuous close-in photography NU-0043	B66-10119	03
Special purpose reflectometer uses modified ulbricht sphere MSC-1135	B67-10109	02	Optical gyro pickoff operates at cryogenic temperatures		
Improved atmospheric particle analyzer ERC-33	B67-10231	01			
Electronic shutter gates image orthicon on and off HQ-96	B67-10270	01			
Liquid crystals detect voids in fiber glass					

LIGHT SPEED

SUBJECT INDEX

M-FS-407	B66-10128	01	Technique developed for measuring transmittance of optical birefringent networks		
Direction indicator system does not require complicated optics			M-FS-14267	B68-10260	02
WOO-305	B66-10407	01	Method of making conical fiber optical components		
Electrically controlled optical latch and switch requires less current			INP-09745	B69-10020	02
JPL-SC-111	B66-10414	01	LIGHTING EQUIPMENT		
Uniform reflective films deposited on large surfaces			Panels illuminated by edge-lighted lens technique		
GSFC-507	B66-10483	02	MSC-871	B66-10507	02
Photocell shadowing technique improves light source detector			Surface irregularities detected by flare inspection instrument		
JPL-809	B66-10564	01	M-FS-20157	B69-10152	01
Use of color-coded sleeve shutters accelerates oscillograph channel selection			A prototype high power portable lamp		
KSC-10092	B67-10382	01	M-FS-20229	B69-10189	02
Camera lens adapter magnifies image			LIMITER AMPLIFIERS		
M-FS-11955	B67-10431	02	PCM magnetic tape system efficiently records and reproduces data		
Infrared viewing permits human iris response studies			GSFC-375	B65-10311	01
ERC-10003	B68-10206	04	LIMITER CIRCUITS		
Color-televised medical microscopy			Variable frequency magnetic multivibrator generates stable square-wave output		
MSC-13086	B68-10314	01	GSFC-AE-21	B65-10124	01
Gimbal angle sensor			High-speed square-wave current limiter operates efficiently		
GSFC-10305	B68-10315	01	JPL-SC-073	B65-10233	01
Rapid-response, light-exposure control system			Electrically controlled optical latch and switch requires less current		
NPO-10238	B68-10502	01	JPL-SC-111	B66-10414	01
Occulting-filter method for obtaining flashing-light visibility data			Linear signal noise summer accurately determines and controls S/N ratio		
MSC-13097	B69-10107	02	JPL-SC-152	B66-10433	01
Fluorescent photography of spray droplets using a laser light source			Limit circuit prevents overdriving of operational amplifier		
LEWIS-10777	B69-10122	02	NUC-10082	B67-10343	01
Surface irregularities detected by flare inspection instrument			Current-limiting voltage regulator		
M-FS-20157	B69-10152	01	MSC-11824	B68-10305	01
Coordination chemistry in fused-salt solutions			Improved limiter for turn-on current transient		
ARG-10469	B69-10423	03	GSFC-10413	B68-10384	01
Circuit board hole coordinate locator concept			Millivolt signal limiter		
M-FS-14737	B69-10539	01	LEWIS-90297	B69-10015	01
Long range holographic contour mapping concept			Circuitry selectively limits data storage in general purpose computer		
HQ-10350	B69-10700	02	GSFC-10605	B69-10121	01
A simple electrometer for measuring small photoelectric currents			PCM bit detection with correction for intersymbol interference		
GSFC-10603	B69-10734	01	GSFC-10155	B69-10153	01
LIGHT SPEED			Automatic Gaussian random-noise limiter		
Frequency offset in linear FM/CW transponder eliminates clutter			NPO-10169	B69-10349	01
M-FS-249	B65-10146	01	LIMITS (MATHEMATICS)		
LIGHT TRANSMISSION			Computer program determines exact two-sided tolerance limits for normal distributions		
Blood oxygen saturation determined by transmission spectrophotometry of hemolyzed blood samples			M-FS-18045	B68-10158	06
MSC-11018	B67-10252	04	Maximum RMS error comparison of several redundancy techniques		
Self-balancing line-reversal pyrometer automatically measures gas temperatures			M-FS-15075	B69-10297	01
LEWIS-348	B67-10268	01	LINE CURRENT		
Portable spectrometer monitors inert gas shield in welding process			Tracer of electrical conduit or pipes		
M-FS-12144	B67-10326	02	MSC-15223	B69-10347	01
Computer program for optical systems ray tracing			LINE SHAPE		
FRC-10017	B67-10549	06	Parallel line raster eliminates ambiguities in reading timing of pulses less than 500 microseconds apart		
			JPL-805	B66-10386	01
			LINE SPECTRA		
			Electrodeless discharge lamp is easily		

SUBJECT INDEX

LINEAR SYSTEMS

started, has high stability WOO-030	B66-10015	01	pulse circuits ARG-10479	B69-10445	01
Thin carbon film serves as UV bandpass filter ERC-8	B66-10060	02	Improved pulse shape discriminator for fast neutron-gamma ray detection system HQ-10151	B69-10481	01
Neon isotopes cancel errors in gas laser M-FS-1476	B66-10583	02	LINEAR EQUATIONS		
Portable spectrometer monitors inert gas shield in welding process M-FS-12144	B67-10326	02	Computer subroutine ISUDS accurately solves large system of simultaneous linear algebraic equations NUC-10051	B67-10344	06
A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voight line profile ARC-10221	B69-10232	06	Solution of differential equations by application of transformation groups M-FS-14802	B68-10276	02
Molecular radiation - Its application in physical measurements and analyses M-FS-14816	B69-10562	02	Linear systems of equations solved using mathematical algorithms ARG-10146	B68-10292	06
LINEAR ACCELERATORS			Buckling Of Shells Of Revolution /BOSOR/ with various wall constructions LANGLEY-10441	B69-10300	06
Reduction by monovalent zinc, cadmium, and nickel cations ARG-10328	B69-10170	03	Constant-frequency, variable-duty-cycle multivibrator XGS-10033	B69-10512	01
Electrothermal linear actuator NPO-10637	B69-10296	05	Engineering thermal analyzer /BETA 2/ M-FS-15055	B69-10760	06
LINEAR AMPLIFIERS			LINEAR FILTERS		
Diffusion technique stabilizes resistor values MSC-205	B66-10142	01	Design of dissipative linear phase filters M-FS-14698	B68-10572	01
Linear signal noise summer accurately determines and controls S/N ratio JPL-SC-152	B66-10433	01	LINEAR PROGRAMMING		
Current-switching technique for analog pulse circuits ARG-10479	B69-10445	01	Polynomial manipulator AP-168 MSC-1231	B67-10103	01
An unconventional magnetically-coupled multivibrator HQ-10226	B69-10480	01	Computer program provides linear sampled- data analysis for high order systems M-FS-12821	B67-10287	06
LINEAR ARRAYS			Automatic planning concept - An analysis of optimum scheduling M-FS-14198	B68-10127	06
Binary sequence detector uses minimum number of decision elements JPL-673	B66-10264	01	Structural Analysis and Matrix Interpretive System /SAMIS/ NPO-10839	B69-10093	01
LINEAR CIRCUITS			Control jet placement on spacecraft MSC-13365	B69-10671	01
Simple circuit functions as frequency discriminator for PFM signals GSFC-267	B65-10102	01	LINEAR RECEIVERS		
Diffusion technique stabilizes resistor values MSC-205	B66-10142	01	Use of both linear and logarithmic transfer functions to increase dynamic range of visual channel GSFC-10675	B69-10037	01
Linear signal noise summer accurately determines and controls S/N ratio JPL-SC-152	B66-10433	01	LINEAR SYSTEMS		
Linear circuit analysis program for IBM 1620 Monitor 2, 1311/1443 data processing system /CIRCS/ NPO-10131	B67-10173	06	Simple circuit provides adjustable voltage with linear temperature variation JPL-WOO-029	B63-10537	01
General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-FS-13094	B67-10331	06	Voltage generator sweeps oscillator frequency linearly with time M-FS-219	B64-10320	01
Electronic skewing circuit monitors exact position of object underwater NUC-10146	B67-10629	01	Frequency offset in linear FM/CW transponder eliminates clutter M-FS-249	B65-10146	01
Input gate circuit converted for use as linear amplifier M-FS-14265	B68-10015	01	Interferometer combines laser light source and digital counting system MSC-151	B65-10161	01
Linear voltage-to-frequency converter GSFC-10546	B69-10220	01	Electropneumatic rheostat regulates high current ARC-44	B65-10299	01
Current-switching technique for analog			Temperature transducer has high output, is time stable GSFC-446	B65-10362	01
			General frequency response program calculates frequency response of system, open at any specified element		

LINEAR TRANSFORMATIONS

SUBJECT INDEX

M-FS-12817	B67-10521	06	Study of yttrium iron garnet rods reveals new magnetostatic echo mode ERC-37	B67-10153	01
Cardiotachometer with linear beat-to-beat frequency response ARC-10033	B67-10598	01	Subminiature deflection circuit operates integrated sweep circuits in TV camera MSC-1263	B67-10155	01
Phase plane displays detect incipient failure in servo system testing HQ-10018	B67-10662	01	Stress calculator speedily converts strain data M-FS-2021	B67-10182	03
ELAS - A general purpose computer program for the equilibrium problems of linear structures WFO-10598	B68-10187	06	Tritiated alumina serves as reagent for self-labeling analysis ARG-209	B67-10315	03
Conceptual hermetically sealed elbow actuator M-FS-14710	B68-10300	05	Digital voltage-controlled oscillator GSFC-512	B67-10449	01
Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01	Design for high-temperature /1800 deg F/ liquid metal pressure transducer LEWIS-10144	B67-10458	01
Finite element analysis of compressible solids with nonlinear material properties NUC-10342	B69-10238	06	Blood pressure reprogramming adapter assists signal recording MSC-265	B67-10475	01
Optimum FM pre-emphasis KSC-10151	B69-10359	01	Analog buffer isolates high impedance source from low impedance load M-FS-13481	B67-10544	01
Frequency domain analysis and synthesis of lumped parameter systems using nonlinear least squares techniques M-FS-15033	B69-10577	02	Design techniques - Stochastic controllers MSC-11554	B68-10234	02
Storage of electric and magnetic energy in passive nonreciprocal networks ARG-10360	B69-10630	01	Dynamic linearity measurement technique KSC-10186	B68-10290	01
LINEAR TRANSFORMATIONS			Highly linear, sensitive analog-to-digital converter MSC-13110	B69-10230	01
Remote balance weighs accurately amid high radiation ARG-10387	B69-10242	05	The Quantasyn, an improved quantum detector ERC-10148	B69-10443	01
LINEARITY			LINEARIZATION		
Raster linearity of video cameras calibrated with precision tester GSFC-200	B64-10209	01	Problem of oscillating cone in supersonic flow is solved by small perturbation techniques M-FS-869	B66-10700	02
Simplified electrometer has excellent operating characteristics JPL-413	B65-10125	01	Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates NPO-10316	B67-10418	05
Circuit reduces distortion of FM modulator GSFC-257	B65-10152	01	FORTRAN optical lens design program NPO-10603	B68-10354	06
Compact actuator converts rotary to linear motion JPL-786	B66-10265	05	LINES (GEOMETRY)		
Simple scale interpolator facilitates reading of graphs LEWIS-92	B66-10302	05	System converts slow-scan to standard fast-scan TV signals MSC-90534	B69-10748	01
Flexible arms provide constant force for pressure switch calibration HQ-38	B66-10317	05	LINING PROCESSES		
Semiconductors can be tested without removing them from circuitry M-FS-1163	B66-10447	01	TFE-fluorocarbon liners for flexible hoses M-FS-16480	B69-10288	05
Pulse stretcher has improved dynamic range and linearity ARG-82	B66-10509	01	LININGS		
Resistance thermometer has linear resistance-temperature coefficient at low temperatures WOO-190	B66-10612	01	Flow liner extends operating life of high-angulation bellows M-FS-12023	B67-10512	05
Mechanical device accurately measures RF phase differences in VHF or UHF ranges M-FS-1738	B66-10694	05	Analysis of filament reinforced metal-shell pressure vessels LEWIS-10352	B68-10405	06
Motion drive system is accurately controlled in the 1-micron range JPL-864	B66-10695	05	Adhesive for cryogenic temperature applications LEWIS-10264	B69-10074	03
			LINKAGES		
			Electromechanically operated camera shutter provides uniform exposure JPL-357	B63-10227	01
			Camera shutter is actuated by electric signal ARC-20	B63-10560	05

SUBJECT INDEX

LIQUID FLOW

Compact actuator converts rotary to linear motion JPL-786	B66-10265	05	subsonic diffuser NUC-10541	B67-10543	06
External linkage tie permits reduction in ducting system flange thickness M-FS-823	B66-10326	05	Highly stable microwave delay line NPO-09828	B67-10642	01
Concealed hinge permits flush mounting of doors and hatches MSC-623	B66-10336	03	Two-fluid, impinging-sheet injector NPO-10547	B68-10338	05
Flow-test device fits into restricted access passages MSC-1078	B67-10074	01	LIQUID CRYSTALS Liquid crystals detect voids in fiber glass laminates LEWIS-10104	B67-10286	03
Lock-disconnect mechanism gives positive release to joined bodies M-FS-2147	B67-10123	05	Production of crystalline polymers via liquid crystal monomers HQ-10235	B69-10744	03
Web belt load measuring instrument has excellent stability MSC-921	B67-10242	01	LIQUID FILLED SHELLS Handbook for design of containers of fluids and gases for spacecraft M-FS-20502	B69-10279	05
Metal tube reducer is inexpensive and simple to operate ARG-49	B67-10401	05	LIQUID FLOW Special pliers connect hose containing liquid under pressure JPL-IT-1003	B63-10291	05
Toggle operated double latch MSC-11377	B68-10117	05	Spiraled channels improve heat transfer between fluids JPL-694	B65-10291	02
Journal gas bearing for curved surfaces M-FS-20423	B69-10182	05	Volumetric system calibrates meters for large flow rates WOO-130	B65-10323	05
Air-cushion lift pad M-FS-14685	B69-10448	05	Optical output enhances flowmeter accuracy M-FS-482	B65-10395	02
LIPOPROTEINS Study of behavior of sterols at interfaces ARG-10085	B68-10281	03	Segmented ball valve is easy to open and close WOO-248	B66-10195	05
LIQUEFACTION Automatic thermal switch accelerates cooling-down of cryogenic system JPL-655	B65-10068	01	Soft-seal valve holds hazardous fluids safely LEWIS-275	B66-10216	05
Improved cryogenic refrigeration system JPL-731	B67-10128	02	Flow ring valve is simple, quick-acting M-FS-752	B66-10255	05
LIQUEFIED GASES Effect of interparticle forces on the fluidization of fine particles ARG-10264	B69-10195	03	O-rings with mylar back-up provide high-pressure cryogenic seal M-FS-603	B66-10278	05
LIQUID AIR Self-contained clothing system provides protection against hazardous environments M-FS-536	B66-10201	05	Vacuum test fixture improves leakage rate measurements MSC-271	B66-10286	01
LIQUID AMMONIA Production of solvated electrons ARG-10416	B69-10430	03	Fiber length and orientation prevent migration in fluid filters M-FS-541	B66-10319	05
LIQUID COOLING Probe measures characteristics of hot gas stream M-FS-240	B65-10133	02	High pressure cryogenic liquid flow sight assembly provides streamlined flow for easy observation LEWIS-310	B66-10394	01
Mount makes liquid nitrogen-cooled gamma ray detector portable LEWIS-259	B66-10103	01	Labyrinth-type valve seat increases valve life by decreasing fluid velocity M-FS-1051	B66-10424	05
Differential expansion provides pressure for diffusion bonding of large diameter rings M-FS-588	B66-10269	05	Miniature valve accurately controls small volume fluid flow ARG-66	B66-10473	05
Welds chilled by liquid coolant manifold M-FS-679	B66-10354	05	Computer program performs flow analysis through turbines LEWIS-236	B66-10496	01
New class of compounds have very low vapor pressures ARG-115	B67-10184	03	Rotational fluid coupling eliminates hose entanglements MSC-312	B66-10585	05
Quartz crystals detect gas contaminants during vacuum chamber evacuation NPO-10144	B67-10205	01	Positive displacement cylinder measures corrosive liquid volume MSC-1038	B66-10589	05
Computer program calculates peripheral water injection cooling of axisymmetric			Visco seal design offers zero-leakage and wear-free characteristics WSO-329	B67-10047	05

LIQUID-GAS MIXTURES

SUBJECT INDEX

Liquid hydrogen densitometer utilizes open-ended microwave cavity LEWIS-390	B67-10115	01	Superconductive thin film makes convenient liquid helium level sensor LANGLEY-10289	B68-10341	01
Self-sealing closure enables access to several fluid containers NPO-10123	B67-10207	04	Improved liquid-level sensor for cryogenics ARG-10162	B69-10210	02
Computer program predicts thermal and flow transients experienced in a reactor loss-of-flow accident NUC-10054	B67-10281	06	LIQUID HYDROGEN		
Circuit automatically calibrates flowmeter against liquid-level gage reference M-FS-2194	B67-10376	01	Low-cost insulation system for cryostats eliminates need for a vacuum LEWIS-64	B63-10365	03
Performance of turbine-type flowmeters in liquid hydrogen LEWIS-10137	B67-10506	01	Composite, vacuum-jacketed tubing replaces bellows in cryogenic systems LEWIS-67	B63-10368	05
Flow liner extends operating life of high-angulation bellows M-FS-12023	B67-10512	05	Low-cost seal compensates for surface irregularities NU-0016	B65-10160	05
Improved calorimeter provides accurate thermal measurements of space batteries GSFC-10003A	B67-10615	01	Control system maintains selected liquid level M-FS-470	B66-10039	01
Conceptual apparatus for detecting leaks of nonconductive liquids M-FS-14713	B68-10303	01	Complementary system vaporizes subcooled liquid, improves transformer efficiency M-FS-550	B66-10045	02
Semitoroidal-diaphragm cavitating valve designed for bipropellant flow control XNP-09704	B69-10016	05	Compound improves thermal interface between thermocouple and sensed surface NU-0028	B66-10121	02
A laboratory method for precisely determining the micro-volume-magnitudes of liquid efflux ARC-10052	B69-10295	05	Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02
A method for predicting interfacial freezing of a liquid flowing over a cold surface LEWIS-10813	B69-10321	02	Improved adhesive for cryogenic applications cures at room temperature WOO-132	B66-10185	03
Restricted-flow junction between liquids NPO-10682	B69-10332	02	Coating permits use of strain gage in water and liquid hydrogen M-FS-594	B66-10192	01
Flow properties of suspensions rich in solids ARG-10481	B69-10622	02	Leak locator for vacuum jacketed pipelines eliminates need for removal of outer jacket M-FS-888	B66-10412	01
LIQUID-GAS MIXTURES			In-tank shutoff valve is provided with maximum blast protection M-FS-1529	B66-10514	05
Centrifugal device separates liquid from gas MSC-282	B65-10394	05	Mixer conditions temperature of liquified gas streams M-FS-1784	B66-10565	02
LIQUID HELIUM			Liquid hydrogen densitometer utilizes open-ended microwave cavity LEWIS-390	B67-10115	01
Cryogenic filter method produces super-pure helium and helium isotopes JPL-374	B63-10235	03	Thermodynamic properties of saturated liquid parahydrogen charted for important temperature range NUC-10018	B67-10346	03
Superconductor shields test chamber from ambient magnetic fields JPL-627	B65-10297	02	Soft metal plating enables hard metal seal to operate successfully in low temperature, high pressure environment NUC-10083	B67-10350	03
Vacuum chamber provides improved insulation and support for cryostat M-FS-415	B65-10368	02	Performance of turbine-type flowmeters in liquid hydrogen LEWIS-10137	B67-10506	01
Niobium thin films are superconductive in strong magnetic fields at low temperatures JPL-SC-174	B66-10122	02	Development of detonation reaction engine M-FS-14020	B67-10652	01
Cryogenic liquid transfer system reduces residual boiloff LEWIS-274	B66-10157	02	Simple test for physical stability of cryogenic tank insulation M-FS-12547	B68-10048	03
Resistor monitors transfer of liquid helium LANGLEY-229	B66-10580	01	Device damps fluid pressure oscillations in vent valve M-FS-13290	B68-10078	05
Simple pump maintains liquid helium level in cryostat M-FS-1763	B67-10039	05	High-pressure gas facilitates calibration of turbine flowmeters for liquid hydrogen LEWIS-10402	B68-10145	01
Feed-thru conduit minimizes heat pickup JPL-847	B67-10619	05	Hydrogen safety manual		

SUBJECT INDEX

LIQUID METALS

LEWIS-10487	B68-10323	01	Test instrumentation evaluates electrostatic hazards in fluid system M-FS-2277	B67-10145	01
Heat transfer coefficients for liquid hydrogen turbopumps M-FS-18345	B68-10517	02	Electronic circuit provides automatic level control for liquid nitrogen traps KSC-10127	B68-10061	01
Fatigue failure in metal bellows due to flow-induced vibrations M-FS-18383	B69-10071	05	Cryogenic liquid level measuring probe ARG-10138	B68-10291	01
Design and testing of liquid hydrogen-cooled, ultrahigh-speed ball bearings M-FS-18453	B69-10178	05	Superconductive thin film makes convenient liquid helium level sensor LANGLEY-10289	B68-10341	01
Improved liquid-level sensor for cryogenics ARG-10162	B69-10210	02	Improved liquid-level sensor for cryogenics ARG-10162	B69-10210	02
Method for predicting pump cavitation performance LEWIS-10916	B69-10446	02	LIQUID METALS		
Modified cryogenic storage tank subsystem KSC-10380	B69-10556	02	Double gloves reduce contamination of dry box atmosphere LEWIS-211	B65-10117	03
Two-functional seal for hose connection M-FS-14062	B69-10588	05	Fluid damping reduces bellows seal fatigue failures M-FS-565	B66-10249	05
Technique for predicting the thermal expansion coefficients of cryogenic metallic alloys NUC-10554	B69-10707	02	Inductive system detects level of conducting fluids LEWIS-322	B66-10392	01
LIQUID INJECTION			Rubber and alumina gaskets retain vacuum seal in high temperature EMF cell ARG-17	B66-10472	05
Quick-hardening problems are eliminated with spray gun modification which mixes resin and accelerator liquids during application LANGLEY-6A	B63-10318	03	Flowmeter measures flow rates of high temperature fluids LEWIS-328	B66-10521	01
Elimination of rocket engine asymmetric loads during tests at sea level M-FS-1730	B66-10674	05	Crucible cast from beryllium oxide and refractory cement is impervious to flux and molten metal ARG-22	B66-10527	03
A method of determining combustion gas flow M-FS-13757	B67-10455	03	Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys ARG-199	B66-10594	03
LIQUID LASERS			Two techniques enable sampling of filtered and unfiltered molten metals ARG-150	B67-10034	03
Liquid laser cavities GSFC-10592	B69-10234	02	Solubility data are compiled for metals in liquid zinc ARG-149	B67-10191	03
LIQUID LEVELS			Substituting gold for silver improves electrical connections M-FS-2390	B67-10228	03
Liquid-level meter has no moving parts M-FS-3	B63-10378	03	Design for high-temperature /1800 deg F/ liquid metal pressure transducer LEWIS-10144	B67-10458	01
Oscillator circuit measures liquid level in tanks M-FS-245	B65-10209	01	Calibration technique for electromagnetic flowmeters LEWIS-10328	B67-10554	01
Photoelectric system continuously monitors liquid level M-FS-417	B65-10382	01	Concept to convert electrical power GSFC-10222	B68-10321	01
Control system maintains selected liquid level M-FS-470	B66-10039	01	Levitation-melting technique for metals and alloys ARG-10240	B69-10006	03
Bismuth alloy potting seals aluminum connector in cryogenic application WOO-260	B66-10138	03	Magnetohydrodynamic generators using two-phase liquid-metal flows ARG-10168	B69-10162	01
Device without electrical connections in tank measures liquid level WOO-235	B66-10198	01	Studies of cycles for liquid-metal magnetohydrodynamic generation of power ARG-10250	B69-10194	02
Gas diffuser facilitates withdrawal of cryogenic liquids from tanks M-FS-915	B66-10342	05	Induction probe determines levels of liquid metals ARG-10348	B69-10256	03
Inductive system detects level of conducting fluids LEWIS-322	B66-10392	01	Analysis of cell performance and thermal regeneration of a lithium-tin cell having		
Closed loop operation eliminates need for auxiliary gas in high pressure pumping station M-FS-893	B66-10408	05			
Automatic cryogenic liquid level controller is safe for use near combustible substances LEWIS-195	B66-10482	01			

LIQUID NITROGEN

SUBJECT INDEX

an immobilized fused-salt electrolyte ARG-10453	B69-10627	03	Infrared radiometer M-FS-13373	B67-10422	01
Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01	Technique eliminates high voltage arcing at electrode-insulator contact area LEWIS-10133	B67-10470	01
LIQUID NITROGEN			Self-aligning rod prevents eccentric loading of tensile specimens NUC-10525	B67-10594	05
Cryogenic filter method produces super-pure helium and helium isotopes JPL-374	B63-10235	03	Polystyrene cryostat facilitates testing tensile specimens under liquid nitrogen NUC-10522	B67-10613	02
Level of super-cold liquids automatically maintained by levelometer JPL-397	B63-10250	01	Test system accurately determines tensile properties of irradiated metals at cryogenic temperatures NUC-10521	B67-10617	02
Helium tube separates nitrogen gas from liquid nitrogen JPL-398	B63-10251	05	Tensile testing grips are easily assembled under liquid nitrogen NUC-10524	B67-10628	05
Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen LEWIS-15	B63-10340	05	Electronic circuit provides automatic level control for liquid nitrogen traps KSC-10127	B68-10061	01
Low-cost insulation system for cryostats eliminates need for a vacuum LEWIS-64	B63-10365	03	Viscosity and density of methanol/water mixtures at low temperatures M-FS-14991	B68-10274	03
Refractory ceramic has wide usage, low fabrication cost M-FS-67	B63-10481	03	Dual-purpose chamber-cooling system NPO-10467	B68-10506	02
Insulation accelerates rate of cooling with cryogenic fluid MSC-161	B65-10240	02	Levitation-melting technique for metals and alloys ARG-10240	B69-10006	03
Complementary system vaporizes subcooled liquid, improves transformer efficiency M-FS-550	B66-10045	02	Teflon-packed flexible joint LEWIS-90252	B69-10049	03
Mount makes liquid nitrogen-cooled gamma ray detector portable LEWIS-259	B66-10103	01	Direct measurement of carbon-14 in carbon dioxide by liquid scintillation counting ARG-10237	B69-10092	03
Bismuth alloy potting seals aluminum connector in cryogenic application WOO-260	B66-10138	03	Improved liquid-level sensor for cryogenics ARG-10162	B69-10210	02
Cryogenic liquid transfer system reduces residual boiloff LEWIS-274	B66-10157	02	Four-bar linkage for thermal compensation in test mounts for structures NPO-11059	B69-10298	05
Differential expansion provides pressure for diffusion bonding of large diameter rings M-FS-588	B66-10269	05	Direct in-vial collection for liquid-scintillation assay of carbon-14 and tritium ARG-10424	B69-10412	03
Closed loop operation eliminates need for auxiliary gas in high pressure pumping station M-FS-893	B66-10408	05	Thermal calibration target XGS-11144	B69-10419	01
Cryogenic cooling reduces high voltage arcing between electrodes operating in a vacuum ARG-109	B66-10499	02	Cryogenic fluid flow instabilities in heat exchangers M-FS-20438	B69-10541	02
Cold trap increases sensitivity of gas chromatography M-FS-1617	B66-10517	03	Burst diaphragm leak detector M-FS-14500	B69-10543	03
Technique for stripping Teflon insulated wire M-FS-1774	B67-10048	05	Control for maintaining constant level of a cryogenic liquid NPO-11177	B69-10573	05
Purification train produces ultrapure hydrogen gas M-FS-1913	B67-10078	03	LIQUID OXIDIZERS		
Inexpensive cryogenic insulation replaces vacuum jacketed line NUC-10061	B67-10264	02	Wide-range instrument monitors flow rates of chemically active fluids MSC-186	B66-10205	01
Study made of dielectric properties of promising materials for cryogenic capacitors M-FS-13620	B67-10366	03	Two-fluid, impinging-sheet injector NPO-10547	B68-10338	05
Concept for cryogenic liquid reclamation system NPO-10322	B67-10420	02	LIQUID OXYGEN		
			Crack detection method is safe in presence of liquid oxygen M-FS-236	B65-10107	03
			Protective coating withstands high temperature in oxidizing atmosphere M-FS-529	B66-10044	03

SUBJECT INDEX

LIQUID-VAPOR INTERFACES

Ultraviolet photographic pyrometer used in rocket exhaust analysis M-FS-499	B66-10095	02	M-FS-18191	B68-10394	03
Surfactant for dye-penetrant inspection is insensitive to liquid oxygen M-FS-475	B66-10131	03	LIQUID ROCKET PROPELLANTS		
Freon provides heat transfer for solid CO2 calibration standard M-FS-644	B66-10257	02	Machine tests crease durability of sheet materials JPL-604	B64-10178	05
Composite gaskets are compatible with liquid oxygen, resist compression set M-FS-455	B66-10395	03	Addition of solid oxidizer increases liquid fuel specific impulse JPL-861	B67-10058	03
In-tank shutoff valve is provided with maximum blast protection M-FS-1529	B66-10514	05	Flexible ring baffles for damping liquid slosh LANGLEY-90194	B68-10064	05
Synthesis of various highly halogenated monomers and polymers M-FS-2143	B67-10100	03	Hydrogen safety manual LEWIS-10487	B68-10323	01
Inexpensive cryogenic insulation replaces vacuum jacketed line NUC-10061	B67-10264	02	Semitoroidal-diaphragm cavitating valve designed for bipropellant flow control XNP-09704	B69-10016	05
Liquid oxygen dicting cleaned by falling film method M-FS-11816	B67-10299	03	Two-axis winch installer for heavy ducts in confined space M-FS-14254	B69-10062	05
Flow liner extends operating life of high-angulation bellows M-FS-12023	B67-10512	05	Two-step rocket engine bipropellant valve concept MSC-10951	B69-10280	05
Copper and nickel adherently electroplated on titanium alloy M-FS-13952	B67-10532	03	Computer simulation of high-frequency combustion instability and its suppression HQ-10391	B69-10368	06
Development of detonation reaction engine M-FS-14020	B67-10652	01	A biaxial weld strength prediction method M-FS-20019	B69-10471	05
Device damps fluid pressure oscillations in vent valve M-FS-13290	B68-10078	05	LIQUID SLOSHING		
Burst diaphragm leak detector M-FS-14500	B69-10543	03	Study made of large amplitude fuel sloshing M-FS-12381	B67-10439	03
Liquid oxygen-compatible insulation system M-FS-16113	B69-10599	03	Flexible ring baffles for damping liquid slosh LANGLEY-90194	B68-10064	05
LIQUID PHASES			Improved technique for digital simulation of bending and slosh phenomena M-FS-14788	B68-10570	02
Coaxial capacitor used to determine fluid density LEWIS-232	B65-10296	02	LIQUID SODIUM		
Combustion chamber inlet manifold separates vapor from liquid M-FS-531	B66-10052	05	Fluoride coatings make effective lubricants in molten sodium environment LEWIS-229	B66-10005	03
Thermodynamic properties related to expansion of two-component gas MSC-1133	B67-10112	03	Oxide film on metal substrate reduced to form metal-oxide-metal layer structure ARG-48	B67-10187	03
Gas chromatograph injection port protective device M-FS-18585	B69-10788	03	Spiral-grooved shaft seals substantially reduce leakage and wear LEWIS-10397	B68-10270	05
LIQUID POTASSIUM			LIQUID-SOLID INTERFACES		
Spiral-grooved shaft seals substantially reduce leakage and wear LEWIS-10397	B68-10270	05	Computer program MCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid NUC-10042	B67-10456	06
Liquid-metal-piston MHD generator ARG-10500	B69-10771	02	LIQUID-VAPOR EQUILIBRIUM		
LIQUID PROPELLANT ROCKET ENGINES			Closed fluid system without moving parts controls temperature LEWIS-222	B65-10331	02
Electroplating eliminates gas leakage in brazed areas M-FS-923	B66-10415	05	Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06
Monitoring circuit accurately measures movement of solenoid valve M-FS-1829	B66-10568	01	Improved liquid-level sensor for cryogenics ARG-10162	B69-10210	02
Nondestructive testing of brazed rocket engine components			LIQUID-VAPOR INTERFACES		
			Design concept for pressure switch calibrator HQ-36	B66-10598	01
			Large-amplitude inviscid fluid motion in an accelerating container		

LIQUIDS

SUBJECT INDEX

MSC-11560	B68-10170	02	high-resolution gamma ray spectroscopy ARG-10190	B69-10005	02
Dynamics of moving bubbles in single and binary component systems M-FS-14845	B68-10339	02	High-energy, high-power, long-life battery LEWIS-10724	B69-10131	01
LIQUIDS			Technical report on galvanic cells with fused-salt electrolytes ARG-10297	B69-10155	01
Automated microsyringe is highly accurate and reliable NPO-10142	B67-10203	01	Neutron therapy of cancer ARG-10310	B69-10203	04
Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations ARG-251	B67-10305	04	Multichannel analyzers at high rates of input ARG-10355	B69-10214	02
Device enables calibration of microphones at high sound pressure levels M-FS-11980	B67-10336	01	Development of structural test articles from magnesium-lithium and beryllium M-FS-14959	B69-10417	03
Vibration damping composition has flush-away feature M-FS-597	B67-10432	03	Analysis of secondary cells with lithium anodes and immobilized fused-salt electrolytes ARG-10452	B69-10613	01
Miniature paint-spray gun for recessed areas MSC-13060	B68-10387	05	Analysis of cell performance and thermal regeneration of a lithium-tin cell having an immobilized fused-salt electrolyte ARG-10453	B69-10627	03
Dispensing graduate for butadiene NPO-10070	B68-10524	03	Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06
Instruction manuals for liquid penetrant nondestructive testing M-FS-14010	B69-10278	05	Pulse-height defect due to electron interaction in dead layers of Ge/Li/ gamma-ray detectors ARG-10362	B69-10767	02
Leakage tester for flat conductor cable connector M-FS-20427	B69-10284	05	LITHIUM ALLOYS		
Laser action from a terbium beta-ketoenolate at room temperature GSFC-10593	B69-10324	02	Lightweight magnesium-lithium alloys show promise M-FS-17	B63-10389	03
A method for using surface tension to determine the size of holes in hardware MSC-15194	B69-10595	03	Adherent protective coatings plated on magnesium-lithium alloy M-FS-365	B65-10294	03
Direct determination of lead-210 by liquid-scintillation counting ARG-10462	B69-10611	03	Coating protects magnesium-lithium alloys against corrosion M-FS-2446	B67-10149	03
Dynamic calibration of turbine flowmeters LEWIS-11014	B69-10764	01	Magnesium-lithium alloys developed for low temperature use M-FS-1541	B67-10365	03
LISTS			LITHIUM ALUMINUM HYDRIDES		
Computerized parts list system coordinates engineering releases, parts control, and manufacturing planning NUC-10073	B67-10348	06	Mixed ether bath for electrodeposition of aluminum LANGLEY-10200	B69-10737	03
LITERATURE			LITHIUM COMPOUNDS		
Principles of optical-data processing techniques GSFC-10271	B68-10069	01	Screening technique makes reliable bond at room temperature M-FS-227	B65-10004	03
LITHIUM			Uranyl phthalocyanines show promise in the treatment of brain tumors ARG-100	B67-10188	04
Simplified method introduces drift fields into cells GSFC-572	B67-10102	03	Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01
Process controls introduction of selected impurities into semiconductor wafers GSFC-523	B67-10303	01	LITHIUM FLUORIDES		
One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06	Cesium iodide crystals fused to vacuum tube faceplates GSFC-67	B63-10476	03
Lithium-tellurium bimetallic cell has increased voltage ARG-10141	B68-10400	01	Fluoride coatings make effective lubricants in molten sodium environment LEWIS-229	B66-10005	03
High resolution Ge/Li/ spectrometer reduces rate-dependent distortions at high counting rates ARG-10144	B68-10420	01	Thermal neutron image intensifier tube provides brightly visible radiographic pattern ARG-120	B67-10296	02
Ge-diode detector combined with crystal-diffraction spectrometer permits					

SUBJECT INDEX

LOADS (FORCES)

LITHIUM HYDRIDES

Iron serves as diffusion barrier in thermally regenerative galvanic cell
ARG-29 B67-10189 03

Vanadium diaphragm electrode serves as hydrogen diffuser in lithium hydride cell
ARG-10048 B67-10499 01

LITHIUM SULFATES

Trace levels of metallic corrosion in water determined by emission spectrography
MSC-1193 B66-10701 03

LOAD DISTRIBUTION (FORCES)

Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates
ARG-151 B66-10601 05

Spherical pipe joint delivers loads equally to mating flange
M-PS-807 B66-10665 05

Elimination of rocket engine asymmetric loads during tests at sea level
M-PS-1730 B66-10674 05

Development of helical seal for high temperature /2000 degrees F/ application
M-PS-13304 B67-10655 05

Shock-absorbing caster wheel is simple and compact
SAN-10019 B68-10266 05

Modified Multhopp lifting surface loading program
LANGLEY-10375 B68-10452 06

Mechanical properties of a lap joint under uniform clamping pressure
M-PS-14538 B69-10141 05

Automatic leveling and equalizing hoist device
M-PS-16549 B69-10514 05

LOAD TESTING MACHINES

Apparatus permits flexure testing of specimens at cryogenic temperatures
M-PS-257 B65-10129 02

Friction loading device enables accurate testing of brittle materials
NU-0051 B66-10345 05

Device measures reaction engine thrust vector deviations
JPL-SC-163 B66-10642 05

Web belt load measuring instrument has excellent stability
MSC-921 B67-10242 01

LOAD TESTS

Apparatus permits flexure testing of specimens at cryogenic temperatures
M-PS-257 B65-10129 02

Tensile-strength apparatus applies high strain-rate loading with minimum shock
JPL-28 B66-10063 05

Analysis of stability-critical orthotropic cylinders subjected to axial compression
M-PS-12869 B67-10375 03

Study made of procedures for externally loading and corrosion testing stress corrosion specimens
M-PS-12064 B67-10451 03

Buckling strength of filament-wound cylinders under axial compression is investigated
HQ-10032 B67-10659 03

Shock and vibration response of multistage

structure
M-PS-14972 B68-10353 05

Calibrated water tank facilitates proof-loading of cranes and derricks
M-PS-15059 B69-10109 05

Optimum structural design based on reliability and proof-load testing
NPO-11228 B69-10723 31

LOADING

PTC thermistor protects multiloaded power supplies
GSFC-236 B64-10281 01

Experiments with ceramic coatings
M-PS-18150 B68-10355 03

LOADING OPERATIONS

Rapid billet loader aids extrusion of refractory metals
LEWIS-50 B63-10354 05

Self-balancing beam permits safe, easy load handling under overhang
M-PS-84 B63-10571 05

Speed-sensing device aids crane operators
WS-4 B64-10006 05

Compressed gas system operates semitrailer brakes during winching operation
JPL-0036 B64-10306 05

Universal transloader moves delicate equipment without stress
MSC-654 B66-10384 05

Self-actuating grapple automatically engages and releases loads from overhead cranes
ARG-81 B66-10522 05

Carriage system remotely moves drawer over extended distance
NU-0092 B66-10711 05

Hydrostatic force used to handle outsized, heavy objects
HQ-90 B67-10167 05

LOADING RATE

Shock absorber operates over wide range
MSC-168 B65-10241 05

Cut-through tester accurately measures insulation failure rates
M-PS-12506 B67-10354 03

Single-source mechanical loading system produces biaxial stresses in cylinders
M-PS-12530 B67-10380 05

LOADS (FORCES)

Elastic orifice automatically regulates gas bearings
JPL-135 B63-10123 05

Self-balancing beam permits safe, easy load handling under overhang
M-PS-84 B63-10571 05

Circuit controls transients in SCR inverters
GSFC-120 B63-10600 01

Buckle joins web straps quickly, adjusts easily
LANGLEY-21 B64-10119 05

Ring counter may be advanced or retarded by command signal
GSFC-101 B64-10144 01

Threading hook facilitates safe recovery of heavy loads
MSC-46 B64-10185 05

Shock absorber protects motive components

LOCKING

SUBJECT INDEX

against overloads W00-092	B65-10008	05	generating devices NPO-10350	B68-10203	01
Circuit improvement produces monostable multivibrator with load-carrying capability GSFC-34A	B65-10011	01	Experiments with ceramic coatings M-FS-18150	B68-10355	03
Fluid pressure used to test turbopump bearings NU-0001	B65-10024	03	Improved limiter for turn-on current transient GSFC-10413	B68-10384	01
Leaf-spring suspension provides accurate parallel displacements JPL-480	B65-10104	05	Internal velocity factors MSC-15002	B68-10403	06
Variable load automatically tests dc power supplies GSFC-291	B65-10105	01	Mass loading effects on vibrated ring and shell structures M-FS-14979	B68-10532	03
Unijunction frequency divider is free of backward loading JPL-W00-010	B65-10112	01	Computer program analyzes whirl critical speeds and bearing loads for shafts coupled by nonlinear springs to machine housing NUC-10308	B69-10034	06
Lightweight door seals cryogenic container against diaphragm type loading M-FS-476	B65-10402	05	General series solution technique for bending of irregular laterally loaded flat plates NUC-10170	B69-10035	06
Run-in with chemical additive protects gear surface M-FS-548	B66-10069	05	Determination of permissible applied load stress in structural elements M-FS-16556	B69-10823	02
Mechanism isolates load weighing cell during lifting of load MSC-297	B66-10071	05	LOCKING Simple mechanism combines positive locking and quick-release features W00-4	B63-10420	05
Calculations enable optimum design of magnetic brake LEWIS-251	B66-10073	05	Instrument adjustment knob locks to prevent accidental maladjustment M-FS-190	B64-10249	05
Plugged hollow shaft makes fatigue-resistant shear pin LANGLEY-195	B66-10077	05	Screw locking cups quickly and neatly crimped NU-0009	B65-10049	05
Computer program simplifies selection of structural steel columns NU-0044	B66-10097	01	Coiled spring makes self-locking device for threaded fasteners MSC-149	B65-10135	05
Mechanism continuously measures static and dynamic cable loads MSC-217	B66-10107	05	Solar cell submodule design facilitates assembly of lightweight arrays JPL-728	B66-10231	02
Binary fluid amplifier solves stability and load problems ERC-15	B66-10177	01	Flexible drive allows blind machining and welding in hard-to-reach areas MSC-524	B66-10428	05
Circuit increases capability of hysteresis synchronous motor MSC-1080	B67-10084	01	Adjustable, self-locking ladder includes optional work platform M-FS-1922	B67-10067	05
Web belt load measuring instrument has excellent stability MSC-921	B67-10242	01	Safety yoke would protect construction workers from falling KSC-10075	B67-10445	05
Rectilinear display gives acceleration load factor and velocity information MSC-1045	B67-10248	01	Magnetron tuner has locking feature XNP-09771	B69-10119	05
Improved computer program for elastic analysis of highly redundant structural configurations M-FS-13087	B67-10330	06	Improved design of item in high speed rotating machinery M-FS-18441	B69-10373	05
Heavy-gage bonded honeycomb sandwich as primary load-bearing structure M-FS-12060	B67-10427	05	LOCKS (FASTENERS) Simple key locks turbine rotor blades W00-103	B66-10023	05
Pump simulator provides variable pressure-flow characteristics LEWIS-10122	B67-10453	05	Key-locked guard prevents accidental switch actuation MSC-419	B66-10235	05
Computer program performs rectangular fitting stress analysis M-FS-13010	B67-10520	06	Latching mechanism operates in limited access area MSC-230	B66-10338	05
Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles LANGLEY-10093	B67-10531	06	Lock-disconnect mechanism gives positive release to joined bodies M-FS-2147	B67-10123	05
Electronic load for testing power			Work platform is supported by self-locking blades M-FS-2297	B67-10180	05

SUBJECT INDEX

LOGIC CIRCUITS

Line adapter provides quick disconnect under moderate side loading M-FS-2159	B67-10256	05	conversion for radio transmission GSFC-80	B63-10511	01
Reconnect mechanism M-FS-12968	B67-10670	05	Computer circuit will fit on single silicon chip JPL-513	B63-10514	01
Boyd-bolt, a positive-latch, simple-release fastener MSC-13061	B68-10512	05	Ring counter may be advanced or retarded by command signal GSFC-101	B64-10144	01
Astronaut's tool for withdrawing/replacing computer cards M-FS-20453	B69-10183	05	Novel circuit combines pulse stretcher with NOR gate GSFC-187	B64-10150	01
Piezoelectric lock mechanism resists lockpicking SAN-10037	B69-10281	01	Pneumotachometer counts respiration rate of human subject MSC-92	B64-10259	01
Countersunk headscrew retainer M-FS-16481	B69-10282	05	Logic redundancy improves digital system reliability JPL-SC-069	B65-10025	01
Removal of retaining washers of the waffle-spring type MSC-15531	B69-10350	05	System selects framing rate for spectrograph camera LANGLEY-55	B65-10086	01
LOG PERIODIC ANTENNAS			Logic circuit exhibits optimum performance LANGLEY-129	B65-10193	01
Antenna configurations provide polarization diversity GSFC-74	B66-10066	01	Delayed ripple counter simplifies square-root computation GSFC-398	B65-10343	01
LOGARITHMIC RECEIVERS			Simple circuit performs binary addition and subtraction GSFC-399	B65-10355	01
Transistor circuit increases range of logarithmic current amplifier NU-0018	B66-10350	01	Queuing register uses fluid logic elements M-FS-317	B66-10100	05
Use of both linear and logarithmic transfer functions to increase dynamic range of visual channel GSFC-10675	B69-10037	01	New television camera eliminates vidicon tube M-FS-472	B66-10112	01
LOGARITHMS			Simplified circuit corrects faults in parallel binary information channels JPL-SC-090	B66-10261	01
Logarithmic amplifier uses field effect transistors JPL-509	B65-10145	01	Binary sequence detector uses minimum number of decision elements JPL-673	B66-10264	01
Simple scale interpolator facilitates reading of graphs LEWIS-92	B66-10302	05	Exclusive-or logic circuit has useful properties LANGLEY-214	B66-10272	01
Stress calculator speedily converts strain data M-FS-2021	B67-10182	03	Single channel pulse-height analyzer operates in subnanosecond range LEWIS-267	B66-10377	01
Solubility data are compiled for metals in liquid zinc ARG-149	B67-10191	03	System monitors discrete computer inputs M-FS-1021	B66-10389	01
SiC/Si diode trigger circuit provides automatic range switching for log amplifier M-FS-1879	B67-10314	01	Logic system aids in evaluation of project readiness MSC-753	B66-10457	05
General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-FS-13094	B67-10331	06	Instrument automatically selects peak acceleration signal from several accelerometers JPL-816	B66-10462	01
Study of corrosion of 1100 aluminum ARG-10045	B67-10578	03	Bipolar current driver for memory circuits GSFC-213	B66-10469	01
Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01	Digital system provides superregulation of nanosecond amplifier-discriminator circuit ARG-61	B66-10500	01
Accurate nine-decade temperature-compensated logarithmic amplifier ARG-10480	B69-10429	01	Nixie tube display unit employs time-shared logic ARG-117	B66-10512	01
LOGIC			Apparatus enables automatic microanalysis of body fluids JPL-962	B66-10515	04
Parallel-to-serial biphase-data converter MSC-11600	B68-10241	01	One-count memory circuit prevents machine mode interaction		
Fluidic-thermochromic display device ERC-10031	B68-10350	01			
LOGIC CIRCUITS					
Frequency-shift-keyer circuit improves PCM					

LOGIC DESIGN

SUBJECT INDEX

ARG-90	B66-10559	01	M-FS-20532	B69-10676	01
Fluid logic control circuit operates nutator actuator motor			Pulse-code-modulation baseline correction for low signal-to-noise ratios		
LEWIS-294	B66-10593	05	MSC-13268	B69-10750	01
Logic circuitry used to automatically test shielded cables			LOGIC DESIGN		
HQ-60	B66-10659	01	Delayed ripple counter simplifies square-root computation		
Hybrid solid state switch replaces motor-driven power switch			GSFC-398	B65-10343	01
JPL-931	B67-10165	01	Review of research and development in fluid logic elements		
Computer program simulates physical systems by solving the simultaneous differential equations describing the systems			M-FS-420	B67-10438	01
NPO-10019	B67-10193	06	Exact minimal-state system reliability analysis		
Solid state circuit averages multiple signals and rejects those varying significantly from the average			M-FS-16551	B69-10409	06
NUC-10066	B67-10262	01	Programmed schedule holds for improving launch vehicle holds		
Current steering commutator offers versatility			M-FS-14502	B69-10602	03
JPL-812	B67-10410	01	LOGICAL ELEMENTS		
Logic realization of simple majority voting connectives			Digital logic elements provide additional functions from analog input		
JPL-727	B67-10511	06	MSC-64	B64-10064	01
Logic circuit detects both present and missing negative pulses in superimposed wave trains			Circuit maintains digital decision threshold at preset level		
M-FS-12518	B67-10565	01	M-FS-331	B65-10281	01
Self-correcting, synchronizing ring counter using integrated circuit devices			Frequency discriminator with binary output eliminates tuned circuits		
M-FS-13901	B68-10067	01	M-FS-376	B65-10349	01
Digital filter suppresses effects of nonstatistical noise bursts on multichannel scaler digital averaging systems			Binary counter accumulates time by complementary preset		
ARG-90143	B68-10193	06	MSC-242	B65-10399	01
Gimbal angle sensor			Queuing register uses fluid logic elements		
GSFC-10305	B68-10315	01	M-FS-317	B66-10100	05
Closed circuit TV system automatically guides welding arc			Simplified circuit corrects faults in parallel binary information channels		
M-FS-20084	B68-10357	01	JPL-SC-090	B66-10261	01
Short circuit protection for a power distribution system			Binary sequence detector uses minimum number of decision elements		
M-FS-14993	B68-10443	01	JPL-673	B66-10264	01
Isolated, multiple-output voltage dc-to-dc converter			Technique for improving solid state mosaic images		
M-FS-14976	B69-10014	01	M-FS-20532	B69-10676	01
Simple tunnel diode circuit for accurate zero crossing timing			LOGISTICS		
ARG-10309	B69-10116	01	Design and sparing techniques to meet specified performance life		
Integrated circuit with multiple collector current source			HQ-10200	B69-10528	02
M-FS-20177	B69-10126	01	LONG TERM EFFECTS		
Self-starting circuit for switching regulators			Electrometer has automatic zero bias control		
LEWIS-10686	B69-10128	05	GSFC-350	B65-10242	01
Miniaturization of magnetic logic circuitry			Spiral-grooved shaft seals substantially reduce leakage and wear		
LANGLEY-10037	B69-10148	06	LEWIS-10397	B68-10270	05
Pneumatic analog-to-pulse frequency converter			LONGITUDE		
LEWIS-10345	B69-10276	02	GMT/local-time conversion chart		
Visual task analysis /VISTA/			GSFC-10521	B67-10548	01
M-FS-14716	B69-10394	06	Theory of a refined earth model		
Special purpose computer provides programmable digital filter for sampled-data control systems			M-FS-14679	B68-10228	02
M-FS-20290	B69-10454	06	LONGITUDINAL STABILITY		
Technique for improving solid state mosaic images			Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles		
			LANGLEY-10093	B67-10531	06
			LONGITUDINAL WAVES		
			An ultrasonic method for studying elastic moduli as a function of temperature		
			ARG-10187	B69-10082	02
			LOOP ANTENNAS		
			Improved VHF direction finding system		
			M-FS-20439	B69-10378	01

SUBJECT INDEX

LOW FREQUENCIES

Pocket-sized tone-modulated FM transmitter NPO-11180	B69-10725	01	MSC-206	B67-10298	01
LOOPS			LOUVERS		
Variable frequency magnetic multivibrator generates stable square-wave output GSFC-AE-21	B65-10124	01	Magnetic latches provide positive overpressure control NU-0057	B66-10279	05
Sensitive electrometer features digital output GSFC-288	B65-10206	01	LOW CONCENTRATIONS		
Simple BCD circuit accurately counts to 24 GSFC-317	B65-10225	01	Apparatus automatically measures soluble residue content of volatile solvents SAN-10032	B69-10292	03
Field effect transistor presents high input impedance in ac amplifier JPL-500	B65-10232	01	LOW COST		
Electronic phase-locked-loop speed control system is stable JPL-SC-084	B66-10232	01	Low-cost insulation system for cryostats eliminates need for a vacuum LEWIS-64	B63-10365	03
An investigation of phase-lock loop swept-frequency synchronization M-FS-656	B66-10423	01	Connector for vacuum-jacketed lines cuts tubing system cost LEWIS-66	B63-10367	05
System precisely controls oscillation of vibrating mass M-FS-1875	B67-10276	01	Portable display paneling has wide use, easy take down and assembly ARC-17	B63-10435	05
Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01	Refractory ceramic has wide usage, low fabrication cost M-FS-67	B63-10481	03
Circuit measures hysteresis loop areas at 30 Hz M-FS-13069	B67-10519	01	Fine-particle filter prevents damage to vacuum pumps LEWIS-106	B63-10489	05
General frequency response program calculates frequency response of system, open at any specified element M-FS-12817	B67-10521	06	Low-cost tape system measures velocity of acceleration GSFC-85	B63-10512	01
Improved phase locked loop receiver GSFC-09561	B68-10008	01	Metal-bending brake facilitates lightweight, close-tolerance fabrication ARC-29	B64-10069	05
Phase-lock loop frequency control and the dropout problem M-FS-13948	B68-10130	01	Welding procedures improves quality of welds, offers other advantages M-FS-32	B64-10309	01
Performance statistics of the FORTRAN 4 /H/ library for the IBM system/360 ARG-10299	B69-10157	06	Illuminated display panel is easily changed MSC-108	B65-10003	05
Reducing quantizer deadband with a **range switching** digital filter M-FS-20419	B69-10259	01	Regenerative fuel cell combines high efficiency with low cost WOO-090	B65-10363	01
Sweep frequency detector NPO-10669	B69-10289	01	Thermoplastic rubberlike material produced at low cost JPL-793	B66-10453	03
New passive telemetry system HQ-10214	B69-10312	01	Multichannel pulse height analyzer is inexpensive, features low power requirements HQN-10020	B67-10258	01
Simple, accurate automatic frequency control circuit KSC-10393	B69-10323	01	LOW DENSITY MATERIALS		
A method for reducing sampling jitter in digital control systems NPO-11088	B69-10338	01	Organic reactants rapidly produce plastic foam LANGLEY-37	B65-10288	03
Wide-band doubler and sine wave quadrature generator NPO-11133	B69-10383	01	LOW FREQUENCIES		
LOSSES			Ultrasonic emission method enables testing of adhesive bonds M-FS-799	B66-10341	01
Correction for losses in optical birefringent networks, a concept M-FS-20088	B68-10571	02	Polarimeter provides transient response in nanosecond range JPL-890	B67-10021	02
Reidentifying hardware after loss of serial number M-FS-18133	B69-10059	05	Glow discharge density sensor probe life is extended M-FS-1707	B67-10229	01
LOUDNESS			Study made of anodized aluminum circuit boards M-FS-13580	B67-10425	01
Electronic dummy for acoustical testing			Low-loss C-band parasitic probe KSC-09348	B69-10251	01
			Improved ferrous shielding for flat cables M-FS-14524	B69-10401	01

LOW PASS FILTERS

SUBJECT INDEX

LOW PASS FILTERS

Unmanned seismometer levels self, corrects drift errors
GSFC-100 B63-10551 01

Computer determines high-frequency phase stability
GSFC-113 B63-10555 01

Voltage variable oscillator has high phase stability
LANGLEY-123 B65-10204 01

Hybrid computer technique yields random signal probability distributions
ARC-34 B65-10208 01

PCM magnetic tape system efficiently records and reproduces data
GSFC-375 B65-10311 01

Noncontacting vibration transducer has constant sensitivity
LANGLEY-99 B65-10392 01

Compact microwave mixer has high conversion efficiency
GSFC-197 B66-10625 01

Polarimeter provides transient response in nanosecond range
JPL-890 B67-10021 02

Circuit multiplies pulse width modulation, exhibits linear transfer function
HQ-56 B67-10055 01

TV synchronization system features stability and noise immunity
JPL-915 B67-10118 01

Stable ac phase and amplitude comparator
M-FS-13086 B67-10459 01

Light-controlled resistors provide quadrature signal rejection for high-gain servo systems
WSO-340 B67-10552 01

Design of dissipative linear phase filters
M-FS-14698 B68-10572 01

Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons
ARG-10220 B69-10211 02

A method for reducing sampling jitter in digital control systems
NPO-11088 B69-10338 01

Phase-locked-loop phase modulator with high modulation index, low distortion
MSC-12247 B69-10487 01

Data processing method for a weak, moving telemetry signal
NPO-11003 B69-10639 01

LOW PRESSURE

Cryogenic filter method produces super-pure helium and helium isotopes
JPL-374 B63-10235 03

Sensitive low-pressure relief valve has positive seating against leakage
WOO-041 B64-10278 05

Transducer measures force in vacuum environment
LEWIS-218 B66-10161 01

Magnetic latches provide positive overpressure control
NU-0057 B66-10279 05

Low rate flow switch can be used for gas or liquid
JPL-867 B66-10696 01

Cryogenic seal remains leaktight during thermal displacement
ARG-96 B67-10134 02

Aspirator increases relief valve poppet stroke
HQ-77 B67-10154 05

New class of compounds have very low vapor pressures
ARG-115 B67-10184 03

Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi
NUC-10067 B67-10263 01

Experiments to investigate particulate materials in reduced gravity fields
M-FS-13308 B67-10394 02

Absolute low-pressure calibration system
M-FS-13085 B68-10160 02

Performance of low-pressure thermionic converters is evaluated
ARG-10276 B69-10090 01

Concept for improved vacuum pressure measuring device
M-FS-20172 B69-10421 02

Measurement of gas flow at extremely low pressures
MSC-13261 B69-10522 03

Fluid sample collection and storage device
MSC-10962 B69-10816 05

LOW RESISTANCE

Thin film process forms effective electrical contacts on semiconductor crystals
M-FS-2343 B67-10142 01

LOW SPEED

Dry film lubricant is effective at extreme loads
M-FS-628 B66-10256 03

LOW TEMPERATURE

High-pressure, low temperature electrical connector makes no-leak seal
MSC-276 B66-10079 02

Cryostat modified to aid rotating beam fatigue test
M-FS-435 B66-10083 03

Storage-stable foamable polyurethane is activated by heat
LANGLEY-187 B66-10111 03

Compound improves thermal interface between thermocouple and sensed surface
NU-0028 B66-10121 02

Niobium thin films are superconductive in strong magnetic fields at low temperatures
JPL-SC-174 B66-10122 02

Optical gyro pickoff operates at cryogenic temperatures
M-FS-407 B66-10128 01

Cryogenic liquid transfer system reduces residual boiloff
LEWIS-274 B66-10157 02

Improved adhesive for cryogenic applications cures at room temperature
WOO-132 B66-10185 03

Freon provides heat transfer for solid CO2 calibration standard
M-FS-644 B66-10257 02

O-rings with mylar back-up provide high-pressure cryogenic seal
M-FS-603 B66-10278 05

SUBJECT INDEX

LOW VOLTAGE

Bimetallic devices help maintain constant sealing forces down to cryogenic temperatures M-FS-800 B66-10325	02	ARG-10403	B69-10257	03
Composite gaskets are compatible with liquid oxygen, resist compression set M-FS-455 B66-10395	03	Thermal conductivity probe M-FS-20566	B69-10780	03
Metal boot permits fabrication of hermetically sealed splices in metal sheathed instrumentation cables NU-0083 B66-10704	05	LOW TEMPERATURE BRAZING		
Improved cryogenic refrigeration system JPL-731 B67-10128	02	Coating method enables low-temperature brazing of stainless steel NU-0030	B65-10250	03
Study of yttrium iron garnet rods reveals new magnetostatic echo mode ERC-37 B67-10153	01	Manganese-alumina-ceramic glass eliminates rigid controls necessary in bonding metals to ceramics SAN-10012	B68-10204	03
Heat treatment study of aluminum casting alloy M45 M-FS-2397 B67-10159	03	LOW TEMPERATURE ENVIRONMENTS		
Study made of Raney nickel technology M-FS-2054 B67-10208	03	Gallium useful bearing lubricant in high-vacuum environment LEWIS-12	B63-10337	03
High-strength tungsten alloy with improved ductility LEWIS-10257 B67-10340	03	Fluoride coatings make effective lubricants in molten sodium environment LEWIS-229	B66-10005	03
Soft metal plating enables hard metal seal to operate successfully in low temperature, high pressure environment NUC-10083 B67-10350	03	Self-contained clothing system provides protection against hazardous environments M-FS-536	B66-10201	05
Magnesium-lithium alloys developed for low temperature use M-FS-1541 B67-10365	03	Fluid damping reduces bellows seal fatigue failures M-FS-565	B66-10249	05
Study made of dielectric properties of promising materials for cryogenic capacitors M-FS-13620 B67-10366	03	Resistance thermometer has linear resistance-temperature coefficient at low temperatures WOO-190	B66-10612	01
Lamp enables measurement of oxygen concentration in presence of water vapor MSC-10043 B67-10387	01	New weldable high strength aluminum alloy developed for cryogenic service M-FS-737	B66-10613	05
Dynamic valve seal is reliable at cryogenic temperatures M-FS-12987 B67-10526	05	Cold solid propellant motor has stop-restart capability JPL-836	B66-10673	03
Lead plated aluminum ring provides static high pressure seal for large diameter pressure vessel NUC-10008 B67-10539	05	Excellent spring properties developed in two nickel alloys for use at cryogenic temperatures NUC-10084	B67-10349	03
Development of dual solid cryogens for high reliability refrigeration system GSFC-10188 B67-10644	02	Superconducting switch permits measurement of small voltages at cryogenic temperatures ARG-90260	B68-10087	01
Cryogenic seal concept for static and dynamic conditions M-FS-12986 B67-10673	05	Electrochemical cell has internal resistive heater element GSFC-10358	B68-10325	01
Fire retardant foams developed to suppress fuel fires ARC-10098 B68-10358	03	LOW TEMPERATURE PHYSICS		
Fiber glass prevents cracking of polyurethane foam insulation on cryogenic vessels M-FS-20058 B68-10406	02	Development of low temperature battery LEWIS-10326	B67-10546	01
Materials data handbook, aluminum alloy 6061 M-FS-20381 B69-10065	03	Synthesis of pure aromatic glycidyl esters for use as adhesives M-FS-12705	B67-10647	03
Adhesive for cryogenic temperature applications LEWIS-10264 B69-10074	03	LOW TEMPERATURE TESTS		
Manual of typical low temperature mechanical properties of several materials M-FS-18331 B69-10179	03	Cryogenic fatigue data developed for Inconel 718 M-FS-702	B67-10049	03
Method for copper staining of germanium crystals		Dual-purpose chamber-cooling system NPO-10467	B68-10506	02
		Tensile and fatigue properties of Inconel 718 at cryogenic temperatures M-FS-18192	B69-10068	03
		Self-lubricating gear M-FS-14971	B69-10408	05
		LOW VOLTAGE		
		Circuit protects regulated power supply against overload current GSFC-453	B66-10292	01
		Wideband, high efficiency optical modulator requires less than 10 watts drive power M-FS-12733	B67-10289	01

LUBRICANT TESTS

SUBJECT INDEX

Thermionic diode switching has high temperature application NPO-10404	B67-10672	01	LEWIS-10812	B69-10250	03
Solid state high-voltage pulser operates with low supply voltage M-FS-14034	B68-10308	01	LUBRICATING OILS		
Millivolt signal limiter LEWIS-90297	B69-10015	01	Ohmmeter senses depletion of lubricant in journal bearings LEWIS-37	B64-10042	01
LUBRICANT TESTS			Unique gear design provides self-lubrication JPL-SC-079	B65-10366	03
Molybdenum disulfide mixtures make effective high-vacuum lubricants M-FS-54	B63-10453	03	Radioactive tracer system detects oil contaminants in fluid lines M-FS-512	B66-10090	03
Electron bombardment improves vacuum chamber efficiency LEWIS-160	B65-10280	02	Air bearing provides friction-free support for shaker system slip table NU-0086	B66-10708	05
Machine tests slow-speed sliding friction in high vacuum M-FS-12341	B67-10379	05	Design concept to decrease relative speed of ball bearings M-FS-2003	B67-10212	05
High-temperature bearing lubricants LEWIS-10408	B68-10249	05	High-temperature bearing lubricants LEWIS-10408	B68-10249	05
LUBRICANTS			Dynamic-reservoir lubricating device M-FS-14652	B68-10261	05
Gallium useful bearing lubricant in high-vacuum environment LEWIS-12	B63-10337	03	Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01
Molybdenum disulfide mixtures make effective high-vacuum lubricants M-FS-54	B63-10453	03	LUBRICATION		
Burnishing technique improves lubrication of threaded fasteners LEWIS-217	B65-10302	03	Tester for study of rolling element bearings LEWIS-305	B67-10009	01
Run-in with chemical additive protects gear surface M-FS-548	B66-10069	05	Solenoid valve design has one moving part NPO-10039	B67-10219	05
Gallium alloy films investigated for use as boundary lubricants LEWIS-245	B66-10165	03	Standard surface grinder for precision machining of thin-wall tubing ARG-10014	B67-10400	05
Copper-acrylic enamel serves as lubricant for cold drawing of refractory metals ARG-54	B66-10471	05	Between-bearing shaft seal, a concept M-FS-18179	B68-10286	05
Film coating permits low-force scribing MSC-990	B66-10609	03	Precise gimballing mechanism NPO-11057	B69-10270	01
Improved rolling element bearings provide low torque and small temperature rise in ultrahigh vacuum environment LEWIS-359	B66-10678	05	Hermetically sealed pump LEWIS-10837	B69-10320	05
Valve effectively controls amount of contaminant in flow stream M-FS-1771	B66-10683	05	Study of high-speed angular-contact ball bearings under dynamic load M-FS-20562	B69-10367	05
Development of technology for hot-drape forming of large torus sections M-FS-12141	B67-10341	05	Freon, T-B1 cutting fluid MSC-11486	B69-10485	05
Improved sample capsule for determination of oxygen in hemolyzed blood MSC-11017	B67-10408	04	Burst diaphragm leak detector M-FS-14500	B69-10543	03
Electromechanical rotary actuator operates over wide temperature range M-FS-18402	B69-10100	05	LUBRICATION SYSTEMS		
Tools made of ice facilitate forming of soft, sticky materials KSC-10262	B69-10199	05	Miniature bearings lubricated by sonic dispersion method M-FS-202	B65-10106	03
Diffusion bond method of joining steel and a TFE-bronze composite M-FS-20482	B69-10237	03	Squeeze-film gas bearing technology M-FS-14821	B68-10180	05
Remote balance weighs accurately amid high radiation ARG-10387	B69-10242	05	Dynamic-reservoir lubricating device M-FS-14652	B68-10261	05
A new solid lubricant			Nozzles for size reclassification of microfog particles LEWIS-10705	B69-10076	05
			Self-lubricating gear M-FS-14971	B69-10408	05
			LUGS		
			Improved solderless connector is easily disconnected JPL-SC-060	B65-10197	01
			T-handle wrench has torque-limiting action MSC-280	B66-10065	05
			Calibrated water tank facilitates proof-		

SUBJECT INDEX

LUMINOUS INTENSITY

loading of cranes and derricks M-FS-15059	B69-10109	05	Preparation of silver-activated zinc sulfide thin films GSFC-10687	B68-10271	03
Adjustable wrench for electronic connectors M-FS-18547	B69-10184	05	Rocket sonde measurements of ozone in the upper atmosphere GSFC-10580	B69-10077	02
An improved method for electrical cable terminations NPO-10694	B69-10327	01	Mass culture of photobacteria to obtain luciferase GSFC-10563	B69-10294	04
LUMINAIRES			LUMINOSITY		
Simple circuit continuously monitors thermocouple sensor M-FS-61	B63-10567	01	Rapid-response, light-exposure control system NPO-10238	B68-10502	01
Attachment converts microscope to point source autocollimator JPL-499	B64-10124	05	Occulting-filter method for obtaining flashing-light visibility data MSC-13097	B69-10107	02
Electronic device simulates respiration rate and depth MSC-89	B64-10255	01	LUMINOUS INTENSITY		
Electrodeless discharge lamp is easily started, has high stability WOO-030	B66-10015	01	Solar-angle sensor has no moving parts JPL-418	B63-10260	02
Lamp automatically switches to new filament on burnout M-FS-498	B66-10046	01	Variable light source with a million-to-one intensity ratio JPL-WOO-008	B63-10424	03
Thin carbon film serves as UV bandpass filter ERC-8	B66-10060	02	System selects framing rate for spectrograph camera LANGLEY-55	B65-10086	01
Circular, explosion-proof lamp provides uniform illumination MSC-382	B66-10156	02	High-intensity flashing beacon powered by mercury cells LANGLEY-80	B65-10361	01
Two-light circuit continuously monitors ac ground, phase, and neutral wires MSC-356	B66-10163	01	Optical output enhances flowmeter accuracy M-FS-482	B65-10395	02
Multicolor stroboscope pinpoints resonances in vibrating components JPL-0033	B66-10223	01	Small, high-intensity flasher permits continuous close-in photography NU-0043	B66-10119	03
High-speed furnace uses infrared radiation for controlled brazing NU-0047	B66-10268	02	Apparatus presents visual display of semiconductor surface characteristics JPL-665	B66-10200	01
A radiometer-pyrometer LEWIS-284	B66-10606	01	Point-source light sensor circuit is insensitive to background light JPL-778	B66-10502	01
Self-balancing line-reversal pyrometer automatically measures gas temperatures LEWIS-348	B67-10268	01	Light-intensity modulator withstands high heat fluxes MSC-246	B66-10532	02
Lamp enables measurement of oxygen concentration in presence of water vapor MSC-10043	B67-10387	01	Photocell shadowing technique improves light source detector JPL-809	B66-10564	01
Proposed method of rotary dynamic balancing by laser M-FS-12422	B67-10452	02	Cleanroom air sampler counts, categorizes, and records particle data M-FS-2221	B67-10076	01
Low cost SCR lamp driver indicates contents of digital computer registers GSFC-10221	B67-10656	01	Self-balancing line-reversal pyrometer automatically measures gas temperatures LEWIS-348	B67-10268	01
Superconductive thin film makes convenient liquid helium level sensor LANGLEY-10289	B68-10341	01	Nonreciprocal gain control for ring laser M-FS-14041	B67-10653	02
Flow angle sensor and readout system LEWIS-90298	B69-10050	01	Improvement in recording and reading holograms ERC-10151	B68-10347	02
Automatic frequency control of voltage-controlled oscillators NPO-11064	B69-10569	01	Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02
LUMINESCENCE			Automatic solar lamp intensity control system XGS-10017	B68-10399	01
Modification increases light output of injection-luminescent diodes M-FS-192	B65-10006	01	Fluorescent photography of spray droplets using a laser light source LEWIS-10777	B69-10122	02
Luminescent screen composition for cathode ray tubes ERC-19	B68-10056	01	Improved method of fabricating planar gallium arsenide diodes XNP-04235	B69-10271	01

LUMPING

SUBJECT INDEX

Fine-line sensitivity for holographic interferograms HQ-10348	B69-10663	02	
Quantitative determination of flavin nucleotide using the bacterial bioluminescent reaction GSFC-10565	B69-10715	04	
LUMPING			
Shock and vibration response of multistage structure M-PS-14972	B68-10353	05	
LUNAR ATMOSPHERES			
Ion mass spectrometer for special uses HQ-10418	B69-10510	02	
LUNAR COMMUNICATION			
Method of directing a laser beam with very high accuracy NPO-11087	B69-10508	02	
LUNAR COMPOSITION			
Study made of far infrared spectra of silicate minerals M-PS-1811	B67-10075	02	
Development of lunar drill to take core samples to 100-foot depths M-PS-13015	B67-10529	05	
LUNAR ENVIRONMENT			
Method for X-ray study under extreme temperature and pressure conditions MSC-11232	B67-10474	02	
Development of lunar drill to take core samples to 100-foot depths M-PS-13015	B67-10529	05	
LUNAR EXPLORATION			
Technique simulates effect of reduced gravity LANGLEY-44	B64-10146	04	
LUNAR GEOLOGY			
Nondispersive X-ray emission analysis for geochemical exploration GSFC-10568	B69-10011	02	
LUNAR GRAVITATIONAL EFFECTS			
Technique simulates effect of reduced gravity LANGLEY-44	B64-10146	04	
LUNAR LAUNCH			
Computer program for mass optional solutions of some endpoint trajectory problems M-PS-12976	B67-10310	06	
LUNAR MODULE			
Diffusion technique stabilizes resistor values MSC-205	B66-10142	01	
Astronaut space suit communication antenna MSC-12101	B68-10238	01	
LM lookangle program MSC-13179	B69-10370	06	
LUNAR ORBITER			
An overview of electromagnetic interference problems in spacecraft NPO-11170	B69-10362	01	
LUNAR PHOTOGRAPHY			
Subminiature deflection circuit operates integrated sweep circuits in TV camera MSC-1263	B67-10155	01	
LUNAR SEISMOGRAPHS			
Unmanned seismometer levels self, corrects drift errors GSFC-100	B63-10551	01	
LUNAR SOIL			
Thermal conductivity and dielectric constant of silicate materials M-PS-14856	B68-10351	03	
LUNAR SPACECRAFT			
Three-axis attitude and direction reference instrument has only one moving part M-PS-1819	B66-10644	01	
Computer program determines thermal environment and temperature history of lunar orbiting space vehicles M-PS-12916	B67-10307	06	
Earth orbit rendezvous evaluation program M-PS-13016	B67-10407	06	
LUNAR TOPOGRAPHY			
Development of lunar drill to take core samples to 100-foot depths M-PS-13015	B67-10529	05	
Combination ranging system and mapping radar NPO-11001	B69-10325	01	
Stereo TV enhancement study M-PS-14805	B69-10497	01	
LUNGS			
Device induces lungs to maintain known constant pressure MSC-50	B64-10108	04	
Study of radiation effects on mammalian cells in vitro ARG-10191	B68-10294	02	
LYSOZYME			
Microorganisms detected by enzyme-catalyzed reaction JPL-782	B66-10117	04	
M			
MACH NUMBER			
Venturi meter with separable diffuser LEWIS-10483	B68-10295	05	
Flow direction measurement with fixed probes LEWIS-11044	B69-10714	02	
MACHINE ORIENTED LANGUAGES			
FORTAN program flow chart is automatically produced M-PS-369	B66-10062	01	
Automated drafting system uses computer techniques M-PS-788	B66-10362	01	
Transient Analysis Generator /TAG/ simulates behavior of large class of electrical networks NPO-10031	B67-10319	06	
Assembly processor program converts symbolic programming language to machine language M-PS-13262	B67-10493	06	
HICOV - Newton-Raphson calculus of variation with automatic transversalities M-PS-14468	B68-10232	06	
JPLIP-JPL FORTRAN language with interval pre-processor NPO-10835	B69-10187	06	
MACHINE TOOLS			
Setting of angles on machine tools speeded by magnetic protractor ARC-5	B63-10006	01	
Lathe converted for grinding aspheric surfaces GSFC-115	B63-10556	05	
Metal bellows custom-fabricated from tubing LEWIS-192	B65-10150	05	
Modified power tool rapidly drives series torque bolts MSC-221	B66-10054	05	

SUBJECT INDEX

MACHINING

T-handle wrench has torque-limiting action MSC-280	B66-10065	05	high vacuum M-FS-12341	B67-10379	05
Threaded pilot insures cutting tool alignment M-FS-527	B66-10074	05	Single-source mechanical loading system produces biaxial stresses in cylinders M-FS-12530	B67-10380	05
Pipe cutting tool is useful in limited space MSC-36	B66-10102	05	Aerial-image enables diagrams and animation to be inserted in motion pictures ARG-165	B67-10398	02
Portable power tool machines weld joints in field M-FS-258	B66-10145	05	Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates MFO-10316	B67-10418	05
Depth indicator and stop aid machining to precise tolerances M-FS-553	B66-10149	05	Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03
Nylon bit removes cork insulation without damage to substrate MSC-381	B66-10152	05	Countersunk headscrew retainer M-FS-16481	B69-10282	05
Tool post modification allows easy turret lathe cutting-tool alignment M-FS-581	B66-10191	05	One-handed hammer-spanner for chucks M-FS-18581	B69-10398	05
Adjustable cutting guide aligns and positions stacks of material MSC-321	B66-10210	05	MACHINING		
Lathe chuck key incorporates safety feature MSC-506	B66-10243	05	Vacuum forming of thermoplastic sheet results in low-cost investment casting patterns ARC-7	B63-10008	05
Gear drive automatically indexes rotary table M-FS-753	B66-10383	05	Micromachining produces optical apertures to micron dimensions GSFC-206	B64-10211	05
Heavy duty precision leveling jacks expedite setup time on horizontal boring mill M-FS-1084	B66-10411	05	Integral ribs formed in metal panels by cold-press extrusion M-FS-230	B65-10141	05
Flexible drive allows blind machining and welding in hard-to-reach areas MSC-524	B66-10428	05	Lathe attachment used to machine elliptical cones MSC-100	B65-10168	05
Study made of acoustical monitoring for mechanical checkout M-FS-13372	B67-10430	02	Epoxy-resin patterns speed shell-molding of aluminum parts M-FS-303	B65-10177	05
Variable-speed, portable routing skate M-FS-13772	B67-10525	05	Calibrated clamp facilitates pressure application MSC-298	B66-10059	05
Thread cutting with 3-axis M/C milling machine LANGLEY-10017	B68-10055	06	Modified soldering iron speeds cutting of synthetic materials M-FS-725	B66-10246	05
Numerical Control Machine Data Manual M-FS-14342	B68-10080	05	Mill profiler machines soft materials accurately M-FS-692	B66-10254	05
Contact-spring forming machine for flat conductor cable receptacles M-FS-20126	B68-10550	05	Fixed vacuum plate clamps styrofoam for machining M-FS-683	B66-10283	05
J-beveling of pipe ends with a hand-held tool KSC-10356	B69-10229	05	Swiveling lathe jaw concept for holding irregular pieces M-FS-783	B66-10321	05
Multi-purpose tool mitten HQ-10047	B69-10483	05	Thermal stress-relief treatments for 2219 aluminum alloy are evaluated M-FS-1213	B66-10448	03
A rotating, noncapillary heat pipe LEWIS-10298	B69-10684	05	Large seals fabricated from small segments reduce procurement lead time M-FS-1117	B66-10464	05
MACHINERY			Internal machining accomplished at constant radii M-FS-1573	B66-10546	05
Mirror device aligns machine surface perpendicular to sight lines WOO-5	B63-10421	02	Process sequence produces strong, lightweight reflectors of excellent quality LEWIS-331	B67-10010	05
Offset lenses add versatility to phototypesetting machine HQ-9	B66-10173	02	Stabilizing stainless steel components for cryogenic service M-FS-13127	B67-10377	05
Packaging of electronic modules JPL-801	B66-10664	01	Machining heavy plastic sections M-FS-12720	B67-10381	03
Post-stressed concrete foundation may reduce machinery vibration ARG-130	B67-10237	05			
Machine tests slow-speed sliding friction in					

MAGAZINES (SUPPLY CHAMBERS)

SUBJECT INDEX

Standard surface grinder for precision machining of thin-wall tubing ARG-10014	B67-10400	05	Fogging technique used to coat magnesium with plastic LEWIS-10316	B67-10584	03
Ultrasonics used to measure residual stress M-FS-12449	B67-10428	02	Laminated sheet composites reinforced with modular filament sheet M-FS-14575	B68-10146	03
Proposed method of rotary dynamic balancing by laser M-FS-12422	B67-10452	02	Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide ARG-10154	B68-10293	02
Manual of industrial diamonds plus dressing and grinding criteria for machining superalloys M-FS-14582	B68-10239	05	Preparation of thorium magnesium-zinc reduction ARG-10245	B69-10079	03
Spiral-grooved shaft seals substantially reduce leakage and wear LEWIS-10397	B68-10270	05	Development of structural test articles from magnesium-lithium and beryllium M-FS-14959	B69-10417	03
Machining technique prevents undercutting in tensile specimens LANGLEY-10281	B68-10352	05	MAGNESIUM ALLOYS		
Method for removing surface-damaged layers from nickel alloys M-FS-18151	B68-10522	03	Lightweight magnesium-lithium alloys show promise M-FS-17	B63-10389	03
Method for controlling density and permeability of sintered powdered metals LEWIS-10393	B68-10528	03	Adherent protective coatings plated on magnesium-lithium alloy M-FS-365	B65-10294	03
Cold machining of high density tungsten and other materials ARG-10289	B69-10110	05	Coating protects magnesium-lithium alloys against corrosion M-FS-2446	B67-10149	03
Tool simplifies machining of pipe ends for precision welding KSC-10361	B69-10231	05	Magnesium-lithium alloys developed for low temperature use M-FS-1541	B67-10365	03
Spiral-flow apparatus for measuring permeation of solids by gases M-FS-16517	B69-10357	03	Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03
Freon, T-B1 cutting fluid MSC-11486	B69-10485	05	Battery-package design provides for cell cooling and constraint MSC-11839	B68-10398	05
MAGAZINES (SUPPLY CHAMBERS)			Device for obtaining separation of oxygen LANGLEY-11007	B69-10477	01
Versatile impact hand tool M-FS-20140	B68-10371	05	Shaker slip-plate adapter M-FS-14063	B69-10785	05
A concept for magazine Bimat processor KSC-06786	B69-10275	02	MAGNESIUM CELLS		
MAGNESIUM			Development of low temperature battery LEWIS-10326	B67-10546	01
New method forms bond line free of voids LANGLEY-20	B63-10558	05	MAGNESIUM COMPOUNDS		
Lightweight aluminum casting alloy is useful at cryogenic temperatures M-FS-267	B65-10092	03	Screening technique makes reliable bond at room temperature M-FS-227	B65-10004	03
Refractory oxides evaluated for high-temperature use LANGLEY-121	B65-10167	03	Chromium oxide coatings improve thermal emissivity of alumina WOO-263	B66-10227	03
Improved wire memory matrix uses very little power JPL-SC-167	B65-10359	01	New class of compounds have very low vapor pressures ARG-115	B67-10184	03
Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons LEWIS-263	B66-10104	03	MAGNESIUM FLUORIDES		
Aluminum core structures brazed without use of flux M-FS-659	B66-10360	05	Uniform reflective films deposited on large surfaces GSFC-507	B66-10483	02
Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys ARG-199	B66-10594	03	Preparation of thorium magnesium-zinc reduction ARG-10245	B69-10079	03
Primary cell uses neither liquid nor fused electrolytes NPO-10001	B67-10275	01	MAGNESIUM OXIDES		
Magnesium-zinc reduction is effective in preparation of metals ARG-10050	B67-10579	03	Ceramic materials purified by experimental method LEWIS-225	B65-10270	03
			Fibers of newly developed refractory ceramics produced by improved process WOO-169	B66-10196	03
			Ductile mandrel and parting compound facilitate tube drawing		

SUBJECT INDEX

MAGNETIC CORES

ARG-43	B66-10571	05	of magnetic fields GSFC-395	B65-10315	01
Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area NUC-10007	B67-10538	01	Electromagnetic hammer removes weld distortions from aluminum tanks M-FS-287	B65-10342	05
Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide ARG-10154	B68-10293	02	Calculations enable optimum design of magnetic brake LEWIS-251	B66-10073	05
Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons ARG-10220	B69-10211	02	Magnetomotive forming for precision sizing and joining of large-diameter tubes M-FS-20481	B69-10422	05
MAGNET COILS			Report on a cryogenic gyroscope NPO-11200	B69-10504	02
Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01	MAGNETIC CONTROL		
Low-cost, fast-response drive circuit for electromagnetic torque motors LEWIS-10143	B68-10386	01	Magnetic fluid readily controlled in zero gravity environment LEWIS-126	B65-10335	03
MAGNETIC AMPLIFIERS			Modified McLeod pressure gage eliminates measurement errors ARC-62	B66-10481	01
High power dc/dc and dc/ac electrical power conversion techniques developed M-FS-13227	B67-10390	01	Cold solid propellant motor has stop-restart capability JPL-836	B66-10673	03
Method for reducing snap in magnetic amplifiers LEWIS-10388	B68-10388	01	Magnetically controlled torque wrench prevents overtorquing SAN-10002	B68-10209	05
Magnetically coupled emission regulator GSFC-10056	B69-10213	01	MAGNETIC CORES		
MAGNETIC CHARGE DENSITY			Transfluxor circuit amplifies sensing current for computer memories JPL-406	B63-10255	01
Supercold technique duplicates magnetic field in second superconductor JPL-376	B63-10237	05	New sintering process adjusts magnetic value of ferrite cores GSFC-129	B63-10606	01
MAGNETIC CIRCUITS			Blocking oscillator uses low triggering voltage MSC-58	B64-10017	01
Variable frequency transistor inverters use multiple core transformers GSFC-183	B65-10119	01	Circuit detects errors in address currents for magnetic core arrays M-FS-234	B65-10047	01
Variable frequency magnetic multivibrator generates stable square-wave output GSFC-AE-21	B65-10124	01	Improved magnetometer uses toroidal gating coil GSFC-249	B65-10103	01
Magnetic-shift-register circuit controls step motor operation GSFC-340	B65-10226	01	Variable frequency transistor inverters use multiple core transformers GSFC-183	B65-10119	01
Magnetically operated limit switch has improved reliability, minimizes arcing MSC-422	B66-10270	01	Variable frequency magnetic multivibrator generates stable square-wave output GSFC-AE-21	B65-10124	01
Residual magnetism holds solenoid armature in desired position LEWIS-343	B67-10038	01	Analog-to-digital converter has increased reliability and reduced power consumption GSFC-246	B65-10194	01
Punch-magnet delay eliminated by modification of circuit ARG-10333	B69-10416	01	Magnetic-shift-register circuit controls step motor operation GSFC-340	B65-10226	01
MAGNETIC COILS			Inductor flyback characteristic gives voltage regulator fast response GSFC-361	B65-10257	01
Circuit switches latching relay in response to signals of different polarity WOO-055	B63-10508	01	Efficient dc to dc converter eliminates large stray magnetic fields GSFC-463	B66-10376	01
Unmanned seismometer levels self, corrects drift errors GSFC-100	B63-10551	01	Gage of 6.5 per cent Si-Fe sheet is chemically reduced MSC-537	B66-10454	03
Apparatus measures very small thrusts WOO-048	B64-10284	05	Digital system detects binary code patterns containing errors GSFC-541	B66-10516	01
Magnetic field test coils are temperature compensated GSFC-294	B65-10081	02	High transients suppressed in electromagnetic		
Electron-beam deflection controlled by digital signals GSFC-385	B65-10283	02			
Magnetometer measures orthogonal components					

MAGNETIC DISTURBANCES

SUBJECT INDEX

devices KSC-66-13	B67-10031	01	High permeability semiconductors permit close-tolerance soldering GSFC-319	B65-10134	05
Variable reluctance switch avoids contact corrosion and contact bounce MSC-1178	B67-10137	01	Density trace made with computer printout GSFC-322	B65-10200	01
Multiplexing control device enables handling of wide variations in sampling rates M-FS-1871	B67-10150	01	Ion pump provides increased vacuum pumping speed NEO-13	B65-10239	02
Computer memory access technique NPO-10201	B67-10585	01	Superconductor shields test chamber from ambient magnetic fields JPL-627	B65-10297	02
Multipulse current source offers low power losses and high reliability LANGLEY-68	B67-10603	01	Magnetometer measures orthogonal components of magnetic fields GSFC-395	B65-10315	01
Method for reducing snap in magnetic amplifiers LEWIS-10388	B68-10388	01	Magnetic fluid readily controlled in zero gravity environment LEWIS-126	B65-10335	03
Analysis of magnetically-controlled processes in pulse-modulation systems GSFC-10241	B69-10070	01	Electromagnetic hammer removes weld distortions from aluminum tanks M-FS-287	B65-10342	05
Linear voltage-to-frequency converter GSFC-10546	B69-10220	01	Portable self-powered device detects internal flaws in tubular structures NU-0019	B66-10028	01
Channel-wall limitations in the magnetohydrodynamic induction generator ARG-10128	B69-10255	02	Cold cathode ionization gage has rigid metal housing GSFC-445	B66-10041	01
An unconventional magnetically-coupled multivibrator HQ-10226	B69-10480	01	Thermal motor positions magnetometer sensors ARC-51	B66-10078	05
MAGNETIC DISTURBANCES			Rod and dish cathode improves penning-type vacuum gage GSFC-447	B66-10082	01
Low input voltage converter/regulator minimizes external disturbances GSFC-527	B66-10689	01	Highly sensitive solids mass spectrometer uses inert-gas ion source ERC-11	B66-10114	02
MAGNETIC DOMAINS			Niobium thin films are superconductive in strong magnetic fields at low temperatures JPL-SC-174	B66-10122	02
Simplified technique demonstrates magnetic domain switching M-FS-13153	B67-10342	02	Variable-capacitance tachometer eliminates troublesome magnetic fields GSFC-435	B66-10126	01
MAGNETIC DRUMS			Electron beam welding of copper-Monel facilitated by circular magnetic shields M-FS-569	B66-10215	05
Simplified, reliable circuit sorts binary numbers in order of magnitude NPO-10112	B69-10503	01	Magnetically operated limit switch has improved reliability, minimizes arcing MSC-422	B66-10270	01
MAGNETIC FIELDS			High-performance RC bandpass filter is adapted to miniaturized construction ARC-60	B66-10309	01
Supercold technique duplicates magnetic field in second superconductor JPL-376	B63-10237	05	Brushless dc motor has high efficiency, long life GSFC-181	B66-10355	01
Shaped superconductor cylinder retains intense magnetic field JPL-381	B63-10238	01	Efficient dc to dc converter eliminates large stray magnetic fields GSFC-463	B66-10376	01
Apparatus alters position of objects to facilitate demagnetization GSFC-234	B64-10277	05	Thermionic scanner pinpoints work function of emitter surfaces JPL-SC-177	B66-10444	01
Pine-mesh screen made by simplified method WOO-104	B64-10282	03	Solenoid magnetic fields calculated from superposed semi-infinite solenoids LEWIS-184	B66-10490	01
Apparatus measures very small thrusts WOO-048	B64-10284	05	Experimental investigation of megawatt dc arc heating of nitrogen LEWIS-313	B66-10508	02
Ionization vacuum gage starts quickly, is unaffected by spurious currents JPL-304	B65-10036	02	Improved design provides faster response time in photomultiplier GSFC-451	B66-10526	01
Pulsed plasma accelerator operates repetitively without complex controls LANGLEY-48	B65-10062	01			
Magnetic field test coils are temperature compensated GSFC-294	B65-10081	02			
Improved magnetometer uses toroidal gating coil GSFC-249	B65-10103	01			
Magnetic field controls carbon arc tail flame MSC-139	B65-10108	01			

SUBJECT INDEX

MAGNETIC MATERIALS

High-reluctance rotor rings improve homopolar generator performance ARG-104	B66-10543	01	ARG-10500	B69-10771	02
A continuously operating source of vacuum ultraviolet below 500 angstrom GSFC-545	B66-10576	01	MAGNETIC FILMS Helical recorder GSFC-10614	B69-10340	01
Simple technique determines ac properties of hard superconductive materials M-FS-1818	B66-10657	02	MAGNETIC FLUX Supercold technique duplicates magnetic field in second superconductor JPL-376	B63-10237	05
Low input voltage converter/regulator minimizes external disturbances GSFC-527	B66-10689	01	Small digital recording head has parallel bit channels, minimizes cross talk JPL-0029	B63-10284	01
High-energy-rate magnetohydraulic metal forming system M-FS-2142	B67-10126	02	Improved magnetometer uses toroidal gating coil GSFC-249	B65-10103	01
Study of yttrium iron garnet rods reveals new magnetostatic echo mode ERC-37	B67-10153	01	Gapped toroid provides infinite resolution of delay-line pickup GSFC-370	B65-10258	01
An improved nuclear magnetic resonance spectrometer JPL-762	B67-10234	01	Electron-beam deflection controlled by digital signals GSFC-385	B65-10283	02
Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01	Niobium thin films are superconductive in strong magnetic fields at low temperatures JPL-SC-174	B66-10122	02
Development of Curie point switching for thin film, random access, memory device NPO-10402	B67-10633	02	Variable-capacitance tachometer eliminates troublesome magnetic fields GSFC-435	B66-10126	01
Optically induced free carrier light modulator GSFC-10216	B69-10114	01	Simple technique determines ac properties of hard superconductive materials M-FS-1818	B66-10657	02
Experimental prediction of performance by superconducting cables ARG-10215	B69-10161	01	Variable reluctance switch avoids contact corrosion and contact bounce MSC-1178	B67-10137	01
Channel-wall limitations in the magnetohydrodynamic induction generator ARG-10128	B69-10255	02	Full wave dc-to-dc converter using energy storage transformers LEWIS-10375	B69-10140	01
Induction probe determines levels of liquid metals ARG-10348	B69-10256	03	Ion-retarding lens improves the abundance sensitivity of tandem mass spectrometers ARG-10365	B69-10166	02
Piezoelectric lock mechanism resists lockpicking SAN-10037	B69-10281	01	Two-step rocket engine bipropellant valve concept MSC-10951	B69-10280	05
Electrothermal linear actuator NPO-10637	B69-10296	05	MAGNETIC INDUCTION Process yield Co-Fe alloys with superior high temperature magnetic properties LEWIS-333	B66-10535	03
Magnetic forming of resistive materials M-FS-20417	B69-10397	03	MAGNETIC MATERIALS Setting of angles on machine tools speeded by magnetic protractor ARC-5	B63-10006	01
Method for determining properties of microinstabilities of a magnetized plasma HQ-10447	B69-10462	02	Flexible magnetic planning boards are easily transported M-FS-340	B65-10219	05
Preparation of superconducting thin films of transition-metal interstitial compounds HQ-10445	B69-10470	01	Multidimensional Reaction Kinetic Ablation Program /REKAP/ MSC-143	B66-10495	05
Magnetic field mapper LEWIS-10782	B69-10476	01	Improved memory word line configuration allows high storage density GSFC-559	B66-10617	01
Storage of electric and magnetic energy in passive nonreciprocal networks ARG-10360	B69-10630	01	Training manuals for nondestructive testing using magnetic particles M-FS-20187	B68-10391	03
Cryogenic flux-concentrator ARG-10494	B69-10654	02	Optically exciting a magnetic memory - A feasibility study M-FS-14854	B69-10060	02
Monopole mass spectrometer with improved sensitivity and reduced background HQ-10476	B69-10666	01	Evaluation of magnetic materials for static inverters and converters LEWIS-10343	B69-10306	01
Production of crystalline polymers via liquid crystal monomers HQ-10235	B69-10744	03			
Liquid-metal-piston MHD generator					

MAGNETIC MEASUREMENT

SUBJECT INDEX

MAGNETIC MEASUREMENT

Thermal motor positions magnetometer sensors
ARC-51 B66-10078 05

Calibration of a resistance thermometer
down to 0.04 degrees K
ARG-10318 B69-10149 01

MAGNETIC MOMENTS

Magnetometer measures orthogonal components
of magnetic fields
GSFC-395 B65-10315 01

Neutron diffractometer allows both magnetic
and crystallographic analyses
ARG-191 B67-10131 02

MAGNETIC PERMEABILITY

Noncontacting transducer measures shaft torque
M-FS-474 B66-10048 01

Rod and dish cathode improves penning-type
vacuum gage
GSFC-447 B66-10082 01

Electron beam welding of copper-Monel
facilitated by circular magnetic shields
M-FS-569 B66-10215 05

Process yield Co-Fe alloys with superior
high temperature magnetic properties
LEWIS-333 B66-10535 03

Solenoid valve design has one moving part
NPO-10039 B67-10219 05

MAGNETIC PROPERTIES

Rotor position sensor switches currents in
brushless dc motors
GSFC-315 B65-10151 01

Hollow spherical rotors fabricated by
electroplating
JPL-SC-117 B66-10366 05

Thin-film ferrites vapor deposited by one-step
process in vacuum
MSC-259 B66-10398 03

Process yield Co-Fe alloys with superior
high temperature magnetic properties
LEWIS-333 B66-10535 03

Miniaturization of magnetic logic circuitry
LANGLEY-10037 B69-10148 06

MAGNETIC PUMPING

Rotating magnetic poles used to pump mercury
LEWIS-276 B66-10434 05

MAGNETIC RECORDING

Circuit converts AM signals to FM for
magnetic recording
GSFC-227 B65-10001 01

Hybrid computer technique yields random
signal probability distributions
ARC-34 B65-10208 01

PCM magnetic tape system efficiently records
and reproduces data
GSFC-375 B65-10311 01

An improved magnetic tape recorder
GSFC-08259 B67-10646 01

Damages in rolling element bearings may be
detected early
HQ-10031 B67-10658 01

Scan rate converter for tape recording and
playback of TV pictures
NPO-10166 B67-10676 01

Harmonic distortion analyzer speeds setup of
magnetic tape recorders
GSFC-10198 B68-10254 01

Method of reducing time base error in

digital magnetic recorders
GSFC-10108 B68-10317 01

MAGNETIC RESONANCE

Magnetometer measures orthogonal components
of magnetic fields
GSFC-395 B65-10315 01

Coordination chemistry in fused-salt
solutions
ARG-10469 B69-10423 03

MAGNETIC SHIELDING

Electron beam welding of copper-Monel
facilitated by circular magnetic shields
M-FS-569 B66-10215 05

Improved ferrous shielding for flat cables
M-FS-14524 B69-10401 01

MAGNETIC SIGNALS

Magnetometer measures orthogonal components
of magnetic fields
GSFC-395 B65-10315 01

A theoretical study of radar backscatter
from distributed targets with emphasis on
polarization dependence
M-FS-13775 B69-10560 02

MAGNETIC STORAGE

Transfluxor circuit amplifies sensing current
for computer memories
JPL-406 B63-10255 01

Density trace made with computer printout
GSFC-322 B65-10200 01

Multipulse current source offers low power
losses and high reliability
LANGLEY-66 B67-10603 01

Optically exciting a magnetic memory - A
feasibility study
M-FS-14854 B69-10060 02

MAGNETIC TAPES

Small digital recording head has parallel bit
channels, minimizes cross talk
JPL-0029 B63-10284 01

Low-cost tape system measures velocity of
acceleration
GSFC-85 B63-10512 01

Compact cartridge drives coded tape at
constant readout speed
JPL-472 B64-10222 01

Security warning system monitors up to
fifteen remote areas simultaneously
KSC-66-39 B66-10548 01

Digital computer processing of X-ray photos
JPL-792 B67-10005 04

Data retrieval system provides unlimited
hardware design information
MSC-1144 B67-10170 01

Structural Analysis and Matrix
Interpretive System /SAHIS/
NPO-10130 B67-10171 01

Computer program samples digital data for
CRT display
MSC-999 B67-10249 01

Transient Analysis Generator /TAG/
simulates behavior of large class of
electrical networks
NPO-10031 B67-10319 06

Saturn S-2 Automatic Software System
/SASS/
M-FS-1741 B67-10405 06

Computer program generates averaged value
data tapes

SUBJECT INDEX

MAGNETS

M-FS-12728	B67-10411	06	MAGNETIZATION		
Technique for measuring magnetic tape interlayer adhesion			Study reveals effect of aluminum on saturation moment of Fe-Ni alloys		
NPO-10011	B67-10417	03	ARG-90259	B68-10172	03
Device measures static friction of magnetic tape			MAGNETOHYDRODYNAMIC FLOW		
GSFC-10360	B67-10586	03	Study of convective magnetohydrodynamic channel flow		
Conceptual servo technique for controlling tape drivers			ARG-10102	B68-10181	02
M-FS-12955	B67-10595	01	MAGNETOHYDRODYNAMIC GENERATORS		
X-Y plotter adapter developed for SDS-930 computer			Segmented electrode increases operating pressure of MHD accelerator		
NPO-10220	B67-10654	06	LANGLEY-95	B65-10356	02
Analysis of flutter in tape transport systems			Magnetohydrodynamic generators using two-phase liquid-metal flows		
M-FS-11970	B68-10027	01	ARG-10168	B69-10162	01
Computer magnetic tape rehabilitation study			Channel-wall limitations in the magnetohydrodynamic induction generator		
GSFC-10283	B68-10035	05	ARG-10128	B69-10255	02
Magnetic tape transport controlled by rotating transducer heads			Liquid-metal-piston MHD generator		
GSFC-483	B68-10079	01	ARG-10500	B69-10771	02
Fully automatic telemetry data processor			MAGNETOHYDRODYNAMICS		
GSFC-10576	B68-10336	01	Wire winding increases lifetime of oxide coated cathodes		
A request-oriented information selection program			LEWIS-154	B65-10032	03
LEWIS-10255	B68-10451	06	Studies of cycles for liquid-metal magnetohydrodynamic generation of power		
Long-term data storage and retrieval system, a concept			ARG-10250	B69-10194	02
M-FS-14789	B68-10505	01	MAGNETOMETERS		
Weight Control System			Improved magnetometer uses toroidal gating coil		
M-FS-15028	B69-10041	06	GSFC-249	B65-10103	01
Dewpoint temperature inversions analyzed			Electromechanical flowmeter accurately monitors fluid flow		
ARG-10316	B69-10057	02	GSFC-357	B65-10273	01
Electronic visualization of gas bearing behavior			Magnetometer measures orthogonal components of magnetic fields		
LEWIS-10711	B69-10073	01	GSFC-395	B65-10315	01
Microscopes and computers combined for analysis of chromosomes			Thermal motor positions magnetometer sensors		
ARG-10256	B69-10088	04	ARC-51	B66-10078	05
Structural Analysis and Matrix Interpretive System /SAMIS/			A polar graphic method for determining the attitude of rocket vehicles		
NPO-10839	B69-10093	01	GSFC-10860	B69-10591	02
On-line computer system for use with low-energy nuclear physics experiments is reported			MAGNETORESISTIVITY		
ARG-10257	B69-10094	01	Magnetoresistor monitors relay performance		
ABTRAJ on-site tracking prediction program			M-FS-1754	B66-10650	01
NPO-10836	B69-10103	06	MAGNETOSTATIC FIELDS		
SPAN - Terminal sterilization process analysis program			Study of yttrium iron garnet rods reveals new magnetostatic echo mode		
NPO-10804	B69-10104	06	ERC-37	B67-10153	01
VICAR-DIGITAL image processing system			MAGNETOSTRICTION		
NPO-10770	B69-10139	06	A conceptual design for squeeze film bearings		
Data processing method for a weak, moving telemetry signal			M-FS-573	B66-10226	05
NPO-11003	B69-10639	01	Ultrasonic temperature measuring device		
Biomedical bulk data processing program			LEWIS-10446	B68-10319	01
FRC-10015	B69-10720	06	MAGNETRONS		
Solar activity history model			Ion pump provides increased vacuum pumping speed		
M-FS-20529	B69-10776	01	NEO-13	B65-10239	02
MAGNETIC VARIATIONS			Magnetron tuner has locking feature		
Study of yttrium iron garnet rods reveals new magnetostatic echo mode			XNP-09771	B69-10119	05
ERC-37	B67-10153	01	MAGNETS		
			Stepping switch with simple actuator provides many contacts in small space		
			JPL-122	B63-10118	01
			Ball bearing used in design of rugged flowmeter		
			LEWIS-159	B64-10170	05
			Spring loaded beaded cable makes efficient		

MAGNIFICATION

SUBJECT INDEX

wire puller WOO-108	B65-10031	05	MAINTAINABILITY Solenoid valve design has one moving part NFO-10039	B67-10219	05
Magnets position X-ray film for weld inspection M-FS-253	B65-10110	05	Maintainability methodology and maintenance analyses M-FS-14134	B68-10075	05
Multiple test chamber exposes materials to various environments MSC-179	B65-10268	01	Monte Carlo simulation by computer for life-cycle costing M-FS-14754	B69-10590	05
Modified procedure speeds camera copy layout for offset printing GSFC-424	B65-10373	02	Microelectronic device data handbook ERC-10322	B69-10687	01
Bench vise adapter grips tubing securely and safely MSC-279	B66-10056	05	MAINTENANCE Use of tear ring permits repair of sealed module circuitry M-FS-210	B65-10014	05
Switching mechanism senses angular acceleration GSFC-462	B66-10158	01	Magnetic field controls carbon arc tail flame MSC-139	B65-10108	01
Magnetic latches provide positive overpressure control NU-0057	B66-10279	05	Inert gas spraying device aids in repair of hazardous systems LEWIS-8B	B65-10115	05
Rectilinear accelerometer possesses self- calibration feature M-FS-1480	B66-10452	01	Economical and maintenance-free gas system operates railroad switches NU-0045	B66-10124	05
Low rate flow switch can be used for gas or liquid JPL-867	B66-10696	01	Mounting facilitates removal and installation of flame-detector rods M-FS-555	B66-10150	05
Compressible sleeve provides automatic centering for grinding or turning of cylinders SAN-10021	B68-10318	05	Interior servicing platform simplifies maintenance of storage tanks M-FS-1300	B66-10425	05
An improved atomic hydrogen frequency and time standard GSFC-10706	B69-10341	02	Solid state annunciator facilitates complex system troubleshooting M-FS-1258	B66-10505	01
Novel multipurpose timer for laboratories ARG-10147	B69-10410	01	Abraded cadmium-plated cable connectors repaired by conversion coating M-FS-1424	B67-10014	03
MAGNIFICATION New electron microscope employs new video display technique ARG-158	B67-10312	03	Tester automatically checks paper tape punch and reader after maintenance ARC-66	B67-10267	01
Camera lens adapter magnifies image M-FS-11955	B67-10431	02	Portable machine welding head automatically controls arc M-FS-12763	B67-10272	05
Color-televised medical microscopy MSC-13086	B68-10314	01	Accumulator isolator prevents malfunctioning of faulty hydraulic system M-FS-1415	B67-10528	05
Tape reading fixture M-FS-14146	B69-10008	05	Maintainability methodology and maintenance analyses M-FS-14134	B68-10075	05
Fractography can be used to analyze failure modes in polytetrafluoroethylene M-FS-20294	B69-10066	03	Tube joint leak repair coupling MSC-15022	B68-10540	05
MAGNTY - Program for calculating velocities in magnified region of turbomachines LEWIS-10789	B69-10132	06	Welded repairs of punctured thin-walled aluminum pressure vessels M-FS-14836	B69-10051	05
A magnifying scratch-gage force transducer LANGLEY-10496	B69-10212	01	Two-axis winch installer for heavy ducts in confined space M-FS-14254	B69-10062	05
Surface profilometer for examining grain-boundary grooves ARG-10290	B69-10345	05	Tube welding and brazing M-FS-20348	B69-10085	05
Photomicrometrology M-FS-14556	B69-10736	01	Repair of honeycomb panels with welded breakaway studs MSC-15046	B69-10261	05
MAGNITUDE Fortran 4 program for two-impulse rendezvous analysis M-FS-13971	B67-10479	06	Repair of weld defects in thin-walled stainless steel tubes M-FS-16293	B69-10305	05
A laboratory method for precisely determining the micro-volume-magnitudes of liquid efflux ARC-10052	B69-10295	05	Flexible rivet-set M-FS-20317	B69-10459	05
			Improved system for documenting measurement		

SUBJECT INDEX

HANDRELS

data M-FS-18269	B69-10513	01	MSC-11524	B67-10510	06
Design and sparing techniques to meet specified performance life HQ-10200	B69-10528	02	Computerized Schedule Effectiveness Technique /SET/ determines present and future schedule position M-FS-13012	B67-10522	06
Liquid oxygen-compatible insulation system M-FS-16113	B69-10599	03	An overview of electromagnetic interference problems in spacecraft NPO-11170	B69-10362	01
Programmed schedule holds for improving launch vehicle holds M-FS-14502	B69-10602	03	HANDRELS		
MAJORITY CARRIERS			Vacuum forming of thermoplastic sheet results in low-cost investment casting patterns ARC-7	B63-10008	05
Field effect transistor presents high input impedance in ac amplifier JPL-500	B65-10232	01	Stainless-steel elbows formed by spin forging M-FS-122	B63-10590	05
Logic realization of simple majority voting connectives JPL-727	B67-10511	06	Fiber glass parts cured during filament winding eliminates oven, saves time M-FS-14	B65-10088	03
MALFUNCTIONS			Collar positions strip stock used to form coil on mandrel JPL-198	B65-10130	05
Polarizing keys prevent mismatch of connector plugs and receptacles MSC-443	B66-10251	01	Metal bellows custom-fabricated from tubing LEWIS-192	B65-10150	05
Numerical data frame readout system used in testing telemetry systems GSPC-551	B67-10175	01	Spiral heater coils hand-formed with fixture LEWIS-208	B65-10192	05
Solenoid valve design has one moving part NPO-10039	B67-10219	05	Boron carbide whiskers produced by vapor deposition HQ-24	B65-10261	03
Study made of acoustical monitoring for mechanical checkout M-FS-13372	B67-10430	02	Sheet metal strip unrolls to form circular boom GSPC-423	B66-10032	05
Accumulator isolator prevents malfunctioning of faulty hydraulic system M-FS-1415	B67-10528	05	Rotating mandrel speeds assembly of plastic inflatables LANGLEY-155	B66-10137	05
An electronic circuit for sensing malfunctions in test instrumentation KSC-10209	B69-10392	01	Portable power tool machines weld joints in field M-FS-258	B66-10145	05
MALLEABILITY			Hand tool permits shrink sizing of assembled tubing MSC-504	B66-10239	05
Improved cure method for single component silicone rubber MSC-12230	B69-10749	03	Differential expansion provides pressure for diffusion bonding of large diameter rings M-FS-588	B66-10269	05
MAMMALS			High pressure tube coupling requires no threads or flares MSC-600	B66-10285	05
Compound equation developed for postnatal growth of birds and mammals ARG-10192	B68-10427	04	Special mandrel permits uniform welding of out-of-round tubing M-FS-706	B66-10323	05
MAN MACHINE SYSTEMS			Ductile mandrel and parting compound facilitate tube drawing ARG-43	B66-10571	05
Review of biological mechanisms for application to instrument design HQ-33	B67-10663	04	Multilayer refractory nozzles produced by plasma-spray process WOO-318	B66-10611	05
MANAGEMENT			Flow-test device fits into restricted access passages MSC-1078	B67-10074	01
A simplified PERT system M-FS-2267	B67-10241	05	Porous mandrels provide uniform deformation in hydrostatic powder metallurgy M-FS-1972	B67-10209	03
System automatically provides dynamic launch decision criteria M-FS-13063	B67-10363	01	Extrusion of small-diameter, thin-wall tungsten tubing LEWIS-90335	B67-10355	05
LABCON - Laboratory Job Control program M-FS-18141	B69-10106	06	Metal tube reducer is inexpensive and simple to operate ARG-49	B67-10401	05
MANAGEMENT PLANNING					
GREMEX-A new management training concept GSPC-574	B67-10092	01			
Vis-A-Plan /visualize a plan/ management technique provides performance-time scale KSC-10073	B67-10240	06			
KOPE /Kalendar Oriented Program Efforts/ provides data for management decisions M-FS-12331	B67-10478	06			
Probabilistic approach to long range planning of manpower					

MANEUVERABILITY

SUBJECT INDEX

Aluminum and stainless steel tubes joined by simple ring and welding process M-FS-13120	B67-10472	05	uniform gas flow M-FS-707	B66-10371	05
Compressible sleeve provides automatic centering for grinding or turning of cylinders SAN-10021	B68-10318	05	Elimination of rocket engine asymmetric loads during tests at sea level M-FS-1730	B66-10674	05
Repair of weld defects in thin-walled stainless steel tubes M-FS-16293	B69-10305	05	Journal gas bearing for curved surfaces M-FS-20423	B69-10182	05
Magnetomotive forming for precision sizing and joining of large-diameter tubes M-FS-20481	B69-10422	05	MANIPULATORS Simple mechanism combines positive locking and quick-release features WOO-4	B63-10420	05
MANEUVERABILITY Interior servicing platform simplifies maintenance of storage tanks M-FS-1300	B66-10425	05	Remotely operated clamping tool has positive grip NU-0020	B65-10254	05
Fifth-wheel fork truck adapter M-FS-14460	B69-10021	05	Plug-in connector socket accepts coaxial cable end ARG-9	B66-10478	01
MANGANESE Weldable aluminum alloy has improved mechanical properties M-FS-295	B66-10445	03	Polynomial manipulator AP-168 MSC-1231	B67-10103	01
New weldable high strength aluminum alloy developed for cryogenic service M-FS-737	B66-10613	05	Improved head-controlled TV system produces high-quality remote image ARG-128	B67-10317	01
Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination ARG-262	B67-10421	03	Welding torch and wire feed manipulator M-FS-13102	B67-10385	05
Development of Curie point switching for thin film, random access, memory device NPO-10402	B67-10633	02	Portable, high intensity isotopic neutron source provides increased experimental accuracy ARG-90250	B68-10243	02
Manganese-alumina-ceramic glass eliminates rigid controls necessary in bonding metals to ceramics SAN-10012	B68-10204	03	Improved electromechanical master-slave manipulator ARG-10027	B68-10372	05
Silicon carbide diode for increased light output M-FS-20063	B69-10096	01	Abrasion and resistant discharge valve developed ARG-10219	B69-10044	05
MANGANESE ALLOYS Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03	Astronaut's tool for withdrawing/replacing computer cards M-FS-20453	B69-10183	05
MANGANESE IONS Primary radical yields in pulse irradiated alkaline aqueous solution ARG-10322	B69-10167	02	MANNED SPACE FLIGHT Computer program determines thermal environment and temperature history of lunar orbiting space vehicles M-FS-12916	B67-10307	06
MANGANESE ISOTOPES Manganese-56 coincidence-counting facility precisely measures neutron-source strength ARG-90261	B69-10621	01	Estimating reliability by application of matrix representation HQ-10246	B69-10793	02
MANGANIN (TRADEMARK) Improved variable-reluctance transducer measures transient pressures LANGLEY-10	B63-10321	01	MANNED SPACECRAFT A prototype high power portable lamp M-FS-20229	B69-10189	02
MANIFOLDS Heated die facilitates tungsten forming LEWIS-25A	B66-10047	05	MANOMETERS Multiple port pressure scanner valve features greater accuracy, quicker data JPL-555	B64-10031	05
Combustion chamber inlet manifold separates vapor from liquid M-FS-531	B66-10052	05	Device induces lungs to maintain known constant pressure MSC-50	B64-10108	04
Inflatable holding fixture permits X-rays to be taken of inner weld areas M-FS-856	B66-10327	03	Fluid-pressure measurement apparatus uses short-length manometer tubes LEWIS-28	B65-10027	05
Welds chilled by liquid coolant manifold M-FS-679	B66-10354	05	Probe measures characteristics of hot gas stream M-FS-240	B65-10133	02
Brazing retort manifold design concept may minimize air contamination and enhance			Baking enables McLeod gauge to measure in ultrahigh vacuum range GSFC-440	B65-10329	01
			Microorganisms detected by enzyme-catalyzed reaction JPL-782	B66-10117	04

SUBJECT INDEX

MANUALS

Ultraminiature manometer-tipped cardiac catheter ARC-10054	B67-10669	01	Tool forms right angles in component leads M-FS-722	B66-10346	05
Conceptual dead weight device to provide pressure calibration M-FS-14672	B68-10264	01	Human transfer functions used to predict system performance parameters LANGLEY-203	B66-10379	01
Leakage tester for flat conductor cable connector M-FS-20427	B69-10284	05	Special tool kit aids heavily garmented workers MSC-163	B66-10403	05
Elimination of dissolved gases in hypergolic engine propellants M-FS-16179	B69-10692	03	Rigid-body motion extracted from total motion of a flexible body ARC-63	B67-10081	05
MANPOWER			Tool facilitates installation of Marmon clamps M-FS-2039	B67-10105	05
Probabilistic approach to long range planning of manpower MSC-11524	B67-10510	06	Tester automatically checks insulation of individual conductors in multiple-strand cables NUC-10068	B67-10260	01
Computerized Schedule Effectiveness Technique /SET/ determines present and future schedule position M-FS-13012	B67-10522	06	Pocket-size manual tape reader device aids computer tape checking KSC-10058	B67-10361	01
MANUAL CONTROL			Multiple meter monitoring circuits served by single alarm MSC-10984	B67-10369	01
Heavy-duty staple remover operated by hand JPL-IT-1004	B63-10292	05	Eccentric drive mechanism is adjustable during operation M-FS-2576	B67-10373	05
Rapid billet loader aids extrusion of refractory metals LEWIS-50	B63-10354	05	Use of color-coded sleeve shutters accelerates oscillograph channel selection KSC-10092	B67-10382	01
Variable load automatically tests dc power supplies GSFC-291	B65-10105	01	Continuous wave detector has wide frequency range M-FS-1849	B67-10386	01
Handtool facilitates extraction of circuit modules LANGLEY-38	B65-10231	05	Automatic telemetry checkout system M-FS-12580	B67-10402	01
Manual-feed adapter permits microfilming of continuous oscillograph output NU-0029	B65-10249	01	Versatile impact hand tool M-FS-20140	B68-10371	05
Rack mount device quickly inserts or extracts chassis units MSC-244	B65-10385	05	Gun facilitates adhesive bonding of studs to surfaces M-FS-20299	B69-10009	05
Fingertip current control facilitates use of arc welding gun MSC-289	B66-10092	05	Two-axis winch installer for heavy ducts in confined space M-FS-14254	B69-10062	05
Soldering tool heats workpieces and applies solder in one operation LEWIS-247	B66-10115	05	J-beveling of pipe ends with a hand-held tool KSC-10356	B69-10229	05
Hand drill adapter limits holes to desired depth MSC-346	B66-10123	05	Foot-operated cell-counter ARG-10315	B69-10351	01
Safety switch permits emergency bridge crane shutdown M-FS-549	B66-10168	05	Improved perceptual-motor performance measurement system HQ-10123	B69-10385	01
Tool enables proper mating of accelerometer and cable connector M-FS-611	B66-10208	05	MANUALS		
Hand tool permits shrink sizing of assembled tubing MSC-504	B66-10239	05	Workmanship standards for fusion welding NUC-10050	B67-10200	05
Lathe chuck key incorporates safety feature MSC-506	B66-10243	05	Handbooks describe eddy current techniques used in nondestructive testing of metal parts and components M-FS-13172	B67-10374	03
Modified soldering iron speeds cutting of synthetic materials M-FS-725	B66-10246	05	Static structural analysis of shell-type structures MSC-11555	B68-10066	03
Ultrasonic hand tool allows convenient scanning of spot welds M-FS-539	B66-10289	02	Numerical Control Machine Data Manual M-FS-14342	B68-10080	05
Latching mechanism operates in limited access area MSC-230	B66-10338	05	Manual of industrial diamonds plus dressing and grinding criteria for machining superalloys M-FS-14582	B68-10239	05

MANUFACTURING

SUBJECT INDEX

Hydrogen safety manual LEWIS-10487	B68-10323	01	Sealed container sampling device GSFC-10690	B69-10682	03
Training manuals for nondestructive testing using magnetic particles M-FS-20187	B68-10391	03	MAPPING Photoelectric scanner makes detailed work function maps of metal surface JPL-SC-176	B66-10440	01
Chemistry laboratory safety manual available SAN-10030	B68-10419	03	Optical automatic gain channel M-FS-1550	B66-10596	02
Training manual on optical alignment instruments M-FS-20292	B68-10574	02	Movable RF probe eliminates need for calibration in plasma accelerators LEWIS-10127	B67-10362	01
Manual of typical low temperature mechanical properties of several materials M-FS-18331	B69-10179	03	Surface temperature mapping with infrared photographic pyrometry LEWIS-10763	B69-10113	01
Sterilization training manual M-FS-20437	B69-10277	04	Combination ranging system and mapping radar NPO-11001	B69-10325	01
Instruction manuals for liquid penetrant nondestructive testing M-FS-14010	B69-10278	05	Magnetic field mapper LEWIS-10782	B69-10476	01
COGENT programming manual ARG-10463	B69-10656	06	Long range holographic contour mapping concept HQ-10350	B69-10700	02
Microelectronic device data handbook ERC-10322	B69-10687	01	MAPS Visual task analysis /VISTA/ M-FS-14716	B69-10394	06
MANUFACTURING Bellows design features low spring rate and long life MSC-521	B66-10190	05	MARINE BIOLOGY Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna ARG-10345	B69-10258	02
Vis-A-Plan /visualize a plan/ management technique provides performance-time scale KSC-10073	B67-10240	06	MARINER SPACE PROBES An overview of electromagnetic interference problems in spacecraft NPO-11170	B69-10362	01
Materials data handbook, Inconel alloy 718 M-FS-2348	B67-10282	03	MARINER PROGRAM Solid state detectors monitor relay contacts JPL-785	B66-10396	01
Computerized parts list system coordinates engineering releases, parts control, and manufacturing planning NUC-10073	B67-10348	06	MARKERS Sea dye marker provides visibility for 20 hours MSC-714	B66-10313	03
Effect of surface irregularities on bellows fatigue life M-FS-14480	B68-10229	05	A calibration means for spectrum analyzers MSC-10987	B67-10254	01
An investigation of particle mixing in a gas-fluidized bed ARG-10182	B68-10407	05	MARKING Technique for strip chart recorder time notation GSFC-473	B67-10196	01
Conditioning flat conductors for flat conductor cable production M-FS-14914	B68-10429	01	Tritiated alumina serves as reagent for self-labeling analysis ARG-209	B67-10315	03
Low cost techniques for fabricating lobed bearings LEWIS-10296	B68-10441	05	Computer program utilizes FORTRAN 4 subroutines for contour plotting NPO-10127	B67-10323	06
Environmental test planning, selection and standardization aids available SAN-10028	B68-10445	06	Effect of preparation procedures on intensity of radioautographic labeling is studied ARG-10032	B67-10500	04
Rocket engine analog simulation M-FS-14511	B68-10511	01	Reidentifying hardware after loss of serial number M-FS-18133	B69-10059	05
Integrated metal transistor leads GSFC-90536	B68-10518	01	MARCOV PROCESSES Control jet placement on spacecraft MSC-13365	B69-10671	01
Vertical boring mill capacity is increased M-FS-16196	B68-10530	05	MARS (PLANET) Space trajectories program for IBM 7090 NPO-10125	B67-10172	06
TFE-fluorocarbon liners for flexible hoses M-FS-16480	B69-10288	05	MASER OUTPUTS Parametric up-converter increases flexibility		
Possible correlation between work-hardening and fatigue-failure ARG-10371	B69-10414	03			
A new method for fabrication of flexible vacuum purge jackets M-FS-12646	B69-10564	03			

SUBJECT INDEX

MASS SPECTROMETERS

of maser KSC-67-98	B67-10104	01	JPL-SC-163	B66-10642	05
Highly stable microwave delay line NPO-09828	B67-10642	01	Substitution of stable isotopes in Chlorella ARG-10258	B69-10197	04
MASERS			MASS FLOW		
Development of dual solid cryogens for high reliability refrigeration system GSFC-10188	B67-10644	02	Pump simulator provides variable pressure-flow characteristics LEWIS-10122	B67-10453	05
One hundred MHz voltage-controlled oscillator NPO-11004	B69-10133	01	MASS FLOW RATE		
Sweep frequency detector NPO-10669	B69-10289	01	Instrument continuously measures density of flowing fluids LEWIS-309	B67-10080	01
Automatic tuning of hydrogen masers GSFC-10127	B69-10452	01	Computer program for high pressure real gas effects LEWIS-10820	B69-10222	06
Electrolytic separation of crystals of transition-metal oxides ARG-10506	B69-10642	03	MASS RATIOS		
MASKING			Dust particle injector for hypervelocity accelerators provides high charge-to-mass ratio GSFC-509	B66-10347	01
Reusable neoprene jacket protects parts for chemical milling WOO-071	B65-10179	03	Advances in light-gas gun technology M-FS-14270	B68-10288	05
Optical device enables small detector to see large field of view WOO-253	B66-10263	02	Parameters for good welding of copper to nickel M-FS-20353	B69-10302	05
Process facilitates photoresist mask alignment on SiC crystals M-FS-2394	B67-10144	01	MASS SPECTRA		
Multiple-mask chemical etching MSC-13114	B69-10221	01	Xenon fluorides show potential as fluorinating agents ARG-113	B67-10185	03
Improved method of fabricating planar gallium arsenide diodes XNP-04235	B69-10271	01	MASS SPECTROMETERS		
Masking of aluminum surface against anodizing M-FS-12964	B69-10335	05	Ion pump provides increased vacuum pumping speed NEO-13	B65-10239	02
MASKS			Highly sensitive solids mass spectrometer uses inert-gas ion source ERC-11	B66-10114	02
Protective clothing for workers with 5-kW and 20-kW short-arc lamps NPO-11155	B69-10218	01	Subminiaturized gas chromatograph gives fast, efficient analysis JPL-735	B66-10182	01
MASS			Submicron holes in thin films increase sampling range of mass spectrometers JPL-SC-097	B66-10380	03
Device enables measurement of moments of inertia about three axes GSFC-49	B65-10176	05	Leak locator for vacuum jacketed pipelines eliminates need for removal of outer jacket M-FS-888	B66-10412	01
Quartz crystals detect gas contaminants during vacuum chamber evacuation NPO-10144	B67-10205	01	Fixture facilitates helium leak testing of pipe welds M-FS-2167	B67-10178	05
System precisely controls oscillation of vibrating mass M-FS-1875	B67-10276	01	Aluminum and stainless steel tubes joined by simple ring and welding process M-FS-13120	B67-10472	05
Application of distorted models in developing scaled structural models M-FS-2540	B67-10321	05	Effects of surface preparation on quality of aluminum alloy weldments M-FS-13152	B68-10302	03
Eddy current probe measures size of cracks in nonmetallic materials M-FS-14059	B67-10645	03	Diffusion of trace gases for leak detection - A study M-FS-20254	B69-10067	03
Water-glycol system volume calculation MSC-15193	B69-10563	02	Ion-retarding lens improves the abundance sensitivity of tandem mass spectrometers ARG-10365	B69-10166	02
Deposition monitor and control NPO-10706	B69-10722	01	Spherical ion source XNP-08898	B69-10186	01
MASS DISTRIBUTION			Ion mass spectrometer for special uses HQ-10418	B69-10510	02
Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates ARG-151	B66-10601	05	Miniaturized high-resolution mass/charge spectrograph /design study/ MSC-13279	B69-10554	02
Device measures reaction engine thrust vector deviations					

MASS SPECTROSCOPY

SUBJECT INDEX

Mass-spectrometric study of the rhenium-oxygen system ARG-10421	B69-10645	02	Hollow plastic hoops protect thermocouple in storage and handling NU-0023	B65-10256	05
Monopole mass spectrometer with improved sensitivity and reduced background HQ-10476	B69-10666	01	Dispenser leak-tests and sterilizes rubber gloves MSC-285	B66-10166	03
MASS SPECTROSCOPY			Body-fitted harness provides safe and easy component handling M-FS-533	B66-10202	05
Reliable method for testing gross leaks in semiconductor component packages ERC-10150	B68-10562	01	Adjustable cutting guide aligns and positions stacks of material MSC-321	B66-10210	05
Mass spectrograph analysis MSC-13239	B69-10134	06	Fiberglass container shells form contamination-free storage units WOO-275	B66-10217	05
Qualitative and quantitative analysis of mixtures of compounds containing both hydrogen and deuterium ARG-10312	B69-10177	04	Critical parts are stored and shipped in environmentally controlled reusable container M-FS-703	B66-10258	05
MASS TRANSFER			Impact and puncture resistant material protects parts from damage MSC-747	B66-10375	05
Computer simulation program is adaptable to industrial processes LEWIS-240	B66-10426	01	Universal transloader moves delicate equipment without stress MSC-654	B66-10384	05
Characteristics of fluidized-packed beds ARG-10049	B68-10278	03	Carriage system remotely moves drawer over extended distance NU-0092	B66-10711	05
An investigation of particle mixing in a gas-fluidized bed ARG-10182	B68-10407	05	Hydrostatic force used to handle outsized, heavy objects HQ-90	B67-10167	05
Mass transport mechanism in porous fuel cell electrodes HQ-10343	B69-10135	01	Apparatus for fabrication of americium-beryllium neutron sources prevents capsule contamination ARG-184	B67-10202	05
MATCHING			Computer magnetic tape rehabilitation study GSFC-10283	B68-10035	05
Polarizing keys prevent mismatch of connector plugs and receptacles MSC-443	B66-10251	01	High-temperature bearing-cage materials LEWIS-10403	B68-10176	05
Human transfer functions used to predict system performance parameters LANGLEY-203	B66-10379	01	Packaging criteria for transportation and handling shock and vibration M-FS-13007	B68-10219	05
Device for diode tuning in a stripline varactor harmonic multiplier M-FS-20153	B69-10013	01	Contamination control handbook M-FS-20185	B68-10392	03
MATERIAL ABSORPTION			Inflatable bladder to facilitate handling of heavy objects - A concept M-FS-14272	B69-10069	05
Bidirectional torque filter eliminates backlash GSFC-335	B65-10148	05	Cover protects critical electrical connectors against damage during handling MSC-15662	B69-10526	01
Precise doping of metals by small gas flows LEWIS-10444	B68-10526	03	MATERIALS RECOVERY		
Rapid and precise analysis for calcium in blood serum ARG-10246	B69-10160	04	Separation technique provides rapid quantitative determination of cesium-137 in irradiated nuclear fuel NUC-10047	B67-10194	03
MATERIALS			Device for obtaining separation of oxygen LANGLEY-11007	B69-10477	01
Tube welding and brazing M-FS-20348	B69-10085	05	MATERIALS SCIENCE		
Manual of typical low temperature mechanical properties of several materials M-FS-18331	B69-10179	03	Development of technology for hot-drape forming of large torus sections M-FS-12141	B67-10341	05
Tools made of ice facilitate forming of soft, sticky materials KSC-10262	B69-10199	05	MATERIALS TESTS		
MATERIALS HANDLING			Graphite element serves as radiant heat source M-FS-105	B65-10218	01
Self-balancing beam permits safe, easy load handling under overhang M-FS-84	B63-10571	05	Multiple test chamber exposes materials to various environments MSC-179	B65-10268	01
Speed-sensing device aids crane operators WS-4	B64-10006	05			
Filler device for handling hot corrosive materials MSC-85	B64-10166	03			
Dispensing system eliminates torsion in deployed hoses MSC-80	B65-10185	05			

SUBJECT INDEX

MATRICES

Simple technique determines ac properties of hard superconductive materials M-FS-1818	B66-10657	02	Computer program /P1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas NUC-10141	B67-10678	06
Cryogenic fatigue data developed for Inconel 718 M-FS-702	B67-10049	03	Design techniques - Stochastic controllers MSC-11554	B68-10234	02
Simplified method measures changes in tensile yield strength using least number of specimens NUC-10075	B67-10266	03	Vibration testing and dynamic studies of relays M-FS-14542	B68-10268	01
Study made of dielectric properties of promising materials for cryogenic capacitors M-FS-13620	B67-10366	03	Computer graphics data conditioning M-FS-14695	B68-10296	06
Material fatigue data obtained by card-programmed hydraulic loading system LANGLEY-10042	B67-10491	03	Compound equation developed for postnatal growth of birds and mammals ARG-10192	B68-10427	04
Survey of fracture toughness test methods LEWIS-10379	B68-10046	03	Rocket engine analog simulation M-FS-14511	B68-10511	01
Abrasion and fracture testing in a high-pressure hydrogen environment M-FS-18480	B69-10457	03	Improved technique for digital simulation of bending and slosh phenomena M-FS-14788	B68-10570	02
MATHEMATICAL LOGIC			Propellant tank pressurization analysis program M-FS-12623	B69-10007	06
Problem of oscillating cone in supersonic flow is solved by small perturbation techniques M-FS-869	B66-10700	02	A new method for the determination of particulate contamination levels for surface cleanliness of fluid systems KSC-10267	B69-10520	02
MATHEMATICAL MODELS			Frequency domain analysis and synthesis of lumped parameter systems using nonlinear least squares techniques M-FS-15033	B69-10577	02
New computer system simplifies programming of mathematical equations M-FS-441	B66-10361	01	Flow properties of suspensions rich in solids ARG-10481	B69-10622	02
Human transfer functions used to predict system performance parameters LANGLEY-203	B66-10379	01	Estimating reliability by application of matrix representation HQ-10246	B69-10793	02
Linear circuit analysis program for IBM 1620 Monitor 2, 1311/1443 data processing system /CIRCS/ NPO-10131	B67-10173	06	MATHEMATICS		
A theoretical model for determining turbine flowmeter sensitivity M-FS-1172	B67-10179	01	Mechanical properties of plastics predetermined by empirical method ARC-28	B64-10068	03
A modal combination computer program for dynamic analysis of structures NPO-10129	B67-10217	06	Apparatus measures concentration of suspended droplets in gas streams LANGLEY-31	B64-10237	01
CINDA - Chrysler Improved Numerical Differencing Analyzer computer program M-FS-2298	B67-10278	06	Delayed ripple counter simplifies square-root computation GSFC-398	B65-10343	01
Computer program predicts thermal and flow transients experienced in a reactor loss-of-flow accident NUC-10054	B67-10281	06	Mathematical relation predicts achievable densities of compacted particles ARG-10082	B67-10592	03
Computer program performs rectangular fitting stress analysis M-FS-13010	B67-10520	06	Analytical drafting curves provide exact equations for plotted data LANGLEY-285	B67-10601	02
Analysis of dynamic systems with DAP4H computer program M-FS-13999	B67-10523	06	Numerical integration of ordinary differential equations of various orders ARG-10247	B69-10089	02
M-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program NUC-10126	B67-10536	06	Prediction of friction coefficients for gases LEWIS-10774	B69-10112	02
Propellant tank pressurization analysis program M-FS-1506	B67-10625	06	MATRICES		
Development of reliability prediction technique for semiconductor diodes GSFC-10231	B67-10651	06	Pneumotachometer counts respiration rate of human subject MSC-92	B64-10259	01
Phase plane displays detect incipient failure in servo system testing HQ-10018	B67-10662	01	Computer program utilizes FORTRAN 4 subroutines for contour plotting NPO-10127	B67-10323	06
			One hundred angstrom niobium wire LEWIS-10128	B68-10279	03

MATRICES (CIRCUITS)

SUBJECT INDEX

Improved method of producing oxide-dispersion-strengthened alloys HQ-10461	B69-10536	03	M-FS-14802	B68-10276	02
MATRICES (CIRCUITS)			Linear systems of equations solved using mathematical algorithms ARG-10146	B68-10292	06
Transistorized circuit clamps voltage with 0.1 percent error GSFC-196	B65-10118	01	Controllability of distributed-parameter systems M-FS-14929	B68-10346	02
Improved wire memory matrix uses very little power JPL-SC-167	B65-10359	01	Structural Analysis and Matrix Interpretive System /SAMIS/ NPO-10839	B69-10093	01
General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-FS-13094	B67-10331	06	Numerical inversion of finite Toeplitz matrices and vector Toeplitz matrices ARG-10445	B69-10415	02
Test device prevents weld joint damage by eliminating axial pin forces on unpotted modules LEWIS-10201	B67-10359	01	Estimating reliability by application of matrix representation HQ-10246	B69-10793	02
Current steering commutator offers versatility JPL-812	B67-10410	01	MATRIX METHODS Structural Analysis and Matrix Interpretive System /SAMIS/ NPO-10130	B67-10171	01
Heavy-gage bonded honeycomb sandwich as primary load-bearing structure M-FS-12060	B67-10427	05	A modal combination computer program for dynamic analysis of structures NPO-10129	B67-10217	06
Composite solar cell matrix is reliable, lightweight and flexible NPO-10821	B67-10503	01	Transient Analysis Generator /TAG/ simulates behavior of large class of electrical networks NPO-10031	B67-10319	06
Random access-random release relay switching matrix M-FS-12590	B68-10301	01	Study made of ductility limitations of aluminum-silicon alloys M-FS-12524	B67-10392	03
Short circuit protection for a power distribution system M-FS-14993	B68-10443	01	Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles LANGLEY-10093	B67-10531	06
Locating **sneak paths** in electrical circuitry M-FS-15018	B68-10565	01	Study made of mechanics of deformation and fracture of fibrous composites HQ-10035	B67-10660	03
MATRICES (MATHEMATICS)			Shock and vibration response of multistage structure M-FS-14972	B68-10353	05
Structural Analysis and Matrix Interpretive System /SAMIS/ NPO-10130	B67-10171	01	Finite element formulation for linear thermoviscoelastic materials NPO-11229	B69-10660	03
Computer program calculates steady-state temperature distribution within plane or axisymmetric solids NUC-10049	B67-10224	06	MATTER (PHYSICS) Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons ARG-10220	B69-10211	02
Computer program predicts thermal and flow transients experienced in a reactor loss-of-flow accident NUC-10054	B67-10281	06	MAXWELL-BOLTZMANN DENSITY FUNCTION Computer program /P1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas NUC-10141	B67-10678	06
Improved computer program for elastic analysis of highly redundant structural configurations M-FS-13087	B67-10330	06	MCLEOD GAGES Baking enables McLeod gauge to measure in ultrahigh vacuum range GSFC-440	B65-10329	01
Computer subroutine ISUDS accurately solves large system of simultaneous linear algebraic equations NUC-10051	B67-10344	06	Modified McLeod gage records automatically LEWIS-290	B66-10290	02
Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds LANGLEY-10191	B67-10666	06	Modified McLeod pressure gage eliminates measurement errors ARC-62	B66-10481	01
Computer program /P1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas NUC-10141	B67-10678	06	Absolute low-pressure calibration system M-FS-13085	B68-10160	02
MOP /Matrix Operation Programs system/ NPO-10429	B68-10005	06	MEAN Computer program reduces calculation time of normal response functions M-FS-1517	B67-10108	01
Solution of differential equations by application of transformation groups					

SUBJECT INDEX

MEASURING INSTRUMENTS

Performance of turbine-type flowmeters in liquid hydrogen LEWIS-10137	B67-10506	01	MSC-50	B64-10108	04
FORTTRAN optical lens design program NPO-10603	B68-10354	06	Apparatus measures concentration of suspended droplets in gas streams LANGLEY-31	B64-10237	01
Estimation of signal-to-noise ratios KNP-05254	B69-10557	01	Inexpensive, stable circuit measures heart rate MSC-95	B65-10010	01
Wind tower influence study M-FS-20239	B69-10653	01	Seismic transducer measures small horizontal displacements M-FS-81	B65-10029	05
MEASURE AND INTEGRATION			Gage measures electrical connector pin retention force JPL-SC-071	B65-10034	03
Some numerical methods for integrating systems of first-order ordinary differential equations ARG-10308	B69-10204	02	Ionization vacuum gage starts quickly, is unaffected by spurious currents JPL-304	B65-10036	02
Integrated sequence display device KSC-10381	B69-10316	01	Device measures curved surface finish on gear teeth WOO-112	B65-10064	05
MEASUREMENT			Sensitive level sensor made with spirit level, gives electrical output LANGLEY-49	B65-10067	01
Raster linearity of video cameras calibrated with precision tester GSFC-200	B64-10209	01	Light-sensitive potentiometer measures product of two variables GSFC-240	B65-10076	01
Wide-angle sensor measures radiant heat energy in corrosive atmospheres M-FS-228	B65-10019	05	Multiple element soft X-ray source produces wide range of radiation GSFC-286	B65-10082	02
Spherical model provides visual aid for cubic crystal study LEWIS-108	B65-10065	03	Transducer senses displacements of panels subjected to vibration ARC-37	B65-10085	01
Internal cooling increases range of immersion-type temperature probe LEWIS-171	B65-10157	02	Apparatus measures swelling of membranes in electrochemical cells GSFC-280	B65-10087	01
Gage of 6.5 per cent Si-Fe sheet is chemically reduced MSC-537	B66-10454	03	Instrument calibrates low gas-rate flowmeters MSC-134	B65-10137	01
Computer program determines performance efficiency of remote measuring systems M-FS-1137	B66-10503	01	System measures unidirectional forces, excludes extraneous forces LEWIS-170	B65-10154	05
Rocket sonde measurements of ozone in the upper atmosphere GSFC-10580	B69-10077	02	Internal cooling increases range of immersion-type temperature probe LEWIS-171	B65-10157	02
Direct measurement of carbon-14 in carbon dioxide by liquid scintillation counting ARG-10237	B69-10092	03	Interferometer combines laser light source and digital counting system MSC-151	B65-10161	01
Rapid and precise analysis for calcium in blood serum ARG-10246	B69-10160	04	Device enables measurement of moments of inertia about three axes GSFC-49	B65-10176	05
Compensation of pulse-rebalanced inertial instruments MSC-13098	B69-10216	01	Sensitive electrometer features digital output GSFC-288	B65-10206	01
Reducing quantizer deadband with a **range switching** digital filter M-FS-20419	B69-10259	01	Oscillator circuit measures liquid level in tanks M-FS-245	B65-10209	01
Improved system for documenting measurement data M-FS-18269	B69-10513	01	Multiaxial analyzer detects low-energy electrons GSFC-329	B65-10213	01
MEASURING INSTRUMENTS			Servo calorimeter measures material heating rate NU-0024	B65-10247	01
Liquid-level meter has no moving parts M-FS-3	B63-10378	03	Differential pressure gauge has fast response M-FS-358	B65-10285	05
Rapid helium-air analyzer can measure other binary gas mixtures LANGLEY-16	B63-10557	03	Coaxial capacitor used to determine fluid density LEWIS-232	B65-10296	02
Ultra-sensitive transducer advances micro-measurement range ARC-26	B64-10004	01	Remote rapidly varying pressures accurately		
Multiple port pressure scanner valve features greater accuracy, quicker data JPL-555	B64-10031	05			
Device induces lungs to maintain known constant pressure					

MEASURING INSTRUMENTS CONT

SUBJECT INDEX

measured FRC-28	B65-10301	01	M-FS-848	B66-10397	01
Improved strain-wire flowmeter has fast response time LEWIS-241	B65-10304	01	Plant respirometer enables high resolution of oxygen consumption rates HQ-47	B66-10406	04
Electronic ampere-hour integrator is accurate to one percent GSFC-203	B65-10308	01	Ion chambers simplify absolute intensity measurements in the vacuum ultraviolet ERC-10	B66-10439	01
Air brake-dynamometer accurately measures torque LEWIS-163	B65-10312	05	Thermionic scanner pinpoints work function of emitter surfaces JPL-SC-177	B66-10444	01
Magnetometer measures orthogonal components of magnetic fields GSFC-395	B65-10315	01	Indicator system provides complete data of engine cylinder pressure variation LEWIS-291	B66-10470	05
Volumetric system calibrates meters for large flow rates WOO-130	B65-10323	05	Spiral spring/strain gage combination accurately measures shock induced deflection MSC-789	B66-10488	01
Direct force-measuring transducer used in blood pressure research ARC-53	B65-10325	01	Gage tests tube flares quickly and accurately KSC-66-19	B66-10537	05
Rough surface improves stability of air- sounding balloons M-FS-320	B65-10326	05	Miniature electrometer preamplifier effectively compensates for input capacitance ARC-69	B66-10549	01
Baking enables McLeod gauge to measure in ultrahigh vacuum range GSFC-440	B65-10329	01	Device accurately measures and records low gas-flow rates M-FS-1077	B66-10569	01
Wedge immersed thermistor bolometer measures infrared radiation GSFC-443	B65-10330	02	Positive displacement cylinder measures corrosive liquid volume MSC-1038	B66-10589	05
Vibrating diaphragm measures high electrostatic field strengths MSC-189	B65-10352	01	Sensors measure surface ablation rate of reentry vehicle heat shield LANGLEY-287	B66-10592	01
Three-dimensional wire-mesh capacitor system measures fluid density WOO-194	B65-10379	01	Pressure probe compensates for dimensional tolerance variations LEWIS-302	B66-10599	01
Photoelectric system continuously monitors liquid level M-FS-417	B65-10382	01	A radiometer-pyrometer LEWIS-284	B66-10606	01
Noncontacting vibration transducer has constant sensitivity LANGLEY-99	B65-10392	01	Device measures reaction engine thrust vector deviations JPL-SC-163	B66-10642	05
Special mount improves remote transducer accuracy LEWIS-269	B66-10021	01	Modified algesimeter provides accurate depth measurements MSC-616	B66-10647	04
Telescoping of instrumentation tubing eliminates swaging M-FS-546	B66-10116	05	Magnetoresistor monitors relay performance M-FS-1754	B66-10650	01
Improved system measures output energy of pyrotechnic devices WOO-256	B66-10159	01	Rocket engine vibration accurately measured by photography M-FS-1916	B66-10652	02
Transducer measures force in vacuum environment LEWIS-218	B66-10161	01	Mechanical gauge accurately checks tubing flare, roundness, and concentricity M-FS-1822	B66-10656	05
Pneumatic shutoff and time-delay valve operates at controlled rate M-FS-602	B66-10189	05	Slide rule-type color chart predicts reproduced photo tones MSC-1227	B66-10680	01
Device without electrical connections in tank measures liquid level WOO-235	B66-10198	01	Mechanical device accurately measures rf phase differences in vhf or uhf ranges M-FS-1738	B66-10694	05
Special tool seals conductors with combination of plastic sleeves M-FS-579	B66-10209	05	Crystal microbalance measures condensable molecular fluxes JPL-845	B67-10012	03
Vacuum test fixture improves leakage rate measurements MSC-271	B66-10286	01	Absolute viscosity measured using instrumented parallel plate system JPL-874	B67-10041	01
Minimum permissible leakage resistance established for instrumentation systems			Holding fixture facilitates pipe thread gage measurements M-FS-2009	B67-10066	05

SUBJECT INDEX

MEASURING INSTRUMENTS CONT

Instrument continuously measures density of flowing fluids LEWIS-309	B67-10080	01	ARG-10138	B68-10291	01
Portable fixture facilitates pressure testing of instrumentation fittings M-FS-2032	B67-10121	03	Venturi meter with separable diffuser LEWIS-10483	B68-10295	05
Tritiated alumina serves as reagent for self-labeling analysis ARG-209	B67-10315	03	High-torque power wrench, a concept M-FS-18194	B68-10299	05
Accuracy of laser measurements improved by pulse autocorrelator electronic system MSC-10033	B67-10338	01	Modified sine bar device measures small angles with high accuracy GSFC-438	B68-10322	02
Vibration analysis utilizing Mossbauer effect M-FS-11974	B67-10339	01	Automatic, nondestructive test monitors in-process weld quality M-FS-14996	B68-10333	01
Cut-through tester accurately measures insulation failure rates M-FS-12506	B67-10354	03	Superconductive thin film makes convenient liquid helium level sensor LANGLEY-10289	B68-10341	01
System automatically provides dynamic launch decision criteria M-FS-13063	B67-10363	01	Determining gas leakage from bubble formations M-FS-14841	B68-10393	05
Multiple meter monitoring circuits served by single alarm MSC-10984	B67-10369	01	Battery-package design provides for cell cooling and constraint MSC-11839	B68-10398	05
Measuring coplanarity of surfaces MSC-12044	B67-10371	02	System for measuring spatial distribution of ejected droplets, a concept NPO-10185	B68-10402	01
Machine tests slow-speed sliding friction in high vacuum M-FS-12341	B67-10379	05	Nosepiece respiration monitor ERC-10136	B68-10438	01
Crack growth measured on flat and curved surfaces at cryogenic temperatures LEWIS-389	B67-10384	01	Low friction servo valve LEWIS-10574	B68-10440	05
Computer program generates averaged value data tapes M-FS-12728	B67-10411	06	Environmental test planning, selection and standardization aids available SAN-10028	B68-10445	06
Infrared radiometer M-FS-13373	B67-10422	01	Surface irregularities detected by flare inspection instrument M-FS-20157	B69-10152	01
Design for high-temperature /1800 deg F/ liquid metal pressure transducer LEWIS-10144	B67-10458	01	Gage provides audible signal to facilitate checkout of connector pins KSC-10335	B69-10173	01
Instrument accurately measures weld angle and offset M-FS-12849	B67-10563	05	Direct reading of electrocardiograms and respiration rates KSC-10233	B69-10188	04
Device measures static friction of magnetic tape GSFC-10360	B67-10586	03	Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01
Review of biological mechanisms for application to instrument design HQ-33	B67-10663	04	A magnifying scratch-gage force transducer LANGLEY-10496	B69-10212	01
Digital data averager improves conventional measurement system performance MSC-12078	B68-10018	01	Magnetically coupled emission regulator GSFC-10056	B69-10213	01
Deployable lattice column NPO-10228	B68-10082	05	Induction probe determines levels of liquid metals ARG-10348	B69-10256	03
Monitor senses amount of contamination deposited on surfaces GSFC-10212	B68-10089	01	Nondestructive evaluation of printed wiring boards by microhm resistance measurements SAN-10034	B69-10272	01
System for measuring roundness and concentricity of large tanks M-FS-13362	B68-10099	05	Mass culture of photobacteria to obtain luciferase GSFC-10563	B69-10294	04
Mm-wave power meter mount NPO-10348	B68-10152	01	Spiral-flow apparatus for measuring permeation of solids by gases M-FS-16517	B69-10357	03
Low energy ohmmeter can be used to test sensitive circuits, other meters SAN-10013	B68-10269	01	Pressure transducer NPO-10853	B69-10364	01
Cryogenic liquid level measuring probe			Instrumentation for nondestructive testing of composite honeycomb materials M-FS-20405	B69-10366	03
			Hydraulic calipers		

MECHANICAL DEVICES

SUBJECT INDEX

M-FS-18052	B69-10399	05	WS-4	B64-10006	05
Leakage measuring method			Quick-acting clutch disengages idle drive		
M-FS-14722	B69-10438	01	motor		
Oculometer for remote tracking of eye movement			GSFC-143	B64-10028	05
ERC-10114	B69-10444	02	Multiple port pressure scanner valve features greater accuracy, quicker data		
Crossed-beam technique for measuring horizontal winds			JPL-555	B64-10031	05
M-FS-20160	B69-10447	02	Bearing transmits rotary and axial motion		
Adjustable thermal **tree**			LANGLEY-27	B64-10130	05
MSC-15556	B69-10484	01	Compact cartridge drives coded tape at constant readout speed		
Rotary antenna attenuator			JPL-472	B64-10222	01
NPO-10648	B69-10502	01	Shock absorber protects motive components against overloads		
Radiometric temperature reference			WOO-092	B65-10008	05
MSC-13276	B69-10507	01	Stepping motor drive circuit designed for low power drain		
Measurement of gas flow at extremely low pressures			GSFC-198	B65-10026	01
MSC-13261	B69-10522	03	Extendible column can be stowed on drum		
Miniaturized high-resolution mass/charge spectrograph /design study/			JPL-686	B65-10191	05
MSC-13279	B69-10554	02	Hydraulic drive system prevents backlash		
Water-glycol system volume calculation			JPL-371	B65-10351	05
MSC-15193	B69-10563	02	Respiratory transfer value has fail-safe feature		
Millimeter-wave atmospheric loss prediction method			ARC-1	B65-10369	01
NPO-11054	B69-10584	01	Modified power tool rapidly drives series torque bolts		
Pulse-height analyzer with digital readout			MSC-221	B66-10054	05
ARG-10503	B69-10640	01	Pipe cutting tool is useful in limited space		
Measurement technique for the determination of antenna directivity			MSC-36	B66-10102	05
M-FS-12799	B69-10677	01	Torque wrench allows readings from inaccessible locations		
Technique for predicting the thermal expansion coefficients of cryogenic metallic alloys			M-FS-598	B66-10204	05
NUC-10554	B69-10707	02	Expandable rubber plug seals openings for pressure testing		
Deposition monitor and control			NU-0048	B66-10229	05
NPO-10706	B69-10722	01	Compact actuator converts rotary to linear motion		
A simple electrometer for measuring small photoelectric currents			JPL-786	B66-10265	05
GSFC-10603	B69-10734	01	Remotely controlled system couples and decouples large diameter pipes		
Photomicrometrology			NU-0062	B66-10276	05
M-FS-14556	B69-10736	01	Gear drive automatically indexes rotary table		
MECHANICAL DEVICES			M-FS-753	B66-10383	05
Automatic cryogenic liquid level controller is safe for use near combustible substances			Braking mechanism is self actuating and bidirectional		
LEWIS-195	B66-10482	01	M-FS-1299	B66-10484	05
Rolanite - A new mechanical design concept			Motion drive system is accurately controlled in the 1-micron range		
SAN-10001	B67-10611	05	JPL-864	B66-10695	05
Quick-acting backup tool for welding ducts			Simple motor drive system operates heavy hinged door		
M-FS-18404	B69-10396	05	NU-0093	B66-10712	05
Technique for ultrasonic cleaning with volatile solvents eliminates need for hoods or condensers			Swing-out rail system separates overhead crane rails		
MSC-15611	B69-10552	03	NU-0094	B66-10713	05
MECHANICAL DRIVES			Automated microsyringe is highly accurate and reliable		
Chain friction system gives positive, reversible drive			NPO-10142	B67-10203	01
ARC-8	B63-10009	05	Low speed, long term tracking electric drive system has zero backlash		
Device transmits rotary motion through hermetically sealed wall			NPO-10173	B67-10220	01
JPL-303	B63-10198	05	Eccentric drive mechanism is adjustable during operation		
Fine-particle filter prevents damage to vacuum pumps			M-FS-2576	B67-10373	05
LEWIS-106	B63-10489	05	Speed-sensing device aids crane operators		

SUBJECT INDEX

MECHANICAL PROPERTIES

Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates NPO-10316	B67-10418	05	jigs and tool structures MSC-800	B66-10458	03
An improved magnetic tape recorder GSFC-08259	B67-10646	01	Lower-cost tungsten-rhenium alloys LEWIS-332	B66-10528	03
Improved control system power unit for large parachutes MSC-12052	B67-10677	05	Tests show that aluminum welds are improved by bead removal M-FS-1817	B67-10023	05
Remotely operated gripper provides vertical control rod movement ARG-10160	B68-10359	05	Materials data handbooks prepared for aluminum alloys 2014, 2219, and 5456, and stainless steel alloy 301 M-FS-1959	B67-10089	03
High-torque precision stepping drive M-FS-14772	B68-10549	05	Pipe joints reinforced in place with fitted aluminum sleeves MSC-11109	B67-10271	05
Electromechanical rotary actuator operates over wide temperature range M-FS-18402	B69-10100	05	Materials data handbook, Inconel alloy 718 M-FS-2348	B67-10282	03
Magnetron tuner has locking feature XNP-09771	B69-10119	05	Study made of dielectric properties of promising materials for cryogenic capacitors M-FS-13620	B67-10366	03
Liquid gallium rotary electric contract LEWIS-10828	B69-10138	03	Mechanical properties of wire insulation automatically determined MSC-10983	B67-10370	01
MECHANICAL ENGINEERING			Single-source mechanical loading system produces biaxial stresses in cylinders M-FS-12530	B67-10380	05
Analytical technique permits comparison of reliability of alternate mechanical designs NUC-10065	B67-10261	06	Study made of ductility limitations of aluminum-silicon alloys M-FS-12524	B67-10392	03
MECHANICAL MEASUREMENT			Experiments to investigate particulate materials in reduced gravity fields M-FS-13308	B67-10394	02
Seismic transducer measures small horizontal displacements M-FS-81	B65-10029	05	Aluminum heat sink enables power transistors to be mounted integrally with printed circuit board M-FS-13663	B67-10426	01
Torque wrench allows readings from inaccessible locations M-FS-598	B66-10204	05	Study made of acoustical monitoring for mechanical checkout M-FS-13372	B67-10430	02
Mechanical device accurately measures RF phase differences in VHF or UHF ranges M-FS-1738	B66-10694	05	Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133	B67-10437	03
Integrated mobility measurement and notation system MSC-726	B67-10114	04	Study made of procedures for externally loading and corrosion testing stress corrosion specimens M-FS-12064	B67-10451	03
Microdetermination of urea in urine using p-dimethylaminobenzaldehyde /PDAB/ NPO-10715	B69-10317	04	Technique eliminates high voltage arcing at electrode-insulator contact area LEWIS-10133	B67-10470	01
MECHANICAL OSCILLATORS			Study of stress corrosion in aluminum alloys M-FS-13906	B67-10533	03
A conceptual design for squeeze film bearings M-FS-573	B66-10226	05	Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes NUC-10143	B67-10665	06
Vibrator elapsed time is automatically controlled M-FS-2573	B67-10284	01	Study of mechanical properties of uranium compounds ARG-10074	B68-10197	03
MECHANICAL PROPERTIES			Ignition of binary alloys of uranium ARG-10057	B68-10280	01
Mechanical properties of plastics predetermined by empirical method ARC-28	B64-10068	03	Fiber glass reinforced structural materials for aerospace application M-FS-14806	B68-10360	03
Lightweight aluminum casting alloy is useful at cryogenic temperatures M-FS-267	B65-10092	03	Tungsten fiber-reinforced nickel superalloy LEWIS-10424	B68-10369	03
Multiple test chamber exposes materials to various environments MSC-179	B65-10268	01	Nickel-base superalloy*s excellent		
Design reliability goal developed from small sample M-FS-403	B66-10405	05			
Weldable aluminum alloy has improved mechanical properties M-FS-295	B66-10445	03			
Thermal stress-relief treatments for 2219 aluminum alloy are evaluated M-FS-1213	B66-10448	03			
Heat treatment stabilizes welded aluminum					

MECHANICAL SHOCK

SUBJECT INDEX

properties promote its service to 2200 degrees F LEWIS-10355	B68-10380	03	Development of mechanized ultrasonic scanning system M-FS-13638	B68-10004	05
Weld joint strength and mechanical properties in 2219-T81 aluminum alloy LEWIS-10479	B68-10561	03	Tool repairs tube components in situ MSC-15348	B69-10379	05
Beryllium fastener technology M-FS-20306	B69-10019	05	MEDICAL ELECTRONICS Phonocardiograph system monitors heart sounds MSC-185	B66-10154	04
Materials data handbook, aluminum alloy 6061 M-FS-20381	B69-10065	03	Electrocardiograph transmitted by RF and telephone links in emergency situations FRC-10031	B68-10233	01
Mixing weld gases offers advantages M-FS-16413	B69-10145	05	Direct reading of electrocardiograms and respiration rates KSC-10233	B69-10188	04
Shell design computer program LEWIS-10734	B69-10175	06	MEDICAL EQUIPMENT Digital cardiometer computes and displays heartbeat rate MSC-93	B64-10258	01
Coatings decrease metal fatigue failure ARC-10015	B69-10176	03	Tiny biomedical amplifier combines high performance, low power drain ARC-41	B65-10203	01
Manual of typical low temperature mechanical properties of several materials M-FS-18331	B69-10179	03	Fiberglass container shells form contamination-free storage units WOO-275	B66-10217	05
Remote balance weighs accurately amid high radiation ARG-10387	B69-10242	05	Critical parts are stored and shipped in environmentally controlled reusable container M-FS-703	B66-10258	05
Study of high temperature bearing materials LEWIS-10829	B69-10252	03	Large diameter metal ring seal prevents gas leakage at 5000 psi M-FS-1064	B66-10422	05
On the bound of first excursion probability NPO-11158	B69-10334	06	Orthopedic stretcher with average-sized person can pass through 18-inch opening M-FS-811	B66-10573	05
A biaxial weld strength prediction method M-FS-20019	B69-10471	05	Modified algometer provides accurate depth measurements MSC-616	B66-10647	04
A new method for producing optical mirrors HQ-10227	B69-10529	02	Adjustable hinge permits movement of knee in plaster cast M-FS-1756	B67-10056	04
Improved method of producing oxide-dispersion-strengthened alloys HQ-10461	B69-10536	03	Static electricity of polymers reduced by treatment with iodine NPO-10062	B67-10132	03
Retention of ductility in high-strength steels ARG-10497	B69-10616	03	Self-sealing closure enables access to several fluid containers NPO-10123	B67-10207	04
MECHANICAL SHOCK Tensile-strength apparatus applies high strain-rate loading with minimum shock JPL-28	B66-10063	05	Ultraminiature manometer-tipped cardiac catheter ARC-10054	B67-10669	01
Mechanism isolates load weighing cell during lifting of load MSC-297	B66-10071	05	Automated patient monitoring system M-FS-14552	B68-10131	01
Shock-operated valve would automatically protect fluid systems M-FS-801	B66-10335	03	Instrumentation for bone density measurement MSC-11388	B68-10140	01
Reliable, self-calibrating vibration transducer LANGLEY-89	B68-10124	01	Cardiac R-wave detector LEWIS-10394	B68-10144	01
Development of improved potting and conformal coating compounds M-FS-20219	B69-10559	03	New electrical plethysmograph monitors cardiac output MSC-11447	B68-10220	01
MECHANISM Simple mechanism combines positive locking and quick-release features WOO-4	B63-10420	05	Color-televised medical microscopy MSC-13086	B68-10314	01
MECHANIZATION Multiple test tubes stirred mechanically ARC-42	B65-10120	01	Selective vignetting of Type 1 X-ray telescopes GSFC-10682	B69-10075	02
Automatic telemetry checkout system M-FS-12580	B67-10402	01	Miniature oxygen resuscitator KSC-10398	B69-10319	04
Mechanized X-ray inspection system for large tanks M-FS-12867	B67-10564	02	Use of medical and dental X-ray equipment for nondestructive testing		

SUBJECT INDEX

MERCURY (METAL)

MSC-13389	B69-10553	01	MEMBRANES		
MEDICAL SCIENCE			Apparatus measures swelling of membranes in electrochemical cells	GSFC-280	B65-10087 01
Practical new method of measuring thermal-neutron fluence	NUC-10086	B67-10352 02	Electrically heated diaphragm eliminates use of pyrotechnics	MSC-241	B65-10400 01
Effect of preparation procedures on intensity of radioautographic labeling is studied	ARG-10032	B67-10500 04	Improved electrode paste provides reliable measurement of galvanic skin response	MSC-146	B66-10049 04
Precision trimmer aids in preparing biomedical specimen blocks for ultrathin sectioning	ARG-242	B67-10541 05	Ultrasonic cleaning restores depth-type filters	M-FS-540	B66-10298 03
Review of physics, instrumentation and dosimetry of radioactive isotopes	ARG-10037	B67-10640 02	Design concept for pressure switch calibrator	HQ-36	B66-10598 01
Carbon offers advantages as implant material in human body	M-FS-18207	B69-10087 04	Cone and column solar energy concentrator	LANGLEY-210	B67-10517 01
Miniature backward-diode pressure sensor features stability and low power consumption	ERC-10229	B69-10690 01	Device for obtaining separation of oxygen	LANGLEY-11007	B69-10477 01
MELTING			Ionene membrane battery separator	NFO-11091	B69-10501 03
Removable preheater elements improve oxide induction furnace	JPL-288	B63-10193 01	MEMORY		
Integral coolant channels supply made by melt-out method	M-FS-91	B63-10497 05	Random access-random release relay switching matrix	M-FS-1259C	B68-10301 01
Hot-air soldering technique prevents overheating of electrical components	GSFC-91	B63-10536 01	Piezoelectric lock mechanism resists lockpicking	SAN-10037	B69-10281 01
Levitation-melting technique for metals and alloys	ARG-10240	B69-10006 03	MENISCI		
Nondestructive testing of welds on thin-walled tubing	M-FS-18144	B69-10402 01	Electromechanical flowmeter accurately monitors fluid flow	GSFC-357	B65-10273 01
Device for reflowing electrodeposited solder on terminals	M-FS-13821	B69-10670 01	MERCURY (METAL)		
MELTING POINTS			Liquid switch is remotely operated by low dc voltage	GSFC-119	B63-10599 01
Internal cooling increases range of immersion-type temperature probe	LEWIS-171	B65-10157 02	Subminiature biotelemetry unit permits remote physiological investigations	ARC-39	B64-10171 01
Niobium-uranium alloys with voids of predetermined size and total volume	ARG-10490	B69-10641 03	Metal parts hydrosized by explosive force	M-FS-289	B65-10170 05
Electrolytic separation of crystals of transition-metal oxides	ARG-10506	B69-10642 03	Reusable neoprene jacket protects parts for chemical milling	WOO-071	B65-10179 03
Mass-spectrometric study of the rhenium-oxygen system	ARG-10421	B69-10645 02	Oil-damped mercury pool makes precise optical alignment tool	GSFC-353	B65-10253 02
MEMBRANE STRUCTURES			Electropneumatic rheostat regulates high current	ARC-44	B65-10299 01
Wire bundle formed into grids with minute interstices	WOO-089	B65-10372 03	Baking enables McLeod gauge to measure in ultrahigh vacuum range	GSFC-440	B65-10329 01
Reaction heat used in static water removal from fuel cells	M-FS-532	B66-10013 01	Flowmeter measures low gas-flow rates	M-FS-215	B66-10036 01
Study of behavior of sterols at interfaces	ARG-10085	B68-10281 03	Rotating magnetic poles used to pump mercury	LEWIS-276	B66-10434 05
Improved inorganic ion exchange membranes	LEWIS-10737	B69-10451 03	Modified McLeod pressure gage eliminates measurement errors	ARC-62	B66-10481 01
A method for using surface tension to determine the size of holes in hardware	MSC-15194	B69-10595 03	Device accurately measures and records low gas-flow rates	M-FS-1077	B66-10569 01
			Improved compression molding process	LANGLEY-10027	B67-10302 03

MERCURY AMALGAMS

SUBJECT INDEX

Cut-through tester accurately measures insulation failure rates
M-FS-12506 B67-10354 03

Improved sample capsule for determination of oxygen in hemolyzed blood
MSC-11017 B67-10408 04

Low energy ohmmeter can be used to test sensitive circuits, other meters
SAN-10013 B68-10269 01

Random access-random release relay switching matrix
M-FS-12590 B68-10301 01

Liquid-metal heat transfer in a cocurrent-flow, double-pipe heat exchanger is investigated
ARG-10261 B69-10091 02

Liquid gallium rotary electric contract
LEWIS-10828 B69-10138 03

A laboratory method for precisely determining the micro-volume-magnitudes of liquid efflux
ARC-10052 B69-10295 05

Measurement of gas flow at extremely low pressures
MSC-13261 B69-10522 03

Control for maintaining constant level of a cryogenic liquid
NPO-11177 B69-10573 05

Pocket-sized tone-modulated FM transmitter
NPO-11180 B69-10725 01

MERCURY AMALGAMS
Apparatus enables accurate determination of alkali oxides in alkali metals
LEWIS-256 B66-10296 03

MERCURY ARCS
Emission tester for high-power vacuum tubes
JPL-628 B64-10158 01

MERCURY COMPOUNDS
Multiple port pressure scanner valve features greater accuracy, quicker data
JPL-555 B64-10031 05

Development of low temperature battery
LEWIS-10326 B67-10546 01

MERCURY LAMPS
High-intensity flashing beacon powered by mercury cells
LANGLEY-80 B65-10361 01

MERCURY VAPOR
Igniting system for mercury lamps protects transistorized sustaining supply
JPL-421 B63-10262 01

MERIDIONAL FLOW
Computer program performs flow analysis through turbines
LEWIS-236 B66-10496 01

MESH
Fine-mesh screen made by simplified method
WOO-104 B64-10282 03

Combustion chamber struts can be effectively transpiration cooled
M-FS-1830 B66-10643 03

Mounting method improves electrical and vibrational characteristics of screen electrodes
M-FS-20169 B69-10097 01

Adding calcium improves lithium ferrite core
ERC-10036 B69-10686 06

MESOSPHERE
Rocket sonde measurements of ozone in the upper atmosphere
GSFC-10580 B69-10077 02

METABOLIC WASTES
Improved mouse cage provides versatility and ease in handling laboratory mice
MSC-12250 B69-10124 04

METABOLISM
Plant respirometer enables high resolution of oxygen consumption rates
HQ-47 B66-10406 04

Study made of relationship between growth and metabolism
ARG-10046 B67-10604 04

Study of behavior of sterols at interfaces
ARG-10085 B68-10281 03

Investigation of temperature dependence of development and aging
ARG-10145 B69-10022 04

Qualitative and quantitative analysis of mixtures of compounds containing both hydrogen and deuterium
ARG-10312 B69-10177 04

Life detection
NPO-10510 B69-10475 04

Quantitative determination of flavin nucleotide using the bacterial bioluminescent reaction
GSFC-10565 B69-10715 04

METAL BONDING
Electronic modules easily separated from heat sink
MSC-142 B65-10186 02

Refractory metals welded or brazed with tungsten inert gas equipment
LEWIS-219 B65-10319 05

Brazing method produces solid-solution bond between refractory metals
LEWIS-212 B65-10370 05

Assembly jig assures reliable solar cell modules
GSFC-455 B66-10040 05

Correlation established between heat transfer and ultrasonic transmission properties of copper braze bonds
ARG-247 B67-10037 02

Method of improving contact bonds in silicon integrated circuits
M-FS-1753 B67-10335 01

Integrated metal transistor leads
GSFC-90536 B68-10518 01

Study of high temperature bearing materials
LEWIS-10829 B69-10252 03

Explosive bonding of metal-matrix composites
M-FS-20657 B69-10804 05

METAL COATINGS
Nickel/tin coating protects threaded fasteners in corrosive environment
MSC-253 B65-10398 03

PTFE-aluminum films serve as neutral density filters
LANGLEY-189 B66-10017 02

Jig protects transistors from heat while tinning leads
MSC-515 B66-10240 05

Composites of porous metal and solid lubricants increase bearing life
LEWIS-307 B67-10007 03

SUBJECT INDEX

METAL FILMS

Study to minimize hydrogen embrittlement of ultrahigh-strength steels M-FS-2455	B67-10141	03	METAL DRAWING Hydraulic fluid serves as mandrel for small diameter refractory tube drawing ARG-44	B66-10523	05
Sensing disks for slug-type calorimeters have higher temperature stability M-FS-1867	B67-10161	01	Ductile mandrel and parting compound facilitate tube drawing ARG-43	B66-10571	05
Iron serves as diffusion barrier in thermally regenerative galvanic cell ARG-29	B67-10189	03	Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area NUC-10007	B67-10538	01
Soft metal plating enables hard metal seal to operate successfully in low temperature, high pressure environment NUC-10083	B67-10350	03	One hundred angstrom niobium wire LEWIS-10128	B68-10279	03
Metal flame spray coating protects electrical cables in extreme environment NUC-10077	B67-10351	03	Boron fiber-reinforced aluminum alloy tubing /experimental/ MSC-15633	B69-10509	05
Electron beam selectively seals porous metal filters LEWIS-10162	B68-10331	05	METAL FATIGUE New brazing alloy eliminates metal-stress cracking WOO-249	B65-10397	03
Investigation of spacecraft coatings M-FS-20458	B69-10181	06	Rubber-coated bellows improves vibration damping in vacuum lines LEWIS-273	B66-10187	02
Sprayed shielding of plastic-encapsulated electronic modules M-FS-13570	B69-10607	01	Fatigue zones in metals identified by polarized light photography WOO-286	B67-10082	02
METAL COMBUSTION Rapid-response, light-exposure control system NPO-10238	B68-10502	01	Study to minimize hydrogen embrittlement of ultrahigh-strength steels M-FS-2455	B67-10141	03
METAL COMPOUNDS Trace levels of metallic corrosion in water determined by emission spectrography MSC-1193	B66-10701	03	Predicting fatigue life of metal bellows M-FS-14096	B68-10026	05
Refractory-metal compound impregnation of polytetrafluoroethylene LEWIS-10733	B69-10072	03	Effect of surface irregularities on bellows fatigue life M-FS-14480	B68-10229	05
Production of metals and compounds by radiation chemistry LEWIS-10231	B69-10123	03	Tensile and fatigue properties of Inconel 718 at cryogenic temperatures M-FS-18192	B69-10068	03
METAL CUTTING Threaded pilot insures cutting tool alignment M-FS-527	B66-10074	05	Coatings decrease metal fatigue failure ARC-10015	B69-10176	03
Pipe cutting tool is useful in limited space MSC-36	B66-10102	05	METAL FILMS High permeability semiconductors permit close-tolerance soldering GSFC-319	B65-10134	05
Portable power tool machines weld joints in field M-FS-258	B66-10145	05	PTFE-aluminum films serve as neutral density filters LANGLEY-189	B66-10017	02
Adjustable knife cuts honeycomb material to specified depth MSC-475	B66-10237	05	Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02
Hollow needle used to cut metal honeycomb structures MSC-486	B66-10244	05	Aluminum core structures brazed without use of flux M-FS-659	B66-10360	05
Vibrator improves spark erosion cutting process NU-0071	B66-10333	01	Self-supported aluminum thin films produced by vacuum deposition process ARC-58	B66-10387	03
Study made of explosive cutting in simulated space environments M-FS-1597	B67-10040	01	Nonelectrolytic tantalum capacitors developed M-FS-1546	B66-10552	01
Variable-speed, portable routing skate M-FS-13772	B67-10525	05	Mechanism facilitates coating of inner surfaces of metal cylinders GSFC-515	B66-10698	05
Cold machining of high density tungsten and other materials ARG-10289	B69-10110	05	Oxide film on metal substrate reduced to form metal-oxide-metal layer structure ARG-48	B67-10187	03
J-beveling of pipe ends with a hand-held tool KSC-10356	B69-10229	05	Ultraminiature manometer-tipped cardiac catheter ARC-10054	B67-10669	01

METAL FOILS

SUBJECT INDEX

Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01	Neutron detector simultaneously measures fluence and dose equivalent ARG-10071	B67-10597	02
Improved vacuum deposition apparatus NPO-11009	B69-10365	02	Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons ARG-10220	B69-10211	02
Design of multilayer insulation systems ARC-10166	B69-10615	05	Design of a strain-gage probe ARG-10338	B69-10343	05
METAL FOILS			Foil bearing support for high-speed rotor HQ-10315	B69-10661	05
Ceramic-coated boat is chemically inert, provides good heat transfer LANGLEY-90	B65-10063	05	METAL HYDRIDES		
Weld leaks rapidly and safely detected M-FS-362	B65-10265	01	Effects of hydrogen on metals M-FS-20364	B69-10372	03
Superconductor shields test chamber from ambient magnetic fields JPL-627	B65-10297	02	METAL IONS		
Copper foil provides uniform heat sink path MSC-262	B66-10004	02	Reusable chelating resins concentrate metal ions from highly dilute solutions JPL-758	B66-10451	03
Spray-on technique simplifies fabrication of complex thermal insulation blanket M-FS-497	B66-10053	03	Status of ultrachemical analysis for semiconductors M-FS-2254	B67-10138	03
Reflective insulator layers separated by bonded silica beads MSC-215	B66-10070	03	Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination ARG-262	B67-10421	03
Specimen holder design improves accuracy of X-ray powder analysis JPL-SC-165	B66-10075	02	Aggregation of metallochlorophylls - Examination by spectroscopy ARG-10273	B69-10163	04
Mounting improves heat-sink contact with beryllia washer MSC-194	B66-10144	01	Separation of traces of metal ions from sodium matrices ARG-10341	B69-10168	03
Thin-film gage measures low heat-transfer rates LANGLEY 205	B66-10180	01	Reduction by monovalent zinc, cadmium, and nickel cations ARG-10328	B69-10170	03
Standards for electron probe microanalysis of silicates prepared by convenient method GSFC-469	B66-10234	03	METAL JOINTS		
Large capacitor performs as a distributed parameter pulse line LEWIS-176	B66-10291	01	High pressure tube coupling requires no threads or flares MSC-600	B66-10285	05
Aluminum core structures brazed without use of flux M-FS-659	B66-10360	05	Brazing process provides high-strength bond between aluminum and stainless steel M-FS-803	B66-10352	05
Impact and puncture resistant material protects parts from damage MSC-747	B66-10375	05	Thin plastic sheet eliminates need for expensive plating M-FS-1896	B66-10681	03
Nonelectrolytic tantalum capacitors developed M-FS-1546	B66-10552	01	Braze joint quality tested electromagnetically M-FS-12795	B67-10333	01
An improved soft X-ray photoionization detector GSFC-540	B67-10072	02	Tube-to-header joint for bimetallic construction LEWIS-10282	B67-10464	05
Fast-acting calorimeter measures heat output of plasma gun accelerator LEWIS-388	B67-10192	01	Study made of transfer of heat energy through metal joints in vacuum environment M-FS-12534	B67-10465	02
Inexpensive cryogenic insulation replaces vacuum jacketed line NUC-10061	B67-10264	02	Nondestructive testing of welds on thin-walled tubing M-FS-18144	B69-10402	01
Study made of dielectric properties of promising materials for cryogenic capacitors M-FS-13620	B67-10366	03	Use of medical and dental X-ray equipment for nondestructive testing MSC-13389	B69-10553	01
Foil radiometer accessory improves measurements M-FS-12684	B67-10448	01	METAL-METAL BONDING		
Improved cavity-type absolute total-radiation radiometer JPL-807	B67-10557	01	Self sealing disconnect for tubing forms metal seal after breakaway JPL-354	B63-10226	05
			Stringent cleaning technique assures reliable epoxy bond GSFC-161	B64-10142	03
			New alloy brazes titanium to stainless steel MSC-102	B65-10060	05

SUBJECT INDEX

METAL PLATES

Compound improves thermal interface between thermocouple and sensed surface NU-0028	B66-10121	02	ARG-10050	B67-10579	03
Brazing process provides high-strength bond between aluminum and stainless steel M-FS-803	B66-10352	05	Vapor deposition process provides new method for fabricating high temperature thermocouples NUC-10152	B67-10616	01
Aluminum core structures brazed without use of flux M-FS-659	B66-10360	05	Health hazards of ultrafine metal and metal oxide powders LEWIS-10878	B69-10268	04
Silver plating ensures reliable diffusion bonding of dissimilar metals M-FS-1975	B67-10124	03	METAL PARTICLES		
Welding, bonding, and sealing of refractory metals by vapor deposition LEWIS-123	B67-10232	03	Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons LEWIS-263	B66-10104	03
Materials data handbook, Inconel alloy 718 M-FS-2348	B67-10282	03	Silver-palladium braze alloy recovered from masking materials M-FS-1845	B66-10631	03
Mechanical shielding reduces weld surface cracking in 6061 T6 aluminum MSC-11494	B68-10022	05	Process for preparing dispersions of alkali metals JPL-734	B66-10639	03
Welding, brazing, and soldering handbook M-FS-20504	B69-10264	05	Traveling wire electrode increases productivity of Electrical Discharge Machining /EDM/ equipment ARG-136	B67-10238	05
Sealing a rubber bladder between two sections of an accumulator M-FS-20403	B69-10355	05	Training manuals for nondestructive testing using magnetic particles M-FS-20187	B68-10391	03
Rhodium-plated barrier against high-temperature fusion bonding M-FS-92155	B69-10544	05	Surface-renewal models for heat-transfer between walls and fluidized beds ARG-10372	B69-10772	02
METAL OXIDE SEMICONDUCTORS			METAL PLATES		
Field-effect transistor replaces bulky transformer in analog-gate circuit GSFC-351	B65-10284	01	Thermally conductive metal wool-silicone rubber material can be used as shock and vibration damper JPL-321	B63-10207	03
MOSFET analog memory circuit achieves long duration signal storage M-FS-860	B66-10603	01	Lightweight universal joint transmits both torque and thrust JPL-375	B63-10236	05
Solid state phase detector replaces bulky transformer circuit MSC-11007	B67-10253	01	Unmanned seismometer levels self, corrects drift errors GSFC-100	B63-10551	01
MOSFET improves performance of power supply regulator GSFC-10022	B67-10569	01	High-pass RF coaxial filter rejects dc and low frequency signals GSFC-73	B64-10173	01
Two-way digital driver/receiver uses one set of lines ERC-10055	B68-10437	01	Miniature stress transducer has directional capability JPL-591	B65-10023	01
Integrated metal transistor leads GSFC-90536	B68-10518	01	Computer program simplifies selection of structural steel columns NU-0044	B66-10097	01
Linear voltage-to-frequency converter GSFC-10546	B69-10220	01	Aluminum oxide filler prevents obstructions in tubing during welding MSC-222	B66-10125	05
Radiation tolerant silicon nitride insulated gate field effect transistors GSFC-10581	B69-10253	01	Pressure-welded flange assembly provides leaktight seal at reduced bolt loads M-FS-640	B66-10247	05
Dielectric materials for use in thin-film capacitors M-FS-20471	B69-10387	02	Aluminum/steel wire composite plates exhibit high tensile strength M-FS-401	B66-10262	05
Accurate nine-decade temperature-compensated logarithmic amplifier ARG-10480	B69-10429	01	Boron-deoxidized copper withstands brazing temperatures M-FS-762	B66-10273	03
METAL OXIDES			Fixed vacuum plate clamps styrofoam for machining M-FS-683	B66-10283	05
Wire winding increases lifetime of oxide coated cathodes LEWIS-154	B65-10032	03	Chemical milling solution produces smooth surface finish on aluminum MSC-549	B66-10312	03
Recommended values of the thermophysical properties of eight alloys, their major constituents and oxides NU-0095	B67-10062	03	Clamp provides efficient connection for high-density currents		
Magnesium-zinc reduction is effective in preparation of metals					

METAL POLISHING

SUBJECT INDEX

M-FS-2417	B67-10140	01	RF inductor has high Q, is stable at higher temperatures	JPL-1019	B67-10106	01	
Effects of heat input rates on T-1 and T-1A steel welds	M-FS-2475	B67-10163	03	Eddy current probe measures size of cracks in nonmetallic materials	M-FS-14059	B67-10645	03
Work platform is supported by self-locking blades	M-FS-2297	B67-10180	05	Electron beam selectively seals porous metal filters	LEWIS-10162	B68-10331	05
Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations	ARG-251	B67-10305	04	Grain growth inhibitor for porous tungsten materials	LEWIS-10535	B68-10527	03
High-strength tungsten alloy with improved ductility	LEWIS-10257	B67-10340	03	Method for controlling density and permeability of sintered powdered metals	LEWIS-10393	B68-10528	03
Frangible electrochemical cell and sealing technique	XGS-10010	B69-10056	01	Improved high-temperature silicide coatings	LEWIS-10817	B69-10266	03
Nozzles for size reclassification of microfog particles	LEWIS-10705	B69-10076	05	Health hazards of ultrafine metal and metal oxide powders	LEWIS-10878	B69-10268	04
Techniques for controlling warpage and residual stresses in welded structures	M-FS-20307	B69-10086	05	Improved retort for cleaning metal powders with hydrogen	LEWIS-10718	B69-10468	03
Adjustable wrench for electronic connectors	M-FS-18547	B69-10184	05	METAL SHEETS			
Nondestructive evaluation of printed wiring boards by microhm resistance measurements	SAN-10034	B69-10272	01	Apparatus of small size can be extended into long, rigid boom	JPL-305	B63-10200	05
METAL POLISHING				Built-in templates speed up process for making accurate models	LANGLEY-23	B63-10526	05
High-speed furnace uses infrared radiation for controlled brazing	NU-0047	B66-10268	02	Collar positions strip stock used to form coil on mandrel	JPL-198	B65-10130	05
Metallographic holding fixture permits polishing of soft metals on vibratory lapping machine	ARG-42	B66-10562	05	Integral ribs formed in metal panels by cold-press extrusion	M-FS-230	B65-10141	05
METAL POWDER				Metal bellows custom-fabricated from tubing	LEWIS-192	B65-10150	05
Modified filter prevents conduction of microwave signals along high-voltage power supply leads	JPL-63	B63-10091	01	Infrared shield facilitates optical pyrometer measurements	LANGLEY-133	B65-10272	02
Plastic plus stainless-steel fibers make resilient, impermeable material	WOO-246	B65-10374	03	Electromagnetic hammer removes weld distortions from aluminum tanks	M-FS-287	B65-10342	05
Electron beam seals outer surfaces of porous bodies	M-FS-562	B66-10033	03	Explosive force of primacord grid forms large sheet metal parts	M-FS-316	B66-10014	05
Process reduces pore diameters to produce superior filters	WOO-093	B66-10037	03	Sheet metal strip unrolls to form circular boom	GSFC-423	B66-10032	05
Protective coating withstands high temperature in oxidizing atmosphere	M-FS-529	B66-10044	03	Reflective insulator layers separated by bonded silica beads	MSC-215	B66-10070	03
Polytetrafluoroethylene lubricates ball bearings in vacuum environment	M-FS-379	B66-10081	03	Mechanism continuously measures static and dynamic cable loads	MSC-217	B66-10107	05
Refractory coating protects intricate graphite elements from high-temperature hydrogen	NU-0027	B66-10084	01	Bellows design features low spring rate and long life	MSC-521	B66-10190	05
Compound improves thermal interface between thermocouple and sensed surface	NU-0028	B66-10121	02	Electrical upsetting of metal sheet forms weld edge	M-FS-720	B66-10248	05
Submicron metal powders produced by ball milling with grinding aids	LEWIS-188	B66-10221	03	Aluminum/steel wire composite plates exhibit high tensile strength	M-FS-401	B66-10262	05
Aluminum core structures brazed without use of flux	M-FS-659	B66-10360	05	Strippable grid facilitates removal of grid-surfaced conical workpiece from die			

SUBJECT INDEX

METAL SURFACES

M-FS-716	B66-10334	01	Diffusion bonding makes strong seal at flanged connector M-FS-637	B66-10250	05
Gage of 6.5 per cent Si-Fe sheet is chemically reduced MSC-537	B66-10454	03	Calibrating ultrasonic test equipment for checking thin metal strip stock NUC-10009	B67-10127	01
Preformed stiffeners used to fabricate structural components for pressurized tanks M-FS-1796	B66-10688	05	Machine tests slow-speed sliding friction in high vacuum M-FS-12341	B67-10379	05
Silver plating ensures reliable diffusion bonding of dissimilar metals M-FS-1975	B67-10124	03	Composite solar cell matrix is reliable, lightweight and flexible NPO-10821	B67-10503	01
Coating protects magnesium-lithium alloys against corrosion M-FS-2446	B67-10149	03	Development of helical seal for high temperature /2000 degrees F/ application M-FS-13304	B67-10655	05
Welding of AM350 and AM355 steel M-FS-2314	B67-10292	05	Inspection criteria ensure quality control of parallel gap soldering M-FS-14530	B68-10257	05
Development of technology for hot-drape forming of large torus sections M-FS-12141	B67-10341	05	Helical tape forming device GSPC-10830	B69-10137	05
Reparable, high-density microelectronic module provides effective heat sink M-FS-13075	B67-10356	01	Leads integral with the internal interconnection that penetrate the molded wall of a package LANGLEY-10228	B69-10436	01
Fuel cell life improved by metallic sinter activation after electrode assembly welding MSC-10965	B67-10436	03	Heat-shrinkable jacket holds fluid in contact with tensile test specimen MSC-13195	B69-10495	05
Aluminum and stainless steel tubes joined by simple ring and welding process M-FS-13120	B67-10472	05	METAL SURFACES Gate valve with ceramic-coated base operates at high temperatures ARC-23	B63-10562	03
Weld joint strength and mechanical properties in 2219-T81 aluminum alloy LEWIS-10479	B68-10561	03	Refractory thermal insulation for smooth metal surfaces M-FS-160	B64-10099	03
Thermal radiation shields for piping in vacuum environments LEWIS-10899	B69-10262	03	Elastomers bonded to metal surfaces seal electrochemical cells GSPC-168	B64-10113	03
Technique for anchoring fasteners to honeycomb panels LEWIS-10888	B69-10265	03	Solder flux leaves corrosion-resistant coating on metal JPL-611	B64-10206	03
Explosive bonding of metal-matrix composites M-FS-20657	B69-10804	05	Fluoride coatings make effective lubricants in molten sodium environment LEWIS-229	B66-10005	03
METAL SHELLS Analysis of filament reinforced metal-shell pressure vessels LEWIS-10352	B68-10405	06	Etching process mills PH 14-8 Mo alloy steel to precise tolerances MSC-270	B66-10110	03
Magnetomotive forming for precision sizing and joining of large-diameter tubes M-FS-20481	B69-10422	05	Surfactant for dye-penetrant inspection is insensitive to liquid oxygen M-FS-475	B66-10131	03
METAL SPINNING Stainless-steel elbows formed by spin forging M-FS-122	B63-10590	05	Nylon bit removes cork insulation without damage to substrate MSC-381	B66-10152	05
METAL STRIPS Metal strip forms 21 foot boom, rolls up for compact storage GSPC-151	B64-10011	05	Device spot-laps spheres to very close tolerances JPL-SC-119	B66-10175	05
Mounting for diodes provides efficient heat sink M-FS-197	B64-10283	01	Rubber-coated bellows improves vibration damping in vacuum lines LEWIS-273	B66-10187	02
Simple control device senses solar position JPL-638	B65-10061	01	Portable sandblaster cleans small areas MSC-523	B66-10242	05
Compact retractor protects cabling loops M-FS-561	B66-10018	05	Braze alloys used as temperature indicators NU-0063	B66-10274	01
Sheet metal strip unrolls to form circular boom GSPC-423	B66-10032	05	Photoelectric scanner makes detailed work function maps of metal surface JPL-SC-176	B66-10440	01
New television camera eliminates vidicon tube M-FS-472	B66-10112	01	Adhesive for polyester films cures at room temperature, has high initial tack		

METAL VAPORS

SUBJECT INDEX

M-FS-938	B66-10487	03	Die and telescoping punch form convolutions in thin diaphragm	JPL-SC-135	B65-10393	05	
Technique for measuring absorptance and emittance by using cyclic incident radiation	LEWIS-321	B66-10630	02	Coiled sheet metal strip opens into tubular configuration	GSFC-425	B66-10009	03
Intergranular metal phase increases thermal shock resistance of ceramic coating	M-FS-1862	B66-10651	03	Explosive force of primacord grid forms large sheet metal parts	M-FS-316	B66-10014	05
Radioactive method enables determination of surface areas rapidly and accurately	NU-0088	B66-10710	03	Heated die facilitates tungsten forming	LEWIS-25A	B66-10047	05
Surface-crack detection by microwave methods	ARC-10009	B67-10482	01	Bench vise adapter grips tubing securely and safely	MSC-279	B66-10056	05
Ronchi test applied to measurement of surface roughness	M-FS-12583	B67-10636	02	Telescoping of instrumentation tubing eliminates swaging	M-FS-546	B66-10116	05
Effects of surface preparation on quality of aluminum alloy weldments	M-FS-13152	B68-10302	03	Split glass tube assures quality in electron beam brazing	M-FS-564	B66-10151	05
Detecting hydrogen-containing contaminants on metal surfaces	M-FS-20456	B69-10192	03	Device spot-laps spheres to very close tolerances	JPL-SC-119	B66-10175	05
Masking of aluminum surface against anodizing	M-FS-12964	B69-10335	05	Pressure vessels fabricated with high-strength wire and electroformed nickel	M-FS-580	B66-10218	05
Magnetic forming of resistive materials	M-FS-20417	B69-10397	03	Hand tool permits shrink sizing of assembled tubing	MSC-504	B66-10239	05
Improved primer for bonding polyurethane adhesives to metals	M-FS-90591	B69-10540	03	Electrical upsetting of metal sheet forms weld edge	M-FS-720	B66-10248	05
METAL VAPORS							
Study made of resistance of stainless steels to zinc-vapor corrosion	ARG-10055	B67-10582	03	Radial coolant channels fabricated by simplified method	NU-0070	B66-10267	05
Miniaturized King furnace permits absorption spectroscopy of small samples	ARG-10177	B68-10418	02	High-speed furnace uses infrared radiation for controlled brazing	NU-0047	B66-10268	02
METAL WORKING							
Guide for extrusion dies eliminates straightening operation	LEWIS-152	B64-10014	05	Large diameter metal ring seal prevents gas leakage at 5000 psi	M-FS-1064	B66-10422	05
Metal-bending brake facilitates lightweight, close-tolerance fabrication	ARC-29	B64-10069	05	Metal tube can be folded for compact stowage, is self-erecting	LEWIS-288	B66-10450	05
Jig and fixture aid fabrication of tungsten rivets	LEWIS-185	B65-10101	05	High-energy-rate magnetohydraulic metal forming system	M-FS-2142	B67-10126	02
Collar positions strip stock used to form coil on mandrel	JPL-198	B65-10130	05	Degreasing of titanium to minimize stress corrosion	LEWIS-382	B67-10147	03
Integral ribs formed in metal panels by cold-press extrusion	M-FS-230	B65-10141	05	Coating protects magnesium-lithium alloys against corrosion	M-FS-2446	B67-10149	03
Lathe attachment used to machine elliptical cones	MSC-100	B65-10168	05	Porous mandrels provide uniform deformation in hydrostatic powder metallurgy	M-FS-1972	B67-10209	03
Metal parts hydrosized by explosive force	M-FS-289	B65-10170	05	Magnesium-lithium alloys developed for low temperature use	M-FS-1541	B67-10365	03
Reusable neoprene jacket protects parts for chemical milling	WOO-071	B65-10179	03	Study made to establish parameters and limitations of explosive welding	M-FS-13006	B67-10393	05
Fiber glass dies speed forming of large metal sheets	M-FS-214	B65-10210	05	Metal tube reducer is inexpensive and simple to operate	ARG-49	B67-10401	05
Electromagnetic hammer removes weld distortions from aluminum tanks	M-FS-287	B65-10342	05	Precision metal molding			

SUBJECT INDEX

METALS

M-FS-13305	B67-10423	05	M-FS-2348	B67-10282	03
Copper and nickel adherently electroplated on titanium alloy			An investigation of particle mixing in a gas-fluidized bed		
M-FS-13952	B67-10532	03	ARG-10182	B68-10407	05
Magnetic forming studies			Materials data handbook, aluminum alloy		
M-FS-14217	B68-10186	02	6061		
Improved table for cutting and welding			M-FS-20381	B69-10065	03
MSC-15537	B69-10346	05	Torsion system for creep testing with multiple stress reversals		
Spiral-flow apparatus for measuring permeation of solids by gases			HQ-10039	B69-10147	03
M-FS-16517	B69-10357	03	Measurements of thermoelectric power in annealed and quenched gold-platinum alloys		
Possible correlation between work-hardening and fatigue-failure			ARG-10303	B69-10206	03
ARG-10371	B69-10414	03	Surface profilometer for examining grain-boundary grooves		
Magnetomotive forming for precision sizing and joining of large-diameter tubes			ARG-10290	B69-10345	05
M-FS-20481	B69-10422	05	Wall-thickness changes predicted in hollow-drawn tubing		
A method for precision anodize stripping			ARG-10425	B69-10428	02
MSC-15040	B69-10581	03	Abrasion and fracture testing in a high-pressure hydrogen environment		
METALLIZING			M-FS-18480	B69-10457	03
Manganese-alumina-ceramic glass eliminates rigid controls necessary in bonding metals to ceramics			Literature review on pickling inhibitors and cadmium electroplating processes		
SAN-10012	B68-10204	03	M-FS-14421	B69-10606	03
TFE-fluorocarbon liners for flexible hoses			METALS		
M-FS-16480	B69-10288	05	High purity electroforming yields superior metal models		
METALLOGRAPHY			ARC-6	B63-10007	05
Diffusion technique stabilizes resistor values			Packless valve with all-metal seal handles		
MSC-205	B66-10142	01	wide temperature, pressure range		
Inspection of fine wires simplified by capillary tube wire holder			JPL-361	B63-10228	05
MSC-358	B66-10329	01	Rapid billet loader aids extrusion of refractory metals		
Materials data handbook, aluminum alloy			LEWIS-50	B63-10354	05
7075			Tool facilitates sealing of metal fill tubes		
M-FS-2349	B67-10301	03	MSC-24	B63-10519	05
Chemical milling solution reveals stress corrosion cracks in titanium alloy			Insulated weld tooling permits uniform, high quality weld		
LANGLEY-10077	B67-10322	03	MSC-42	B64-10058	05
Multi-feed cone for Cassegrainian antenna			Improved conductive paste secures biomedical electrodes		
ARG-10025	B67-10484	03	MSC-107	B65-10015	03
Superconductivity in zirconium-rhodium alloys			Valve designed with elastic seat		
ARG-10223	B69-10010	03	JPL-442	B65-10040	05
Nondestructive evaluation of printed wiring boards by microhm resistance measurements			Metal sheath improves thermocouple using graphite in one leg		
SAN-10034	B69-10272	01	NU-0011	B65-10051	01
Basal-plane metallography of deformed pyrolytic carbon			Transducer senses displacements of panels subjected to vibration		
NPO-11196	B69-10488	03	ARC-37	B65-10085	01
Automatic sample rotator for metallographic polishing			Titanium treatment improves brazed joints		
NPO-11015	B69-10596	03	MSC-127	B65-10153	05
Niobium-uranium alloys with voids of predetermined size and total volume			Refractory metals welded or brazed with tungsten inert gas equipment		
ARG-10490	B69-10641	03	LEWIS-219	B65-10319	05
METALLURGY			Simple, nondestructive test identifies metals		
Rotating filters permit wide range of optical pyrometry			MSC-525	B66-10305	03
LANGLEY-33	B65-10100	02	Cork is used to make tooling patterns and molds		
Rotating holder permits accurate grinding of metallurgical microsamples			MSC-425	B66-10328	01
LEWIS-131	B65-10262	05	Heat-treatment of metal parts facilitated by sand embedment		
Simple, nondestructive test identifies metals			M-FS-1543	B66-10616	03
MSC-525	B66-10305	03	Lateral ring metal elastic wheel absorbs shock loading		
Materials data handbook, Inconel alloy 718					

METASTABLE STATE

SUBJECT INDEX

M-FS-1312	B66-10663	05	METEORITES		
Thermoelectric metal comparator determines composition of alloys and metals			Traveling wire electrode increases productivity of Electrical Discharge Machining /EDM/ equipment		
ARG-235	B67-10035	01	ARG-136	B67-10238	05
Solubility data are compiled for metals in liquid zinc			METEOROID HAZARDS		
ARG-149	B67-10191	03	Ultra-sensitive transducer advances micro-measurement range	ARC-26	B64-10004 01
X-ray source uses interchangeable target anodes to vary X-ray wavelength			Advances in light-gas gun technology	M-FS-14270	B68-10288 05
NPO-10036	B67-10218	02	METEOROLOGICAL BALLOONS		
Radiation counting technique allows density measurement of metals in high-pressure/high-temperature environment			Rough surface improves stability of air-sounding balloons	M-FS-320	B65-10326 05
ARG-124	B67-10316	02	METEOROLOGICAL INSTRUMENTS		
Handbooks describe eddy current techniques used in nondestructive testing of metal parts and components			Sampling and handling of desert soils	NPO-11171	B69-10304 04
M-FS-13172	B67-10374	03	Tool for reading psychrometric charts	KSC-10358	B69-10527 05
Ultrasonics used to measure residual stress			Wind tower influence study	M-FS-20239	B69-10653 01
M-FS-12449	B67-10428	02	METEOROLOGICAL PARAMETERS		
Test system accurately determines tensile properties of irradiated metals at cryogenic temperatures			Crossed-beam technique for measuring horizontal winds	M-FS-20160	B69-10447 02
NUC-10521	B67-10617	02	Solar activity history model	M-FS-20529	B69-10776 01
Detection and location of metallic objects imbedded in nonmetallic structures			METEOROLOGICAL SATELLITES		
M-FS-14790	B68-10183	01	Thermal calibration target	XGS-11144	B69-10419 01
Resistivity measurements of neutron-irradiated pure metals and Al-Zn alloys			METEOROLOGY		
ARG-10108	B68-10200	03	Study of random process theory aids digital data processing	M-FS-1475	B67-10309 06
Nondestructive method for measuring residual stresses in metals, a concept			Computer graphics data conditioning	M-FS-14695	B68-10296 06
KSC-10237	B68-10378	03	Dewpoint temperature inversions analyzed	ARG-10316	B69-10057 02
Electromotive series established for metals used in aerospace technology			Rocket sonde measurements of ozone in the upper atmosphere	GSFC-10580	B69-10077 02
M-FS-18327	B68-10385	03	Laser microprobe facility used in the elemental analysis of small feature of a sample	ARG-10359	B69-10165 02
Levitation-melting technique for metals and alloys			Conditioning of pulses from aerosol-particle detectors	ERC-10250	B69-10691 01
ARG-10240	B69-10006	03	METHANE		
Fractography can be used to analyze failure modes in polytetrafluoroethylene			Refractory coating protects intricate graphite elements from high-temperature hydrogen	NU-0027	B66-10084 01
M-FS-20294	B69-10066	03	Corrosion of aluminum alloys by chlorinated hydrocarbon/methanol mixtures	MSC-11365	B67-10442 03
Calibration of a resistance thermometer down to 0.04 degrees K			Reduction by monovalent zinc, cadmium, and nickel cations	ARG-10328	B69-10170 03
ARG-10318	B69-10149	01	Control for maintaining constant level of a cryogenic liquid	NPO-11177	B69-10573 05
Remote balance weighs accurately amid high radiation			Natural gas flow through critical nozzles	LEWIS-11031	B69-10712 02
ARG-10387	B69-10242	05	METHOD OF CHARACTERISTICS		
Metallic diffusion measured by a modified Knudsen technique			Bell nozzle kernel analysis program	M-FS-18456	B69-10146 06
HQ-10145	B69-10309	03			
Generation of sonic power during welding					
M-FS-20339	B69-10404	05			
Reducing contact resistance at semiconductor to metal or aluminum to metal interfaces					
ERC-10254	B69-10689	01			
Pulsed high-voltage dc RF sputtering					
LEWIS-10920	B69-10699	01			
METASTABLE STATE					
Microprobe investigation of brittle segregates in aluminum MIG and TIG welds					
M-FS-14720	B68-10334	03			
Rectangular-bore, high-gain laser plasma tube					
HQ-10234	B69-10193	02			

SUBJECT INDEX

MICROCRYSTALS

METHODOLOGY

Handbooks describe eddy current techniques used in nondestructive testing of metal parts and components
M-FS-13172 B67-10374 03

Tube welding and brazing
M-FS-20348 B69-10085 05

Conceptual techniques for reducing parasitic current gain of lateral pnp transistors
MSC-13199 B69-10244 01

METHYL ALCOHOLS

Corrosion of aluminum alloys by chlorinated hydrocarbon/methanol mixtures
MSC-11365 B67-10442 03

Viscosity and density of methanol/water mixtures at low temperatures
M-FS-14991 B68-10274 03

Nitric acid-organic mixtures surveyed for use in separation by anion exchange methods
ARG-10065 B68-10425 03

Coolants with selective optical filtering characteristics for ruby laser applications
M-FS-20188 B68-10508 02

Separation of the rare earths by anion-exchange in the presence of lactic acid
ARG-10436 B69-10377 03

METHYL COMPOUNDS

Stringent cleaning technique assures reliable epoxy bond
GSFC-161 B64-10142 03

Fabrication method produces high-grade alumina crucibles
M-FS-216 B65-10078 05

Flexible protective coatings made from silicon-nitrogen materials
M-FS-528 B66-10027 03

Sea dye marker provides visibility for 20 hours
MSC-714 B66-10313 03

High-energy, high-power, long-life battery
LEWIS-10724 B69-10131 01

Microdetermination of urea in urine using p-dimethylaminobenzaldehyde /PDAB/
NPO-10715 B69-10317 04

Technique for ultrasonic cleaning with volatile solvents eliminates need for hoods or condensers
MSC-15611 B69-10552 03

METHYLENE

Thermocouple-flexible cable connector insulator is highly reliable
NU-0082 B66-10709 01

Adhesives for laminating polyimide insulated flat conductor cable
M-FS-12066 B67-10429 03

MICA

Electro-optic modulator for infrared laser using gallium arsenide crystal
GSFC-10686 B68-10255 02

Device for diode tuning in a stripline varactor harmonic multiplier
M-FS-20153 B69-10013 01

MICARTA

Welding torch and wire feed manipulator
M-FS-13102 B67-10385 05

Standard surface grinder for precision machining of thin-wall tubing

ARG-10014 B67-10400 05

MICE

Improved mouse cage provides versatility and ease in handling laboratory mice
MSC-12250 B69-10124 04

MICHELSON INTERFEROMETERS

System enables more complete calibrations of dynamic-pressure transducers
M-FS-2063 B67-10099 01

System converts optical phase changes to RF phase changes
M-FS-20091 B68-10430 01

Fine-line sensitivity for holographic interferograms
HQ-10348 B69-10663 02

MICROANALYSIS

Corrosion of metal samples rapidly measured
NU-0041 B66-10140 03

Standards for electron probe microanalysis of silicates prepared by convenient method
GSFC-469 B66-10234 03

Apparatus enables automatic microanalysis of body fluids
JPL-962 B66-10515 04

Automated microsyringe is highly accurate and reliable
NPO-10142 B67-10203 01

Microprobe investigation of brittle segregates in aluminum MIG and TIG welds
M-FS-14720 B68-10334 03

Imaging slitless spectrometer for X-ray astronomy
M-FS-14309 B68-10546 02

Microdetermination of urea in urine using p-dimethylaminobenzaldehyde /PDAB/
NPO-10715 B69-10317 04

MICROBALANCES

Evaporant feed device facilitates flash vapor deposition process in vacuum
NPO-10232 B67-10320 03

MICROBIOLOGY

Tool samples subsurface soil free of surface contaminants
MSC-10988 B67-10473 05

Continuous microbial cultures maintained by electronically-controlled device
ARG-177 B67-10556 04

A microlagoon technique for the culture of mammalian cells
LANGLEY-10407 B68-10554 04

Imprinting of confining sites for cell cultures on thermoplastic substrates
LANGLEY-10495 B69-10236 04

Technique for highly efficient recovery of microbiological contaminants
MSC-13250 B69-10273 04

Sterilization training manual
M-FS-20437 B69-10277 04

Sampling and handling of desert soils
NPO-11171 B69-10304 04

Life detection
NPO-10510 B69-10475 04

Microbiological aspects of sterilization development laboratories
NPO-11197 B69-10593 04

MICROCRYSTALS

Laser action from a terbium beta-ketoenolate

MICROELECTRONICS

SUBJECT INDEX

at room temperature GSFC-10593	B69-10324	02	NU-0029	B65-10249	01
MICROELECTRONICS Logic circuit exhibits optimum performance LANGLEY-129	B65-10193	01	Opaque microfiche masthead permits easy reading HQ-7	B65-10306	01
Field-effect transistor replaces bulky transformer in analog-gate circuit GSFC-351	B65-10284	01	Planetary camera control improves microfiche production HQ-1	B65-10313	01
Rugged microelectronic module package supports circuitry on heat sink MSC-81A	B66-10245	01	Long-term data storage and retrieval system, a concept M-FS-14789	B68-10505	01
Miniature electrometer preamplifier effectively compensates for input capacitance ARC-69	B66-10549	01	Semiautomatic inspection of microfilm records M-FS-20240	B69-10301	02
Thin film process forms effective electrical contacts on semiconductor crystals M-FS-2343	B67-10142	01	MICROINSTRUMENTATION Micromachining produces optical apertures to micron dimensions GSFC-206	B64-10211	05
Primary cell uses neither liquid nor fused electrolytes NPO-10001	B67-10275	01	Micromanipulation tool is easily adapted to many uses JPL-129	B67-10004	05
Reparable, high-density microelectronic module provides effective heat sink M-FS-13075	B67-10356	01	Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations ARG-251	B67-10305	04
Ultraminiature television camera M-FS-11967	B67-10469	01	Measuring thermal expansion of multiple specimens at high temperature NUC-10153	B68-10122	05
Logic realization of simple majority voting connectives JPL-727	B67-10511	06	MICROMETEORIODS Improved sensor counts micrometeoroid penetrations LEWIS-76	B63-10443	01
Temperature-stabilized, triggerable microelectronic astable multivibrator starts reliably MSC-1173	B67-10624	01	Ultra-sensitive transducer advances micro-measurement range ARC-26	B64-10004	01
Development of reliability prediction technique for semiconductor diodes GSFC-10231	B67-10651	06	Dust particle injector for hypervelocity accelerators provides high charge-to-mass ratio GSFC-509	B66-10347	01
Piggy-back mounting would increase microcircuit packaging density MSC-12059	B68-10114	01	Advances in light-gas gun technology M-FS-14270	B68-10288	05
High dielectric thick films for screened circuit capacitors LANGLEY-10294	B68-10542	01	Technique for pinpointing submicron particles in the electron microprobe HQ-10043	B69-10465	01
Microelectronic oscillator, 2 GSFC-10387	B69-10063	01	MICROMETERS Apparatus measures swelling of membranes in electrochemical cells GSFC-280	B65-10087	01
Microelectronic oscillator GSFC-10375	B69-10064	01	Modified algesimeter provides accurate depth measurements MSC-616	B66-10647	04
Technique for abrasive cutting of thick-film conductors for hybrid circuits MSC-13242	B69-10235	03	Automated microsyringe is highly accurate and reliable NPO-10142	B67-10203	01
Leads integral with the internal interconnection that penetrate the molded wall of a package LANGLEY-10228	B69-10436	01	Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations ARG-251	B67-10305	04
Improved method of dicing integrated circuit wafers into chips ERC-10138	B69-10441	01	Welding torch and wire feed manipulator M-FS-13102	B67-10385	05
Microelectronic device data handbook ERC-10322	B69-10687	01	Method for X-ray study under extreme temperature and pressure conditions MSC-11232	B67-10474	02
Lateral PNP bipolar transistor with aiding field diffusions MSC-13072	B69-10741	01	Precision trimmer aids in preparing biomedical specimen blocks for ultrathin sectioning ARG-242	B67-10541	05
MICROFILMS Library of documents compressed into lap-held display kit MSC-125	B65-10030	01	Surface profilometer for examining grain-boundary grooves		
Manual-feed adapter permits microfilming of continuous oscillograph output					

SUBJECT INDEX

MICROSCOPES

ARG-10290 B69-10345 05

Calibration standard for dynamic evaluation of a profile-plotter
M-FS-16476 B69-10458 05

Laser interferometer micrometer system
M-FS-14747 B69-10633 02

MICROMINIATURIZATION
Microminiature thermocouple monitors own installation
M-FS-1111 B66-10463 05

Rolanite - A new mechanical design concept
SAN-10001 B67-10611 05

Gyrator-type circuits replace ungrounded inductors
XAC-10608 B68-10084 01

Inspection criteria ensure quality control of parallel gap soldering
M-FS-14530 B68-10257 05

Standards for compatibility of printed circuit and component lead materials
M-FS-14531 B68-10310 01

MICROMINIATURIZED ELECTRONIC DEVICES
High permeability semiconductors permit close-tolerance soldering
GSFC-319 B65-10134 05

Frequency discriminator with binary output eliminates tuned circuits
M-FS-376 B65-10349 01

Ultraminiature television camera
M-FS-11967 B67-10469 01

New microelectronic power amplifier
M-FS-13621 B68-10073 01

Microelectronic oscillator
GSFC-10375 B69-10064 01

MICROORGANISMS
Cytology is advanced by studying effects of deuterium environment
ARG-205 B67-10304 04

Vacuum probe sampler removes micron-sized particles from surfaces
SAN-10003 B68-10231 04

Electrolytic silver ion cell sterilizes water supply
MSC-11827 B68-10555 01

SPAN C - Terminal sterilization process analysis program
NPO-10805 B69-10039 06

SPAN - Terminal sterilization process analysis program
NPO-10804 B69-10104 06

Automated microorganism Sample Collection Module
HQ-10421 B69-10223 04

Development and test of flexible film coupon strips for use as a sampling technique
M-FS-20448 B69-10339 03

MICROPARTICLES
Dust particle injector for hypervelocity accelerators provides high charge-to-mass ratio
GSFC-509 B66-10347 01

Submicron holes in thin films increase sampling range of mass spectrometers
JPL-SC-097 B66-10380 03

Vacuum probe sampler removes micron-sized particles from surfaces

SAN-10003 B68-10231 04

MICROPHONES
Small foamed polystyrene shield protects low-frequency microphones from wind noise
M-FS-123 B63-10579 01

Comfortable, lightweight safety helmet holds radio transmitter, receiver
MSC-53 B64-10015 05

Device detects unbonded areas in plastic laminates
WOO-206 B65-10380 01

Phonocardiograph system monitors heart sounds
MSC-185 B66-10154 04

Microphone multiplex system provides multiple outlets from single source
GSFC-426 B66-10308 01

Phonocardiograph microphone is rugged and moistureproof
MSC-212 B66-10314 04

Personal communication system combines high performance with miniaturization
MSC-720 B67-10119 01

Electronic dummy for acoustical testing
MSC-206 B67-10298 01

Device enables calibration of microphones at high sound pressure levels
M-FS-11980 B67-10336 01

Noise study of single stage compressor rotor-stator interaction
LANGLEY-137 B67-10516 02

Electrocardiograph transmitted by RF and telephone links in emergency situations
FRC-10031 B68-10233 01

Improved communication system for large operations center
M-FS-15016 B68-10529 01

MICROPHOTOGRAPHS
Titanium treatment improves brazed joints
MSC-127 B65-10153 05

Fractography can be used to analyze failure modes in polytetrafluoroethylene
M-FS-20294 B69-10066 03

Photomicrometrology
M-FS-14556 B69-10736 01

MICROPOROSITY
Improved anode design for metal-oxygen cells
LEWIS-10871 B69-10318 01

MICROSCOPES
Attachment converts microscope to point source autocollimator
JPL-499 B64-10124 05

Micromachining produces optical apertures to micron dimensions
GSFC-206 B64-10211 05

Simplified technique demonstrates magnetic domain switching
M-FS-13153 B67-10342 02

Preparing rock powder specimens of controlled size distribution
NPO-10007 B68-10297 05

Semiautomatic inspection of microfilm records
M-FS-20240 B69-10301 02

Foot-operated cell-counter
ARG-10315 B69-10351 01

MICROSCOPY

SUBJECT INDEX

A method for observing gas evolution during plastic laminate cure MSC-15592	B69-10530	03	JPL-946	B67-10174	05
Automatic sample rotator for metallographic polishing NPO-11015	B69-10596	03	Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01
Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01	A thirty-six element array antenna system M-FS-20435	B69-10390	01
			Energy-storage of a prescribed impedance ARG-10428	B69-10431	02
MICROSCOPY			MICROWAVE ATTENUATION		
Method accurately measures mean particle diameters of monodisperse polystyrene latexes ARG-207	B67-10054	02	Modified filter prevents conduction of microwave signals along high-voltage power supply leads JPL-63	B63-10091	01
Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations ARG-251	B67-10305	04	MICROWAVE CIRCUITS		
Electronic test instrument generates extremely small current signals ARG-276	B67-10318	01	Novel horn antenna reduces side lobes, improves radiation pattern JPL-425	B63-10264	01
Precision trimmer aids in preparing biomedical specimen blocks for ultrathin sectioning ARG-242	B67-10541	05	Superconductor magnets used for stagger-tuning traveling-wave maser GSFC-292	B65-10165	01
Color-televised medical microscopy MSC-13086	B68-10314	01	Warpage eliminated in copper-clad microwave circuit laminates M-FS-13892	B67-10454	03
A rapid stress-corrosion test for aluminum alloys M-FS-20175	B68-10536	03	Automatic frequency control of voltage-controlled oscillators NPO-11064	B69-10569	01
Selective vignetting of Type 1 X-ray telescopes GSFC-10682	B69-10075	02	MICROWAVE EQUIPMENT		
MICROSTRUCTURE			Antenna configurations provide polarization diversity GSFC-74	B66-10066	01
Study made of ductility limitations of aluminum-silicon alloys M-FS-12524	B67-10392	03	Highly stable microwave delay line NPO-09828	B67-10642	01
Pre-weld heat treatment improves welds in Rene 41 M-FS-18174	B68-10285	03	Reflectometer for receiver input system NPO-10843	B67-10657	01
Grain-boundary migration in KCl bicrystals ARG-10181	B68-10455	03	A compact rotary vane attenuator NPO-10562	B69-10427	01
Grain growth inhibitor for porous tungsten materials LEWIS-10535	B68-10527	03	MICROWAVE FILTERS		
Sintering characteristics and properties of PuS and PuP are determined ARG-10228	B69-10058	03	Composite filter steepens rejection slopes in microwave application GSFC-480	B66-10393	01
Fractography can be used to analyze failure modes in polytetrafluoroethylene M-FS-20294	B69-10066	03	MICROWAVE FREQUENCIES		
MICROWAVE AMPLIFIERS			Cryogenic waveguide window is sealed with plastic foam JPL-559	B63-10613	01
Parametric up-converter increases flexibility of maser KSC-67-98	B67-10104	01	Composite filter steepens rejection slopes in microwave application GSFC-480	B66-10393	01
Power consumption in acoustic amplifiers under conditions of maximum stable gain GSFC-10067	B68-10327	01	Dielectrometer design permits measurement in vacuum under irradiation M-FS-359	B66-10401	01
Sweep frequency detector NPO-10669	B69-10289	01	Parametric up-converter increases flexibility of maser KSC-67-98	B67-10104	01
MICROWAVE ANTENNAS			Liquid hydrogen densitometer utilizes open-ended microwave cavity LEWIS-390	B67-10115	01
Flange on microwave antenna subreflector cuts ground noise JPL-362	B63-10229	01	MICROWAVE INTERFEROMETERS		
Microwave technique measures plasma characteristics LANGLEY-134	B65-10122	02	Microwave interferometer controls cutting depth of plastics M-FS-14673	B69-10012	01
Scanning means for Cassegrainian antenna			The effect of mismatched components on microwave noise-temperature calibrations NPO-11163	B69-10333	01
			MICROWAVE PROBES		
			Surface-crack detection by microwave methods ARC-10009	B67-10482	01

SUBJECT INDEX

MILLING MACHINES

MICROWAVE RESONANCE

Study of yttrium iron garnet rods reveals
new magnetostatic echo mode
ERC-37 B67-10153 01

Improved atomic resonance gas cell for use
in frequency standards
MSC-11666 B68-10230 01

MICROWAVE SWITCHING

Double-throw microwave device switches two
lines quickly
JPL-410 B63-10258 01

MICROWAVE TRANSMISSION

Traveling-wave tube circuit simplifies
microwave relay
GSFC-299 B65-10127 01

Composite filter steepens rejection slopes in
microwave application
GSFC-480 B66-10393 01

Feasibility study of wireless power
transmission systems
M-FS-14691 B68-10309 01

High-power microwave power divider concept
NPO-11031 B69-10290 01

MICROWAVES

Compact microwave mixer has high conversion
efficiency
GSFC-197 B66-10625 01

Dielectric prisms would improve performance
of quasi-optical microwave components
ERC-10011 B67-10416 01

Improved traveling wave maser amplifier
NPO-10548 B68-10244 01

Feasibility study of wireless power
transmission systems
M-FS-14691 B68-10309 01

Electrolytic separation of crystals of
transition-metal oxides
ARG-10506 B69-10642 03

A sterilizable high-impact antenna
NPO-10231 B69-10697 01

MIDCOURSE GUIDANCE

Midcourse maneuver operations program
NPO-10735 B69-10105 06

MIGRATION

Fiber length and orientation prevent migration
in fluid filters
M-FS-541 B66-10319 05

Substituting gold for silver improves
electrical connections
M-FS-2390 B67-10228 03

Experiments shed new light on
nickel-fluorine reactions
ARG-10008 B67-10397 03

Imprinting of confining sites for cell
cultures on thermoplastic substrates
LANGLEY-10495 B69-10236 04

MILITARY VEHICLES

Analysis of secondary cells with
lithium anodes and immobilized
fused-salt electrolytes
ARG-10452 B69-10613 01

MILK

Ion exchange determines iodine-131
concentration in aqueous samples
ARG-208 B67-10129 04

MILLIMETER WAVES

Microwave technique measures plasma
characteristics
LANGLEY-134 B65-10122 02

Ferroelectric bolometer measures RF absolute
power at submillimeter wavelengths
GSFC-422 B66-10051 01

Efficient millimeter wave 1140 GHz/ diode
for harmonic power generation
HQ-61 B67-10166 01

Mm-wave power meter mount
NPO-10348 B68-10152 01

Millimeter-wave atmospheric loss prediction
method
NPO-11054 B69-10584 01

MILLING

Heavy duty precision leveling jacks expedite
setup time on horizontal boring mill
M-FS-1084 B66-10411 05

MILLING (MACHINING)

Electroless nickel resist used in alkali
etching of aluminum
GSFC-284 B65-10162 03

Electron beam seals outer surfaces of porous
bodies
M-FS-562 B66-10033 03

Threaded pilot insures cutting tool
alignment
M-FS-527 B66-10074 05

Depth indicator and stop aid machining to
precise tolerances
M-FS-553 B66-10149 05

Electrical upsetting of metal sheet forms weld
edge
M-FS-720 B66-10248 05

Tool separates sleeve-type unions without heat
MSC-497 B66-10253 05

Process sequence produces strong,
lightweight reflectors of excellent quality
LEWIS-331 B67-10010 05

Continuous internal channels formed in
aluminum fusion welds
M-FS-2399 B67-10183 05

Acid spray technique mills aluminum alloy
materials without immersion
M-FS-12500 B67-10463 03

High temperature alloy
LEWIS-10377 B68-10253 03

Preparing rock powder specimens of
controlled size distribution
NPO-10007 B68-10297 05

Machining technique prevents undercutting
in tensile specimens
LANGLEY-10281 B68-10352 05

Vertical boring mill capacity is increased
M-FS-16196 B68-10530 05

MILLING MACHINES

Mill profiler machines soft materials
accurately
M-FS-692 B66-10254 05

Versatile machine mills, saws light materials
M-FS-827 B66-10364 05

Computer used to program numerically
controlled milling machine
M-FS-1608 B66-10541 01

Fast method for obtaining scale dimensions
on tape-controlled milling machine
MSC-11609 B68-10047 05

Thread cutting with 3-axis N/C milling
machine
LANGLEY-10017 B68-10055 06

MILLIVOLTMETERS

SUBJECT INDEX

Compound taper milling machine MSC-15174	B69-10018	05	Ultraminiature manometer-tipped cardiac catheter ARC-10054	B67-10669	01
Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04	Silicon strain sensors enable pressure measurement at cryogenic temperatures M-FS-14703	B68-10262	01
Vibration dampener for Niles vertical boring mill ram MSC-15529	B69-10348	05	Miniaturized high-resolution mass/charge spectrograph /design study/ MSC-13279	B69-10554	02
MILLIVOLTMETERS			MINIATURIZATION		
Ionene membrane battery separator NPO-11091	B69-10501	03	Welded pressure transducer made as small as 1/8th-inch in diameter ARC-11	B63-10429	03
MINERAL OILS			Miniature oxygen-hydrogen cutting torch constructed from hypodermic needle JPL-545	B63-10517	05
Run-in with chemical additive protects gear surface M-FS-548	B66-10069	05	Comfortable, lightweight safety helmet holds radio transmitter, receiver MSC-53	B64-10015	05
High-temperature bearing lubricants LEWIS-10408	B68-10249	05	Miniature stress transducer has directional capability JPL-591	B65-10023	01
Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01	Metal diaphragm used to calibrate miniature transducers M-FS-207	B65-10059	01
MINERALOGY			Miniature capacitive accelerometer is especially applicable to telemetry ARC-72	B66-10491	01
Preparing rock powder specimens of controlled size distribution NPO-10007	B68-10297	05	Miniature pressure transducer for stressed member application MSC-11869	B68-10246	01
Surface profilometer for examining grain-boundary grooves ARG-10290	B69-10345	05	High-speed pulse camera MSC-11353	B68-10329	02
Basal-plane metallography of deformed pyrolytic carbon NPO-11196	B69-10488	03	Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01
MINERALS			Miniature paint-spray gun for recessed areas MSC-13060	B68-10387	05
Electronic circuitry used to automate paper chromatography JPL-840	B67-10201	01	Miniaturization of magnetic logic circuitry LANGLEY-10037	B69-10148	06
Method for X-ray study under extreme temperature and pressure conditions MSC-11232	B67-10474	02	Miniature backward-diode pressure sensor features stability and low power consumption ERC-10229	B69-10690	01
Dual-mode operation of a neutron source, a concept HQ-10106	B69-10248	02	Pocket-sized tone-modulated FM transmitter NPO-11180	B69-10725	01
MINES (EXCAVATIONS)			MINING		
Improved atmospheric particle analyzer ERC-33	B67-10231	01	Iris-leaf core retainer for a surface drill MSC-11402	B69-10496	05
MINIATURE ELECTRONIC EQUIPMENT			MINORITY CARRIERS		
Miniature bioelectric device accurately measures and telemeters temperature ARC-52	B66-10057	01	Simplified method introduces drift fields into cells GSFC-572	B67-10102	03
High-performance RC bandpass filter is adapted to miniaturized construction ARC-60	B66-10309	01	Laboratory pulse modulator uses minority carrier storage diodes M-FS-2442	B67-10226	01
Miniature telemetry system accurately measures pressure ARC-74	B66-10624	01	Lateral PNP bipolar transistor with aiding field diffusions MSC-13072	B69-10741	01
Miniature capacitor functions as pressure sensor JPL-903	B67-10020	01	MINUTEMAN ICBM		
Personal communication system combines high performance with miniaturization MSC-720	B67-10119	01	Monte Carlo simulation by computer for life-cycle costing M-FS-14754	B69-10590	05
Subminiature deflection circuit operates integrated sweep circuits in TV camera MSC-1263	B67-10155	01	MIRRORS		
Reparable, high-density microelectronic module provides effective heat sink M-FS-13075	B67-10356	01	Mirror device aligns machine surface perpendicular to sight lines WOO-5	B63-10421	02
Ferromagnetic core valve gives rapid action on minimum energy LEWIS-10135	B67-10623	05			

SUBJECT INDEX

MIST

Variable-transparency wall regulates temperatures of structures LANGLEY-25	B63-10528	03	MSC-407	B67-10110	02
Simple optical system used to align spectrograph LANGLEY-92	B65-10071	02	Design concept for improved photo-scan tube JPL-818	B67-10157	01
System measures angular displacement without contact LANGLEY-46	B65-10073	01	New electron microscope employs new video display technique ARG-158	B67-10312	03
Light-sensitive potentiometer measures product of two variables GSFC-240	B65-10076	01	Measuring coplanarity of surfaces MSC-12044	B67-10371	02
Interferometer combines laser light source and digital counting system MSC-151	B65-10161	01	Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01
Ball and socket joints provide accurate biaxial gimbal JPL-658	B65-10205	05	Infrared radiometer M-FS-13373	B67-10422	01
Light ray modulation controls optical system alignment GSFC-171	B65-10211	02	Ellipsoidal-mirror reflectometer accurately measures infrared reflectance of materials GSFC-566	B67-10444	01
Instrument accurately measures extremely low air densities M-FS-193	B65-10221	01	Gimbaled-mirror scanning system capable of spiral pattern GSFC-10170	B67-10609	02
Unique construction makes interferometer insensitive to mechanical stresses JPL-725	B65-10295	02	Telescope mount with azimuth-only primary NPO-10468	B67-10671	02
Beam splitter used in dual filming technique M-FS-501	B66-10072	02	Improved gas ring laser MSC-11584	B68-10304	02
Ultraviolet photographic pyrometer used in rocket exhaust analysis M-FS-499	B66-10095	02	Color-televised medical microscopy MSC-13086	B68-10314	01
Optical gyro pickoff operates at cryogenic temperatures M-FS-407	B66-10128	01	Modified sine bar device measures small angles with high accuracy GSFC-438	B68-10322	02
Sextant measures spacecraft altitude without gravitational reference MSC-200	B66-10143	02	UV detector monitors organic contamination of optical surfaces M-FS-20246	B68-10413	01
Mount enables precision adjustment of optical-instrumentation mirror MSC-184	B66-10199	02	Active frequency control system for argon FM laser M-FS-14988	B69-10099	02
Instrument transmits vanishing point to illustration point MSC-267A	B66-10324	01	Improved combustion chamber optical probe MSC-10953	B69-10142	02
Device to color modulate a stationary light beam gives high intensity HQ-44	B66-10476	01	Liquid laser cavities GSFC-10592	B69-10234	02
Laser measuring system accurately locates point coordinates on photograph ARG-74	B66-10560	02	Oculometer for remote tracking of eye movement ERC-10114	B69-10444	02
Optical superheterodyne receiver uses laser for local oscillator M-FS-1605	B66-10584	01	A new method for producing optical mirrors HQ-10227	B69-10529	02
Precision CW laser automatic tracking system investigated M-FS-1606	B66-10629	01	Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01
Three-axis attitude and direction reference instrument has only one moving part M-FS-1819	B66-10644	01	Deposition monitor and control NPO-10706	B69-10722	01
Laser Doppler flowmeter measures gas velocity M-FS-1747	B66-10693	02	MISSILE CONTROL Study made of application of stereoscopic display system to analog computer simulation M-FS-1263	B66-10590	01
Special purpose reflectometer uses modified ulbricht sphere MSC-1135	B67-10109	02	MISSILES Separation simulator KSC-67-15	B69-10315	01
Star/horizon simulator used to test space guidance system			MISSION PLANNING Advanced mission analysis programs GSFC-10575	B69-10171	06
			Estimating reliability by application of matrix representation HQ-10246	B69-10793	02
			MIST Nozzles for size reclassification of microfog particles LEWIS-10705	B69-10076	05

MITOSIS

SUBJECT INDEX

MITOSIS

Study of radiation effects on mammalian cells
in vitro
ARG-10191 B68-10294 02

MIXING

Quick-hardening problems are eliminated with
spray gun modification which mixes resin and
accelerator liquids during application
LANGLEY-6A B63-10318 03

Plastic plus stainless-steel fibers make
resilient, impermeable material
WOO-246 B65-10374 03

Two-fluid, impinging-sheet injector
NPO-10547 B68-10338 05

An investigation of particle mixing in a
gas-fluidized bed
ARG-10182 B68-10407 05

Diffusion of trace gases for leak detection -
A study
M-FS-20254 B69-10067 03

Preparation of thorium magnesium-zinc
reduction
ARG-10245 B69-10079 03

Single-element coaxial injector for
rocket fuel
NPO-11095 B69-10547 05

MIXING CIRCUITS

Added diodes increase output of balanced
mixer circuit
GSFC-354 B65-10276 01

Single-sideband modulator accurately
reproduces phase information in 2-Mc signals
M-FS-664 B66-10437 01

Compact microwave mixer has high conversion
efficiency
GSFC-197 B66-10625 01

Electronic frequency discriminator
M-FS-2434 B67-10151 01

Voltage regulator/amplifier is self-regulated
MSC-1240 B67-10156 01

MNEMONICS

New computer system simplifies programming of
mathematical equations
M-FS-441 B66-10361 01

On-line computer system for use with low-
energy nuclear physics experiments is
reported
ARG-10257 B69-10094 01

MOBILITY

Special tool kit aids heavily garmented
workers
MSC-163 B66-10403 05

Integrated mobility measurement and notation
system
MSC-726 B67-10114 04

Improved head-controlled TV system produces
high-quality remote image
ARG-128 B67-10317 01

Movable RF probe eliminates need for
calibration in plasma accelerators
LEWIS-10127 B67-10362 01

Improved electromechanical master-slave
manipulator
ARG-10027 B68-10372 05

Detachable caster adapter
MSC-91215 B69-10164 05

MODAL RESPONSE

A modal combination computer program for

dynamic analysis of structures
NPO-10129 B67-10217 06

Computer program provides improved
longitudinal response analysis for
axisymmetric launch vehicles
LANGLEY-10093 B67-10531 06

Computer program determines vibration in
three-dimensional space of hydraulic lines
excited by forced displacements
M-FS-12226 B68-10159 06

Analysis of space vehicle structures using
the transfer-function concept
NPO-11162 B69-10337 06

MODE TRANSFORMERS

Improved gas ring laser
MSC-11584 B68-10304 02

MODELS

High purity electroforming yields superior
metal models
ARC-6 B63-10007 05

Pressure transducer 3/8-inch in size can be
faired into surface
WOO-065 B64-10021 05

System automatically provides dynamic
launch decision criteria
M-FS-13063 B67-10363 01

Probabilistic approach to long range
planning of manpower
MSC-11524 B67-10510 06

Development of lunar drill to take core
samples to 100-foot depths
M-FS-13015 B67-10529 05

Shell design computer program
LEWIS-10734 B69-10175 06

Technique for assessing potential fire
hazards
HQ-10279 B69-10287 03

Surface-renewal models for heat-transfer
between walls and fluidized beds
ARG-10372 B69-10772 02

MODERATORS

Neutron detector simultaneously measures
fluence and dose equivalent
ARG-10071 B67-10597 02

MODES

Quick-acting clutch disengages idle drive
motor
GSFC-143 B64-10028 05

Thermionic diode switching has high
temperature application
NPO-10404 B67-10672 01

Detection of molecular infrared spectra
HQ-10377 B69-10172 02

Identification and evaluation of linear
damping models in beam vibrations
ARG-10275 B69-10196 03

MODULATION

Nulling pyrometer uses Kerr cell shutter for
fast responses
NU-0010 B65-10050 01

Frequency offset in linear FM/CW transponder
eliminates clutter
M-FS-249 B65-10146 01

Instrument accurately measures extremely low
air densities
M-FS-193 B65-10221 01

An improved method for testing performance of
vidicons during vibration

SUBJECT INDEX

MOISTURE

JPL-SC-113	B66-10442	01	modulator		
Study made of application of stereoscopic display system to analog computer simulation			GSFC-10216	B69-10114	01
M-FS-1263	B66-10590	01	An unconventional magnetically-coupled multivibrator		
Amplifier provides dual outputs from a single source with complete isolation			HQ-10226	B69-10480	01
NUC-10056	B67-10221	01	Phase-locked-loop phase modulator with high modulation index, low distortion		
Interference effects eliminated in random oriented space station antenna system			MSC-12247	B69-10487	01
MSC-11004	B67-10435	01	MODULES		
High-power microwave power divider concept			Simple BCD circuit accurately counts to 24		
NPO-11031	B69-10290	01	GSFC-317	B65-10225	01
Estimation of signal-to-noise ratios			Modular Porous Plate Sublimator /MPPS/ requires only water supply for coolant		
XNP-05254	B69-10557	01	M-FS-1374	B66-10409	01
Pocket-sized tone-modulated FM transmitter			Gage accurately controls force for placing chips on substrates		
NPO-11180	B69-10725	01	M-FS-1941	B66-10675	01
MODULATORS			Accuracy of laser measurements improved by pulse autocorrelator electronic system		
Frequency-shift-keyer circuit improves PCM conversion for radio transmission			MSC-10033	B67-10338	01
GSFC-80	B63-10511	01	Current pulse amplifier transmits detector signals with minimum distortion and attenuation		
High-gain amplifier has excellent stability and low power consumption			NUC-10055	B67-10347	01
GSFC-272	B65-10138	01	Reparable, high-density microelectronic module provides effective heat sink		
Phase shift frequency synthesizer is efficient, small in size			M-FS-13075	B67-10356	01
M-FS-250	B65-10169	01	Aluminum heat sink enables power transistors to be mounted integrally with printed circuit board		
Added diodes increase output of balanced mixer circuit			M-FS-13663	B67-10426	01
GSFC-354	B65-10276	01	Flat pack interconnection structure simplifies modular electronic assemblies		
Communication system uses modulated laser beam			JPL-819	B67-10560	01
GSFC-377	B65-10333	01	MODULUS OF ELASTICITY		
Linear signal noise summer accurately determines and controls S/N ratio			Contact stresses calculated for miniature slip rings		
JPL-SC-152	B66-10433	01	M-FS-280	B65-10098	05
Single-sideband modulator accurately reproduces phase information in 2-Mc signals			Computer program simplifies selection of structural steel columns		
M-FS-664	B66-10437	01	NU-0044	B66-10097	01
Device to color modulate a stationary light beam gives high intensity			Study made of mechanics of deformation and fracture of fibrous composites		
HQ-44	B66-10476	01	HQ-10035	B67-10660	03
Polarimeter provides transient response in nanosecond range			An ultrasonic method for studying elastic moduli as a function of temperature		
JPL-890	B67-10021	02	ARG-10187	B69-10082	02
Double emitter suppressed carrier modulator uses commercially available components			MOIRE EFFECTS		
M-FS-2494	B67-10101	01	Checking flat conductor cable spacing by means of a moire pattern		
Laboratory pulse modulator uses minority carrier storage diodes			M-FS-20426	B69-10456	05
M-FS-2442	B67-10226	01	MOISTURE		
Solid state phase detector replaces bulky transformer circuit			Metal sheath improves thermocouple using graphite in one leg		
MSC-11007	B67-10253	01	NU-0011	B65-10051	01
Interference effects eliminated in random oriented space station antenna system			Impact and puncture resistant material protects parts from damage		
MSC-11004	B67-10435	01	MSC-747	B66-10375	05
Laser communication system is insensitive to atmospherically induced noise			Minimum permissible leakage resistance established for instrumentation systems		
GSFC-10396	B67-10587	01	M-FS-848	B66-10397	01
Electro-optic modulator for infrared laser using gallium arsenide crystal			Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area		
GSFC-10686	B68-10255	02	NUC-10007	B67-10538	01
Analysis of magnetically-controlled processes in pulse-modulation systems			Instrumentation monitors transported material through variety of parameters		
GSFC-10241	B69-10070	01	M-FS-12938	B67-10545	01
Optically induced free carrier light					

MOISTURE METERS

SUBJECT INDEX

MOISTURE METERS

Detection of entrapped moisture in
honeycomb sandwich structures
MSC-1103 B67-10116 01

MOLDING MATERIALS

Plastic plus stainless-steel fibers make
resilient, impermeable material
WOO-246 B65-10374 03

Spray-on technique simplifies fabrication of
complex thermal insulation blanket
M-FS-497 B66-10053 03

Cork is used to make tooling patterns and
molds
MSC-425 B66-10328 01

Thermoplastic rubberlike material produced
at low cost
JPL-793 B66-10453 03

Improved compression molding process
LANGLEY-10027 B67-10302 03

Modular packaging technique for combining
integrated circuits and discrete components
GSFC-10369 B69-10453 01

A method for observing gas evolution during
plastic laminate cure
MSC-15592 B69-10530 03

MOLDS

Vacuum forming of thermoplastic sheet results
in low-cost investment casting patterns
ARC-7 B63-10008 05

Improved molybdenum disulfide-silver motor
brushes have extended life
M-FS-64 B63-10479 03

Refractory ceramic has wide usage, low
fabrication cost
M-FS-67 B63-10481 03

Plastic molds reduce cost of encapsulating
electric cable connectors
M-FS-69 B63-10568 05

Molded elastomer provides compact ferrite-core
holder, simplifies assembly
JPL-584 B64-10084 05

Plastic films for reflective surfaces
reproduced from masters
GSFC-188 B64-10151 03

Pressure molding of powdered materials
improved by rubber mold insert
WOO-100 B64-10270 03

Epoxy-resin patterns speed shell-molding of
aluminum parts
M-FS-303 B65-10177 05

Spray-on technique simplifies fabrication of
complex thermal insulation blanket
M-FS-497 B66-10053 03

Split glass tube assures quality in electron
beam brazing
M-FS-564 B66-10151 05

Cork is used to make tooling patterns and
molds
MSC-425 B66-10328 01

Strippable grid facilitates removal of
grid-surfaced conical workpiece from die
M-FS-716 B66-10334 01

Plug replaces weld filler as seal in complex
casting
NU-0049 B66-10489 05

Isostatic compression process converts
polyaromatics into structural material
JPL-892 B67-10168 03

Plastic preforms facilitate fabrication
of welded cordwood electronic modules
LEWIS-90339 B68-10063 01

Improved molding process ensures plastic
parts of higher tensile strength
LANGLEY-10033 B68-10132 05

Standards for compatibility of printed
circuit and component lead materials
M-FS-14531 B68-10310 01

Compressible sleeve provides automatic
centering for grinding or turning of
cylinders
SAN-10021 B68-10318 05

Tools made of ice facilitate forming of
soft, sticky materials
KSC-10262 B69-10199 05

Photomicrometrology
M-FS-14556 B69-10736 01

MOLECULAR CHAINS

New class of thermosetting plastics has
improved strength, thermal and chemical
stability
LEWIS-10108 B67-10197 03

Production of crystalline polymers via
liquid crystal monomers
HQ-10235 B69-10744 03

MOLECULAR COLLISIONS

Quantum mechanical calculations of reactive
scattering cross sections in bimolecular
encounters
M-FS-13594 B67-10527 03

MOLECULAR DIFFUSION

Large volume continuous counterflow
dialyzer has high efficiency
HQ-10055 B67-10395 04

MOLECULAR FLOW

Test device prevents molecular bounce-back
GSFC-82 B63-10546 03

MOLECULAR INTERACTIONS

Molecular radiation - Its application in
physical measurements and analyses
M-FS-14816 B69-10562 02

MOLECULAR SPECTRA

Detection of molecular infrared spectra
HQ-10377 B69-10172 02

MOLECULAR SPECTROSCOPY

Submicron holes in thin films increase
sampling range of mass spectrometers
JPL-SC-097 B66-10380 03

MOLECULAR STRUCTURE

The thermodynamic properties of the wustite
phase are studied
ARG-10200 B68-10408 03

The preparation, identification and
properties of chlorophyll derivatives
ARG-10205 B68-10409 03

Recent development in organic scintillators
ARG-10344 B69-10198 03

MOLECULAR WEIGHT

Irradiation improves properties of an
aromatic polyester
LANGLEY-115 B65-10164 03

Synthesis of polyethers of hexafluorobenzene
and hexafluoropentanediol
M-FS-14962 B69-10636 03

MOLECULES

Large volume continuous counterflow
dialyzer has high efficiency
HQ-10055 B67-10395 04

SUBJECT INDEX

MOMENTUM

MOLTEN SALT ELECTROLYTES

Hydrated multivalent cations are new class
of molten salt mixtures
ARG-211 B67-10033 03

Lithium-tellurium bimetallic cell has
increased voltage
ARG-10141 B68-10400 01

MOLTEN SALT NUCLEAR REACTORS

Induction probe determines levels of
liquid metals
ARG-10348 B69-10256 03

MOLYBDENUM

New apparatus increases ion beam power density
LEWIS-73 B63-10440 01

Titanium diaphragm makes excellent amplitron
cathode support
GSFC-394 B65-10298 01

Silver plating ensures reliable diffusion
bonding of dissimilar metals
M-FS-1975 B67-10124 03

Welding, bonding, and sealing of refractory
metals by vapor deposition
LEWIS-123 B67-10232 03

Extrusion of small-diameter, thin-wall
tungsten tubing
LEWIS-90335 B67-10355 05

Movable RF probe eliminates need for
calibration in plasma accelerators
LEWIS-10127 B67-10362 01

Reaction of steam with molybdenum is
studied
ARG-295 B67-10502 03

Lightweight heater generates high
temperatures from low current
SAN-10004 B68-10223 01

Graphite cloth facilitates vacuum
evaporation of silicon monoxide
M-FS-14764 B68-10256 03

Nickel base alloy with improved stress
rupture properties
LEWIS-10283 B68-10344 03

Study of high temperature bearing materials
LEWIS-10829 B69-10252 03

High strength, superplastic superalloy
LEWIS-10805 B69-10293 03

MOLYBDENUM ALLOYS

Brazing method produces solid-solution bond
between refractory metals
LEWIS-212 B65-10370 05

Etching process mills PH 14-8 Mo alloy
steel to precise tolerances
MSC-270 B66-10110 03

Nickel-base superalloys developed for high-
temperature applications
LEWIS-226 B66-10222 03

Single-crystal semiconductor films grown on
foreign substrates
WOO-076 B66-10225 01

Bearing alloys with hexagonal crystal
structures provide improved friction and wear
characteristics
LEWIS-320 B66-10373 03

High temperature alloy
LEWIS-10377 B68-10253 03

MOLYBDENUM COMPOUNDS

White primer permits a corrosion-resistant
coating of minimum weight
M-FS-304 B66-10207 03

Refractory-metal compound impregnation of
polytetrafluoroethylene
LEWIS-10733 B69-10072 03

MOLYBDENUM DISULFIDES

Molybdenum disulfide mixtures make effective
high-vacuum lubricants
M-FS-54 B63-10453 03

Improved molybdenum disulfide-silver motor
brushes have extended life
M-FS-64 B63-10479 03

Lightweight hinged bellows restraint has
high load capacity
WOO-151 B65-10341 03

Polytetrafluoroethylene lubricates ball
bearings in vacuum environment
M-FS-379 B66-10081 03

Dry film lubricant is effective at extreme
loads
M-FS-628 B66-10256 03

Improved rolling element bearings provide
low torque and small temperature rise in
ultrahigh vacuum environment
LEWIS-359 B66-10678 05

Machine tests slow-speed sliding friction in
high vacuum
M-FS-12341 B67-10379 05

One hundred angstrom niobium wire
LEWIS-10128 B68-10279 03

Application of the solid lubricant
molybdenum disulfide by sputtering
LEWIS-10544 B68-10340 03

A new solid lubricant
LEWIS-10812 B69-10250 03

MOMENTS

Equations provide tubular information on
effects of uniform and variable loads on
thin, flat, circular plates
ARG-151 B66-10601 05

Study made of large amplitude fuel sloshing
M-FS-12381 B67-10439 03

Computer program analyzes and designs
supersonic wing-body combinations
ARC-10141 B68-10335 06

MOMENTS OF INERTIA

Device enables measurement of moments of
inertia about three axes
GSFC-49 B65-10176 05

Switching mechanism senses angular
acceleration
GSFC-462 B66-10158 01

Instrument calculates moments of inertia of
complex plane figures
MSC-628 B66-10306 01

Automatic system determines moments of
inertia of asymmetrical objects
M-FS-1769 B66-10636 01

MOMENTUM

Ultra-sensitive transducer advances
micro-measurement range
ARC-26 B64-10004 01

Computer program MCAP provides for steady
state thermal and flow analysis of multiple
parallel channels in heat generating solid
NUC-10043 B67-10457 06

Axisymmetric two-phase perfect gas
performance program
MSC-11774 B68-10374 06

A magnifying scratch-gage force transducer

MOMENTUM TRANSFER

SUBJECT INDEX

LANGLEY-10496	B69-10212	01	Simple circuit provides reliable multiple signal average and reject capability NU-0069	B66-10282	01
MOMENTUM TRANSFER					
Advances in light-gas gun technology M-FS-14270	B68-10288	05	Phonocardiograph microphone is rugged and moistureproof MSC-212	B66-10314	04
MONATOMIC GASES					
Study to minimize hydrogen embrittlement of ultrahigh-strength steels M-FS-2455	B67-10141	03	Sniffer used as portable hydrogen leak detector M-FS-846	B66-10356	01
Iron serves as diffusion barrier in thermally regenerative galvanic cell ARG-29	B67-10189	03	System monitors discrete computer inputs M-FS-1021	B66-10389	01
Computer program /P1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas NUC-10141	B67-10678	06	Solid state detectors monitor relay contacts JPL-785	B66-10396	01
A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voigt line profile ARC-10221	B69-10232	06	Plant respirometer enables high resolution of oxygen consumption rates HQ-47	B66-10406	04
GAMBIT program NUC-10243	B69-10433	06	Optical monitor panel provides flexible test panel configurations KSC-66-18	B66-10494	01
MONEL (TRADEMARK)					
Electron beam welding of copper-Monel facilitated by circular magnetic shields M-FS-569	B66-10215	05	Security warning system monitors up to fifteen remote areas simultaneously KSC-66-39	B66-10548	01
Xenon fluorides show potential as fluorinating agents ARG-113	B67-10185	03	Resistor monitors transfer of liquid helium LANGLEY-229	B66-10580	01
MONITORS					
Simple circuit continuously monitors thermocouple sensor M-FS-61	B63-10567	01	Magnetoresistor monitors relay performance M-FS-1754	B66-10650	01
Fuel cell serves as oxygen level detector JPL-SC-072	B65-10066	01	Gas leak detector is simple and inexpensive M-FS-1206	B66-10669	01
Auxiliary circuit enables automatic monitoring of EKG'S MSC-106	B65-10142	01	Low rate flow switch can be used for gas or liquid JPL-867	B66-10696	01
Electromechanical flowmeter accurately monitors fluid flow GSFC-357	B65-10273	01	Monitoring system determines amplitude and time of vibration channel peaks JPL-879	B66-10699	01
Rugged pressed disk electrode has low contact potential MSC-158	B65-10320	01	Monitor assures availability and quality of communication channels KSC-66-38	B67-10028	01
Photoelectric system continuously monitors liquid level M-FS-417	B65-10382	01	Test instrumentation evaluates electrostatic hazards in fluid system M-FS-2277	B67-10145	01
Radioactive tracer system detects oil contaminants in fluid lines M-FS-512	B66-10090	03	Means for improving apparent resolution of television ERC-65	B67-10152	01
Capacitive system detects and locates fluid leaks M-FS-478	B66-10099	01	Closed circuit TV system monitors welding operations MSC-11002	B67-10162	01
Mechanism continuously measures static and dynamic cable loads MSC-217	B66-10107	05	A phonocardiogram simulator KSC-67-94	B67-10239	01
Phonocardiograph system monitors heart sounds MSC-185	B66-10154	04	IR vidicon scanner monitors many test points M-FS-1937	B67-10277	01
Electropneumatic transducer automatically limits motor current LEWIS-253	B66-10160	01	Improved head-controlled TV system produces high-quality remote image ARG-128	B67-10317	01
Two-light circuit continuously monitors ac ground, phase, and neutral wires MSC-356	B66-10163	01	Portable spectrometer monitors inert gas shield in welding process M-FS-12144	B67-10326	02
Solid state thermostat has integral probe and circuitry M-FS-434	B66-10193	01	Multiple meter monitoring circuits served by single alarm MSC-10984	B67-10369	01
			Continuous wave detector has wide frequency range M-FS-1849	B67-10386	01
			Study made of acoustical monitoring for mechanical checkout		

SUBJECT INDEX

MONOMERS

M-FS-13372	B67-10430	02	flame detection KSC-10368	B69-10354	01
Material fatigue data obtained by card-programmed hydraulic loading system LANGLEY-10042	B67-10491	03	An electronic circuit for sensing malfunctions in test instrumentation KSC-10209	B69-10392	01
Automatic transducer switching provides accurate wide range measurement of pressure differential NUC-10001	B67-10540	01	Adjustable thermal **tree** MSC-15556	B69-10484	01
Instrumentation monitors transported material through variety of parameters M-FS-12938	B67-10545	01	Rate of heat extraction controller for environmental control HQ-10318	B69-10516	01
Multiplex television transmission system MSC-11595	B67-10576	01	Estimation of signal-to-noise ratios XNP-05254	B69-10557	01
Automatic design of optical systems by digital computer NPO-10265	B67-10632	06	IBM-1620 monitor 2-D disk-storage subroutines ARG-10376	B69-10618	01
Gage monitors quality of cross-wire resistance welds GSFC-90549	B68-10002	01	Versatile telemonitoring system ARG-10339	B69-10655	01
Monitor senses amount of contamination deposited on surfaces GSFC-10212	B68-10089	01	Deposition monitor and control NPO-10706	B69-10722	01
Automated patient monitoring system M-FS-14552	B68-10131	01	System converts slow-scan to standard fast-scan TV signals MSC-90534	B69-10748	01
Deflection circuit monitors force on object under water NUC-10147	B68-10147	01	MONKEYS Test monkeys anesthetized by routine procedure HQ-18	B65-10332	04
Silicon solar cell monitors high temperature furnace operation NUC-10163	B68-10148	01	MONOCHROMATIC RADIATION Computer programs simplify optical system analysis GSFC-306	B65-10093	01
New electrical plethysmograph monitors cardiac output MSC-11447	B68-10220	01	Unique construction makes interferometer insensitive to mechanical stresses JPL-725	B65-10295	02
Vacuum probe sampler removes micron-sized particles from surfaces SAN-10003	B68-10231	04	Instrument performs nondestructive chemical analysis, data can be telemetered JPL-SC-078	B65-10317	01
Recharge unit provides for optimum recharging of battery cells GSFC-10688	B68-10273	01	Fresnel diffraction plates are simple and inexpensive M-FS-12731	B67-10297	02
Automatic, nondestructive test monitors in-process weld quality M-FS-14996	B68-10333	01	Measuring coplanarity of surfaces MSC-12044	B67-10371	02
Automatic system nondestructively monitors and records fatigue crack growth LANGLEY-10091	B68-10379	01	Ellipsoidal-mirror reflectometer accurately measures infrared reflectance of materials GSFC-566	B67-10444	01
Compact monitoring and control console for pressurized gas bottles M-FS-14874	B68-10401	05	Proposed method of rotary dynamic balancing by laser M-FS-12422	B67-10452	02
Nosepiece respiration monitor ERC-10136	B68-10438	01	MONOCHROMATIZATION Use of photographs speeds inspection of printed-circuit boards MSC-72	B64-10118	01
Fast framing cameras provide high-speed multi-channel data recording ARG-10252	B69-10102	02	Neutron diffractometer allows both magnetic and crystallographic analyses ARG-191	B67-10131	02
Low-cost voltage-level detector LEWIS-10885	B69-10217	01	MONOCHROMATORS Fluorescent photography of spray droplets using a laser light source LEWIS-10777	B69-10122	02
Time-shared Cathode Ray Tube MSC-12238	B69-10243	06	MONOCOQUE STRUCTURES Computer program for determination of natural frequencies of closed spherical sandwich shells MSC-1246	B67-10279	06
Continuous analysis of nitrogen dioxide in gas streams of plants ARG-10356	B69-10254	03	MONOMERS Valve seat pores sealed with thermosetting monomer M-FS-900	B66-10322	03
Automatic bird watcher ARG-10342	B69-10286	02	Arylenesiloxane copolymers		
New passive telemetry system HQ-10214	B69-10312	01			
An infrared television system for hydrogen					

MONOMOLECULAR FILMS

SUBJECT INDEX

M-FS-1812	B67-10079	03	Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems	M-FS-14447	B69-10158	06
Synthesis of various highly halogenated monomers and polymers						
M-FS-2143	B67-10100	03	Advanced mission analysis programs	GSFC-10575	B69-10171	06
Production of crystalline polymers via liquid crystal monomers			Monte Carlo simulation by computer for life-cycle costing	M-FS-14754	B69-10590	05
HQ-10235	B69-10744	03				
MONOMOLECULAR FILMS			MOORING			
Miniature bearings lubricated by sonic dispersion method			Oceanborne transponder platform has good stability	M-FS-171	B65-10035	05
M-FS-202	B65-10106	03				
MONOPOLES			MORSE CODE			
Monopole mass spectrometer with improved sensitivity and reduced background			Literal readout of identification signals in Morse code	LANGLEY-10222	B69-10479	01
HQ-10476	B69-10666	01				
MONOPULSE ANTENNAS			MORSE POTENTIAL			
Antenna configurations provide polarization diversity			Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters	M-FS-13594	B67-10527	03
GSFC-74	B66-10066	01				
Antenna simulator permits preinstallation system checkout			MOSAICS			
GSFC-522	B66-10518	01	Selective video blanking technique	M-FS-20013	B68-10434	01
MONOSTABLE MULTIVIBRATORS						
Monostable circuit with tunnel diode has fast recovery			Technique for improving solid state mosaic images	M-FS-20532	B69-10676	01
GSFC-132	B63-10603	01				
Pneumotachometer counts respiration rate of human subject			MOSSBAUER EFFECT			
MSC-92	B64-10259	01	Vibration analysis utilizing Mossbauer effect	M-FS-11974	B67-10339	01
Circuit improvement produces monostable multivibrator with load-carrying capability						
GSFC-34A	B65-10011	01	Levitiation-melting technique for metals and alloys	ARG-10240	B69-10006	03
Brushless dc motor uses electron beam switching tube as commutator						
GSFC-345	B65-10237	01	Mossbauer-effect data-collection system	ARG-10282	B69-10027	01
Complementary monostable circuits achieve low power drain and high reliability						
GSFC-433	B66-10179	01	Mossbauer vibration calibration systems evaluated	M-FS-20014	B69-10125	01
Automatic patient respiration failure detection system with wireless transmission			MOTION			
ARC-10174	B68-10365	01	Developmental instrument supplies accurate attitude and attitude-rate data	HQ-57	B66-10607	01
MONOTONE FUNCTIONS						
Computer program calculates monotonic maximum likelihood estimates using method of reversals			MOTION PICTURES			
M-FS-1516	B67-10136	01	Rotating filters permit wide range of optical pyrometry	LANGLEY-33	B65-10100	02
MONTÉ CARLO METHOD						
Design reliability goal developed from small sample			Screen of cylindrical lenses produces stereoscopic television pictures	M-FS-273	B66-10086	02
M-FS-403	B66-10405	05				
Computer program uses Monte Carlo techniques for statistical system performance analysis			Photographic method measures particle size and velocity in fluid stream	M-FS-1536	B66-10668	01
M-FS-2234	B67-10306	06				
Algebraic Monte Carlo procedure reduces statistical analysis time and cost factors			Means for improving apparent resolution of television	ERC-65	B67-10152	01
M-FS-1887	B67-10434	01				
Deep gamma ray penetration in thick shields			Aerial-image enables diagrams and animation to be inserted in motion pictures	ARG-165	B67-10398	02
M-FS-14388	B68-10143	02				
Performance analysis of electrical circuits			Electronic visualization of gas bearing behavior	LEWIS-10711	B69-10073	01
/PANE/						
M-FS-15001	B68-10448	06	MOTORS			
Monte Carlo direct view factor and generalized radiative heat transfer programs			Self-balancing beam permits safe, easy load handling under overhang	M-FS-84	B63-10571	05
M-FS-15051	B69-10038	06				
The response of monoenergetic gamma rays in finite media are investigated			Quick-acting clutch disengages idle drive motor			
ARG-10295	B69-10080	02				

SUBJECT INDEX

MULTIPATH TRANSMISSION

GSFC-143	B64-10028	05	to surfaces	B69-10009	05
Fluid pressure used to test turbopump bearings NU-0001	B65-10024	03	M-FS-20299		
Fuel and oxidizer valve assembly employs single solenoid actuator MSC-1046	B66-10648	05	Mounting method improves electrical and vibrational characteristics of screen electrodes M-FS-20169	B69-10097	01
Standard surface grinder for precision machining of thin-wall tubing ARG-10014	B67-10400	05	Technique for anchoring fasteners to honeycomb panels LEWIS-10888	B69-10265	03
Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates NPO-10316	B67-10418	05	Remote control thermal actuator LEWIS-10873	B69-10307	01
Concept for cryogenic liquid reclamation system NPO-10322	B67-10420	02	Precision mounting for instrument optical elements provided by polyimide bonding M-FS-20293	B69-10310	05
Conceptual hermetically sealed elbow actuator M-FS-14710	B68-10300	05	Shock-absorbent mountings for bearings NPO-10626	B69-10331	05
Flow angle sensor and readout system LEWIS-90298	B69-10050	01	Investigation of the development of cracks in solder joints M-FS-20444	B69-10807	01
Helical tape forming device GSFC-10830	B69-10137	05	MOUTH Mouthpiece adapter for pipettes protects mouth from harmful liquids LANGLEY-47	B65-10043	03
Preferred-orientation analysis of polycrystalline materials NPO-10604	B69-10336	02	Experimental study and evaluation of radioprotective drugs ARG-10196	B68-10320	04
Stress-testing of the throat of a rocket*s nozzle NPO-10311	B69-10358	05	MOVING TARGET INDICATORS An investigation of phase-lock loop swept- frequency synchronization M-FS-656	B66-10423	01
Automatic leveling and equalizing hoist device M-FS-16549	B69-10514	05	MUFFLERS Weld procedure produces quality welds for thick sections of Hastelloy-X NUC-10048	B67-10195	05
Improved camera for better X-ray powder photographs HQ-10424	B69-10537	01	MULLITES Improved thermal insulation materials made of foamed refractory oxides M-FS-735	B66-10288	03
MOUNTING Modular chassis simplifies packaging and interconnecting of circuit boards JPL-236A	B63-10174	01	MULTICHANNEL COMMUNICATION Multichannel implantable telemetry system ARC-10083	B68-10065	01
Lightweight universal joint transmits both torque and thrust JPL-375	B63-10236	05	Diversity RF receiving system with improved phase-lock characteristics XGS-01222	B68-10068	01
Break-up of metal tube makes one-time shock absorber, bars rebound LANGLEY-1A	B63-10304	05	Fast framing cameras provide high-speed multi-channel data recording ARG-10252	B69-10102	02
Apparatus alters position of objects to facilitate demagnetization GSFC-234	B64-10277	05	Direct determination of lead-210 by liquid-scintillation counting ARG-10462	B69-10611	03
Mounting for diodes provides efficient heat sink M-FS-197	B64-10283	01	Versatile telemonitoring system ARG-10339	B69-10655	01
Improved holder protects crystal during high acceleration and impact JPL-463	B65-10037	05	MULTILAYER INSULATION Reflective insulator layers separated by bonded silica beads MSC-215	B66-10070	03
Thermistor connector assembly increases accuracy of measurements LANGLEY-62	B65-10045	01	Inexpensive cryogenic insulation replaces vacuum jacketed line NUC-10061	B67-10264	02
Adhesive-backed terminal board eliminates mounting screws MSC-173	B65-10396	01	Development of dual solid cryogenics for high reliability refrigeration system GSFC-10188	B67-10644	02
Piggy-back mounting would increase microcircuit packaging density MSC-12059	B68-10114	01	Design of multilayer insulation systems ARC-10166	B69-10615	05
Gimbal angle sensor GSFC-10305	B68-10315	01	MULTIPATH TRANSMISSION Improved VHF direction finding system M-FS-20439	B69-10378	01
Gun facilitates adhesive bonding of studs					

MULTIPHASE FLOW

SUBJECT INDEX

MULTIPHASE FLOW

Signal generator converts direct current
to multiphase supplies
MSC-11043 B67-10368 01

Flowmeter determines mix ratio for viscous
adhesives
M-FS-2308 B67-10378 01

MULTIPLEXING

Microphone multiplex system provides multiple
outlets from single source
GSFC-426 B66-10308 01

Security warning system monitors up to
fifteen remote areas simultaneously
KSC-66-39 B66-10548 01

Multiplexer uses insulated gate-field
effect transistors
M-FS-13096 B67-10396 01

Seismographic recording of large rocket
engine operation
M-FS-20545 B69-10756 01

MULTIPLICATION

Binary system generates sidereal rate from
standard solar rate
GSFC-190 B64-10200 01

Video signal processing system uses gated
current mode switches to perform high speed
multiplication and digital-to-analog
conversion
MSC-781 B66-10429 01

Stress calculator speedily converts strain
data
M-FS-2021 B67-10182 03

Improved electromechanical master-slave
manipulator
ARG-10027 B68-10372 05

Numerical inversion of finite Toeplitz
matrices and vector Toeplitz matrices
ARG-10445 B69-10415 02

MULTIPLIERS

Computer determines high-frequency phase
stability
GSFC-113 B63-10555 01

Precision gage measures ultrahigh vacuum
levels
GSFC-114 B63-10597 01

Digital cardiometer computes and displays
heartbeat rate
MSC-93 B64-10258 01

Variable load automatically tests dc power
supplies
GSFC-291 B65-10105 01

Photoresistance analog multiplier has wide
range
GSFC-360 B65-10287 01

Circuit multiplies pulse width modulation,
exhibits linear transfer function
HQ-56 B67-10055 01

Improved dc voltage multiplier
M-FS-14042 B68-10074 01

Conceptual hermetically sealed elbow
actuator
M-FS-14710 B68-10300 05

System measures arc energy dissipated in
relay contact cycling
M-FS-14541 B68-10312 01

System measures response time of
photomultiplier tubes
LEWIS-10437 B68-10382 01

A 35 GHz solid state transmitter/driver
M-FS-20152 B68-10545 01

Device for diode tuning in a stripline
varactor harmonic multiplier
M-FS-20153 B69-10013 01

Automatic calorimetry system monitors RF
power
NPO-11033 B69-10384 01

MULTIPOLES

An improved atomic hydrogen frequency and
time standard
GSFC-10706 B69-10341 02

MULTISTAGE ROCKET VEHICLES

Shock and vibration response of multistage
structure
M-FS-14972 B68-10353 05

MULTIVIBRATORS

Temperature-sensitive network drives astable
multivibrator
GSFC-137 B63-10609 01

Inexpensive, stable circuit measures heart
rate
MSC-95 B65-10010 01

Stepping motor drive circuit designed for low
power drain
GSFC-198 B65-10026 01

Simulator produces physiological waveforms
MSC-94 B65-10091 01

Variable frequency transistor inverters use
multiple core transformers
GSFC-183 B65-10119 01

Variable frequency magnetic multivibrator
generates stable square-wave output
GSFC-AE-21 B65-10124 01

Auxiliary circuit enables automatic monitoring
of EKG's
MSC-106 B65-10142 01

Digital-output cardiometer measures rapid
changes in heartbeat rate
MSC-133 B65-10143 01

Solid-state switching used to speed up
capacitive integrator
LANGLEY-104 B65-10159 01

PCM magnetic tape system efficiently records
and reproduces data
GSFC-375 B65-10311 01

Frequency divider is free of spurious outputs
GSFC-308 B65-10334 05

Frequency discriminator with binary output
eliminates tuned circuits
M-FS-376 B65-10349 01

Circuit exhibits power efficiency greater
than 75 percent
MSC-254 B66-10034 01

Miniature bioelectric device accurately
measures and telemeters temperature
ARC-52 B66-10057 01

Electronic phase-locked-loop speed control
system is stable
JPL-SC-084 B66-10232 01

Electronic circuit delivers pulse of high
interval stability
MSC-673 B66-10501 01

Preregulator feedback circuit utilizes
light actuated switch
M-FS-1180 B66-10542 01

Security warning system monitors up to

SUBJECT INDEX

NAPHTHALENE

fifteen remote areas simultaneously KSC-66-39	B66-10548	01	Mylar film eliminates silk screening of equipment panels MSC-798	B66-10455	05
Miniature telemetry system accurately measures pressure ARC-74	B66-10624	01	Aluminized thin-window proportional-counter tube is stronger, more responsive in long wavelength region JPL-689	B67-10015	01
Automatic system determines moments of inertia of asymmetrical objects M-FS-1769	B66-10636	01	Inexpensive cryogenic insulation replaces vacuum jacketed line NUC-10061	B67-10264	02
Laboratory pulse modulator uses minority carrier storage diodes M-FS-2442	B67-10226	01	HYOELECTRICITY		
Glow discharge density sensor probe life is extended M-FS-1707	B67-10229	01	Carbon offers advantages as implant material in human body M-FS-18207	B69-10087	04
A phonocardiogram simulator KSC-67-94	B67-10239	01	N		
An efficient, temperature-compensated subcarrier oscillator JPL-SC-091	B67-10251	01	N-P-N JUNCTIONS		
A calibration means for spectrum analyzers MSC-10987	B67-10254	01	Two-stage emitter follower is temperature stabilized MSC-20	B63-10493	01
Signal generator converts direct current to multiphase supplies MSC-11043	B67-10368	01	High efficient square-wave oscillator operator at high power levels GSFC-112	B63-10554	01
Circuit automatically calibrates flowmeter against liquid-level gage reference M-FS-2194	B67-10376	01	Transistor voltage comparator performs own sensing GSFC-228	B65-10028	01
Blood pressure reprogramming adapter assists signal recording MSC-265	B67-10475	01	Synchronized pulse generator needs no external power GSFC-274	B65-10072	01
Temperature-stabilized, triggerable microelectronic astable multivibrator starts reliably MSC-1173	B67-10624	01	Low-power ring counter drives high-level loads GSFC-431	B66-10106	01
One-shot pulse shaper circuit XGS-11379	B68-10012	01	Electrically controlled optical latch and switch requires less current JPL-SC-111	B66-10414	01
Schmitt trigger multivibrator MSC-10955	B69-10143	01	Semiconductors can be tested without removing them from circuitry M-FS-1163	B66-10447	01
Linear voltage-to-frequency converter GSFC-10546	B69-10220	01	Equivalent circuit for a field effect transistor established for computer simulation M-FS-1752	B66-10690	01
Foot-operated cell-counter ARG-10315	B69-10351	01	N-TYPE SEMICONDUCTORS		
An unconventional magnetically-coupled multivibrator HQ-10226	B69-10480	01	Radiation used to temperature compensate semiconductor strain gages LANGLEY-207	B66-10186	02
Constant-frequency, variable-duty-cycle multivibrator XGS-10033	B69-10512	01	Solar cell submodule design facilitates assembly of lightweight arrays JPL-728	B66-10231	02
MUSCLES			Simplified method introduces drift fields into cells GSFC-572	B67-10102	03
Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry NPO-10149	B67-10245	04	Thin film process forms effective electrical contacts on semiconductor crystals M-FS-2343	B67-10142	01
MUTATIONS			Process facilitates photoresist mask alignment on SiC crystals M-FS-2394	B67-10144	01
Investigation of temperature dependence of development and aging ARG-10145	B69-10022	04	Efficient millimeter wave 1140 GHz/ diode for harmonic power generation HQ-61	B67-10166	01
MYLAR (TRADEMARK)			Silicon carbide diode for increased light output M-FS-20063	B69-10096	01
Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02	NAPHTHALENE		
O-rings with mylar back-up provide high- pressure cryogenic seal M-FS-603	B66-10278	05	Technique for ultrasonic cleaning with volatile solvents eliminates need for hoods or condensers MSC-15611	B69-10552	03
Leak locator for vacuum jacketed pipelines eliminates need for removal of outer jacket M-FS-888	B66-10412	01			

NAVIGATION

SUBJECT INDEX

NAVIGATION

Conceptual nonorthogonal gyro configuration
for guidance and navigation
MSC-11363 B67-10433 01

NAVIGATION AIDS

Improved magnetometer uses toroidal gating
coil
GSFC-249 B65-10103 01

GMT/local-time conversion chart
GSFC-10521 B67-10548 01

Ring laser angle encoder
MSC-13099 B69-10115 01

A polar graphic method for determining the
attitude of rocket vehicles
GSFC-10860 B69-10591 02

Automatic star-horizon angle measurement
system
MSC-11585 B69-10597 01

NAVIGATION INSTRUMENTS

Optical automatic gain channel
M-FS-1550 B66-10596 02

Developmental instrument supplies accurate
attitude and attitude-rate data
HQ-57 B66-10607 01

Three-axis attitude and direction reference
instrument has only one moving part
M-FS-1819 B66-10644 01

Hermetically sealed vibration damper
MSC-10959 B69-10634 05

NEAR INFRARED RADIATION

Solid-state laser transmitter is amplitude
modulated
MSC-121 B65-10238 01

NEEDLES

Miniature oxygen-hydrogen cutting torch
constructed from hypodermic needle
JPL-545 B63-10517 05

Hollow needle used to cut metal honeycomb
structures
MSC-486 B66-10244 05

Modified algesimeter provides accurate
depth measurements
MSC-616 B66-10647 04

Self-sealing closure enables access to
several fluid containers
NPO-10123 B67-10207 04

Device enables calibration of microphones
at high sound pressure levels
M-FS-11980 B67-10336 01

Sealed container sampling device
GSFC-10690 B69-10682 03

NEGATIVE CONDUCTANCE

Logic circuit detects both present and
missing negative pulses in superimposed
wave trains
M-FS-12518 B67-10565 01

NEGATIVE FEEDBACK

Electrometer preamplifier has drift correction
feedback
JPL-SC-074 B65-10267 01

Frequency discriminator with binary output
eliminates tuned circuits
M-FS-376 B65-10349 01

Feedback loop compensates for rectifier
nonlinearity
M-FS-384 B66-10382 01

Negative feedback system reduces pump
oscillations

M-FS-1852 B67-10064 05

Integrator can easily be set and reset with
an electronic switch
ARC-10002 B67-10135 01

Positive and negative output circuits
LEWIS-10715 B69-10151 01

Current-switching technique for analog
pulse circuits
ARG-10479 B69-10445 01

NEGATIVE RESISTANCE CIRCUITS

Miniature backward-diode pressure sensor
features stability and low power consumption
ERC-10229 B69-10690 01

NEODYMIUM ALLOYS

Simple technique determines ac properties
of hard superconductive materials
M-FS-1818 B66-10657 02

NEON

Laser Doppler flowmeter measures gas
velocity
M-FS-1747 B66-10693 02

Fresnel diffraction plates are simple
and inexpensive
M-FS-12731 B67-10297 02

Rectangular-bore, high-gain laser plasma
tube
HQ-10234 B69-10193 02

High-temperature, gas-filled ceramic
rectifiers, thyatrons, and
voltage-reference tubes
LEWIS-90271 B69-10376 01

Two-color holography
HQ-10349 B69-10662 02

NEON ISOTOPES

Neon isotopes cancel errors in gas laser
M-FS-1476 B66-10583 02

NEOPLASMS

Neutron therapy of cancer
ARG-10310 B69-10203 04

NEPHELOMETERS

Improved atmospheric particle analyzer
ERC-33 B67-10231 01

NEPTUNIUM

Study of actinide chemistry in saturated
potassium fluoride solution
ARG-10204 B69-10004 03

NETS

Explosive force of primacord grid forms large
sheet metal parts
M-FS-316 B66-10014 05

NETWORK ANALYSIS

Zener diode function generator requires no
external reference voltage
JPL-0031 B65-10013 01

Computer program simplifies transient and
steady-state temperature prediction for
complex body shapes
MSC-989 B66-10619 01

Transient Analysis Generator /TAG/
simulates behavior of large class of
electrical networks
NPO-10031 B67-10319 06

GERT EXCLUSIVE-OR combining paths and
loops of electrical networks
ERC-10206 B68-10435 06

Performance analysis of electrical circuits
/PANE/
M-FS-15001 B68-10448 06

SUBJECT INDEX

NEUTRON IRRADIATION

GERT simulation program for GERT network analysis ERC-10209	B68-10457	06	Wear studies made of slip rings and gas bearing components M-FS-12882	B67-10403	05
Locating **sneak paths** in electrical circuitry M-FS-15018	B68-10565	01	Compilation of detection sensitivities in thermal-neutron activation ARG-10068	B67-10641	03
Visual task analysis /VISTA/ M-FS-14716	B69-10394	06	Detection sensitivities in 3-8 MeV neutron activation ARG-10210	B68-10298	02
Punch-magnet delay eliminated by modification of circuit ARG-10333	B69-10416	01	Separation of traces of metal ions from sodium matrices ARG-10341	B69-10168	03
NETWORK SYNTHESIS			Zone purification of potassium chloride ARG-10377	B69-10241	03
Boron trifluoride nuclear detector preamplifier uses single-cable connection LEWIS-178	B65-10255	01	NEUTRON BEAMS		
Computer program for network synthesis by frequency response fit M-FS-12686	B67-10406	06	Neutron diffractometer allows both magnetic and crystallographic analyses ARG-191	B67-10131	02
Active rc networks of low sensitivity for integrated circuit transfer function ARC-10146	B68-10210	01	N-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program NUC-10126	B67-10536	06
Technique developed for measuring transmittance of optical birefringent networks M-FS-14267	B68-10260	02	Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons ARG-10220	B69-10211	02
Study of optimum discrete estimators in measurement analysis M-FS-14915	B68-10348	02	NEUTRON COUNTERS		
GERT EXCLUSIVE-OR combining paths and loops of electrical networks ERC-10206	B68-10435	06	Boron trifluoride nuclear detector preamplifier uses single-cable connection LEWIS-178	B65-10255	01
NETWORKS			Detection of entrapped moisture in honeycomb sandwich structures MSC-1103	B67-10116	01
High frequency wide-band transformer uses coax to achieve high turn ratio and flat response ARG-107	B66-10600	01	Current pulse amplifier transmits detector signals with minimum distortion and attenuation NUC-10055	B67-10347	01
Accuracy of laser measurements improved by pulse autocorrelator electronic system MSC-10033	B67-10338	01	Neutron detector simultaneously measures fluence and dose equivalent ARG-10071	B67-10597	02
NEURONS			Detection sensitivities in 3-8 MeV neutron activation ARG-10210	B68-10298	02
Review of research and development in fluid logic elements M-FS-420	B67-10438	01	Improved pulse shape discriminator for fast neutron-gamma ray detection system HQ-10151	B69-10481	01
NEUTRAL PARTICLES			Manganese-56 coincidence-counting facility precisely measures neutron-source strength ARG-90261	B69-10621	01
Primary radical yields in pulse irradiated alkaline aqueous solution ARG-10322	B69-10167	02	NEUTRON CROSS SECTIONS		
NEUTRON ABSORBERS			GAMBIT program NUC-10243	B69-10433	06
Calculation of resonance neutron absorption in two-region problems /the GAROL code/ NUC-10045	B67-10223	06	Niobium-uranium alloys with voids of predetermined size and total volume ARG-10490	B69-10641	03
Aluminum-titanium hydride-boron carbide composite provides lightweight neutron shield material NUC-10069	B67-10265	03	NEUTRON DIFFRACTION		
Portable, high intensity isotopic neutron source provides increased experimental accuracy ARG-90250	B68-10243	02	Neutron diffractometer allows both magnetic and crystallographic analyses ARG-191	B67-10131	02
NEUTRON ACTIVATION ANALYSIS			NEUTRON DISTRIBUTION		
Nondestructive test method accurately sorts mixed bolts M-FS-1426	B66-10574	01	Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems M-FS-14447	B69-10158	06
Neutron activation analysis traces copper artifacts to geographical point of origin ARG-119	B67-10036	02	NEUTRON FLUX DENSITY		
Status of ultrachemical analysis for semiconductors M-FS-2254	B67-10138	03	A fast-neutron spectrometer of advanced design M-FS-1664	B66-10555	01
			NEUTRON IRRADIATION		
			Alpha particle backscattering measurements		

NEUTRON PHYSICS

SUBJECT INDEX

used for chemical analysis of surfaces ARG-116	B67-10186	03	ARG-90261	B69-10621	01
Radiation counting technique allows density measurement of metals in high-pressure/ high-temperature environment ARG-124	B67-10316	02	NEUTRON SPECTRA Low scatter lightweight fission spectrometer constructed for biological research ARG-10094	B68-10174	02
Neutron irradiation of Am-241 effectively produces curium ARG-10030	B67-10501	03	Ge-diode detector combined with crystal-diffraction spectrometer permits high-resolution gamma ray spectroscopy ARG-10190	B69-10005	02
SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield NUC-10142	B67-10537	06	NEUTRON SPECTROMETERS A fast-neutron spectrometer of advanced design M-FS-1664	B66-10555	01
Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes NUC-10143	B67-10665	06	Four pi-reccil proportional counter used as neutron spectrometer ARG-10101	B68-10326	02
Procedure developed for reporting fast-neutron exposure ARG-10035	B68-10190	02	NEUTRONS Status of ultrachemical analysis for semiconductors M-FS-2254	B67-10138	03
Resistivity measurements of neutron-irradiated pure metals and Al-Zn alloys ARG-10108	B68-10200	03	Uranyl phthalocyanines show promise in the treatment of brain tumors ARG-100	B67-10188	04
Neutron therapy of cancer ARG-10310	B69-10203	04	Training course for radiation safety technicians ARG-216	B67-10477	02
NEUTRON PHYSICS Multichannel pulse height analyzer is inexpensive, features low power requirements HQN-10020	B67-10258	01	Neutron therapy of cancer ARG-10310	B69-10203	04
Practical new method of measuring thermal-neutron fluence NUC-10086	B67-10352	02	NEWTON-RAPHSON METHOD Computer program reduces calculation time of normal response functions M-FS-1517	B67-10108	01
NEUTRON SCATTERING Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations NUC-10052	B67-10345	06	Computer program for mass optional solutions of some endpoint trajectory problems M-FS-12976	B67-10310	06
Computer program /P1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas NUC-10141	B67-10678	06	Computer program for network synthesis by frequency response fit M-FS-12686	B67-10406	06
Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide ARG-10154	B68-10293	02	Computer program provides steady state analysis for liquid propellant propulsion systems MSC-10064	B67-10414	06
Computer program calculates the effective temperature for a crystalline solid /DETS/ NUC-10161	B69-10036	06	Program computes equilibrium normal shock and stagnation point solutions for arbitrary gas mixtures LANGLEY-10090	B67-10509	06
Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons ARG-10220	B69-10211	02	Computer program offers new method for constructing periodic orbits in nonlinear dynamical systems M-FS-14654	B68-10217	06
NEUTRON SOURCES Detection of entrapped moisture in honeycomb sandwich structures MSC-1103	B67-10116	01	HICOV - Newton-Raphson calculus of variation with automatic transversalities M-FS-14466	B68-10232	06
Apparatus for fabrication of americium- beryllium neutron sources prevents capsule contamination ARG-184	B67-10202	05	Buckling Of Shells Of Revolution /BOSOR/ with various wall constructions LANGLEY-10441	B69-10300	06
Portable, high intensity isotopic neutron source provides increased experimental accuracy ARG-90250	B68-10243	02	NEWTON THEORY Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06
Dual-mode operation of a neutron source, a concept HQ-10106	B69-10248	02	NICHROME (TRADEMARK) Heater decomposes oil backstreaming from high-vacuum pumps GSFC-356	B65-10224	02
Manganese-56 coincidence-counting facility precisely measures neutron-source strength			Viscosity and density of methanol/water mixtures at low temperatures M-FS-14991	B68-10274	03
			Induction probe determines levels of liquid metals		

SUBJECT INDEX

NICKEL ALLOYS

ARG-10348	B69-10256	03	ARG-10013	B67-10583	03
Thermal conductivity probe M-FS-20566	B69-10780	03	Nickel base alloy with improved stress rupture properties LEWIS-10283	B68-10344	03
NICKEL			Study of fluoride corrosion of nickel alloys ARG-10224	B69-10048	03
Ellipsoidal optical reflectors reproduced by electroforming GSFC-92	B63-10547	05	Mass transport mechanism in porous fuel cell electrodes HQ-10343	B69-10135	01
Forming blocks speed production of strain gage grids LEWIS-182	B65-10009	05	Aggregation of metallochlorophylls - Examination by spectroscopy ARG-10273	B69-10163	04
Efficient thin film heating element takes minimum space GSFC-289	B65-10123	01	Reduction by monovalent zinc, cadmium, and nickel cations ARG-10328	B69-10170	03
Thermoelectric elements diffusion-bonded to tungsten electrodes GSFC-346	B65-10309	01	Electrochemical sintering process for producing electrodes from cadmium felt and a nickel or silver grid GSFC-10764	B69-10227	05
Regenerative fuel cell combines high efficiency with low cost WOO-090	B65-10363	01	Parameters for good welding of copper to nickel M-FS-20353	B69-10302	05
Brazing method produces solid-solution bond between refractory metals LEWIS-212	B65-10370	05	Quality-weld parameters for microwelding techniques and equipment M-FS-20484	B69-10303	05
Tungsten wire and tubing joined by nickel brazing M-FS-394	B65-10391	05	Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03
Pressure vessels fabricated with high-strength wire and electroformed nickel M-FS-580	B66-10218	05	NICKEL ALLOYS		
Submicron metal powders produced by ball milling with grinding aids LEWIS-188	B66-10221	03	Improved variable-reluctance transducer measures transient pressures LANGLEY-10	B63-10321	01
Metal Oxide Silicon /MOS/ transistors protected from destructive damage by wire ARC-65	B66-10419	01	Forming blocks speed production of strain gage grids LEWIS-182	B65-10009	05
Xenon forms stable compound with fluorine ARG-4	B66-10467	03	Solid-film lubricant is effective at high temperatures in vacuum LEWIS-228	B66-10087	03
Silver-base ternary alloy proves superior for slip ring lead wires M-FS-1540	B66-10540	03	Cryogenic trap valve has no moving parts M-FS-487	B66-10136	05
Quality control criteria for acceptance testing of cross-wire welds MSC-627	B66-10587	05	Nickel-base superalloys developed for high- temperature applications LEWIS-226	B66-10222	03
Composites of porous metal and solid lubricants increase bearing life LEWIS-307	B67-10007	03	Large seals fabricated from small segments reduce procurement lead time M-FS-1117	B66-10464	05
Aluminized thin-window proportional-counter tube is stronger, more responsive in long wavelength region JPL-689	B67-10015	01	Study made of corrosion resistance of stainless steel and nickel alloys in nuclear reactor superheaters ARG-230	B67-10051	03
Simple pump maintains liquid helium level in cryostat M-FS-1763	B67-10039	05	Braze joint quality tested electromagnetically M-FS-12795	B67-10333	01
Zirconium alloys with small amounts of iron and copper or nickel show improved corrosion resistance in superheated steam ARG-226	B67-10050	03	Excellent spring properties developed in two nickel alloys for use at cryogenic temperatures NUC-10084	B67-10349	03
Evaluation of high temperature stranded hookup wire M-FS-2478	B67-10122	03	Study made of procedures for externally loading and corrosion testing stress corrosion specimens M-FS-12064	B67-10451	03
Study made of Raney nickel technology M-FS-2054	B67-10208	03	Copper and nickel adherently electroplated on titanium alloy M-FS-13952	B67-10532	03
Fuel cell life improved by metallic sinter activation after electrode assembly welding MSC-10965	B67-10436	03	High strength nickel-base alloy with improved oxidation resistance up to 2200 degrees F LEWIS-10115	B68-10094	03
Study of crevice-galvanic corrosion of aluminum					

NICKEL CADMIUM BATTERIES

SUBJECT INDEX

Study reveals effect of aluminum on saturation moment of Fe-Ni alloys ARG-90259	B68-10172	03	NICKEL COMPOUNDS Didymium compound improves nickel-cadmium cell GSFC-295	B65-10083	03
Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03	Thoriated nickel bonded by solid-state diffusion method LANGLEY-116	B65-10220	03
Inspection criteria ensure quality control of parallel gap soldering M-FS-14530	B68-10257	05	Application of the solid lubricant molybdenum disulfide by sputtering LEWIS-10544	B68-10340	03
Pre-weld heat treatment improves welds in Rene 41 M-FS-18174	B68-10285	03	High temperature coatings for gas bearings LEWIS-10793	B69-10200	03
Ultrasonic temperature measuring device LEWIS-10446	B68-10319	01	NICKEL FLUORIDES Experiments shed new light on nickel-fluorine reactions ARG-10008	B67-10397	03
Tungsten fiber-reinforced nickel superalloy LEWIS-10424	B68-10369	03	NICKEL OXIDES Frangible electrochemical cell and sealing technique XGS-10010	B69-10056	01
Nickel-base superalloy*s excellent properties promote its service to 2200 degrees F LEWIS-10355	B68-10380	03	Cobalt improves nickel hydroxide electrodes for batteries LEWIS-10760	B69-10228	01
Method for removing surface-damaged layers from nickel alloys M-FS-18151	B68-10522	03	NICKEL PLATE Electroless nickel resist used in alkali etching of aluminum GSFC-284	B65-10162	03
Evaluation of lubricants for ball bearings at high temperatures LEWIS-10578	B69-10025	03	Modular thermoelectric cell is easily packaged in various arrays GSFC-339	B65-10199	01
Study of fluoride corrosion of nickel alloys ARG-10224	B69-10048	03	Titanium diaphragm makes excellent amplitron cathode support GSFC-394	B65-10298	01
Hot-cracking studies of Inconel 718 weld-heat-affected zones M-FS-18211	B69-10052	05	Nickel solution prepared for precision electroforming WOO-070	B65-10303	03
Tensile and fatigue properties of Inconel 718 at cryogenic temperatures M-FS-18192	B69-10068	03	Plated nickel wire mesh makes superior catalyst bed MSC-216	B65-10321	03
High strength, superplastic superalloy LEWIS-10805	B69-10293	03	Nickel/tin coating protects threaded fasteners in corrosive environment MSC-253	B65-10398	03
Device for obtaining separation of oxygen LANGLEY-11007	B69-10477	01	Copper wire plated with nickel and silver resists corrosion M-FS-761	B66-10421	03
NICKEL CADMIUM BATTERIES Didymium compound improves nickel-cadmium cell GSFC-295	B65-10083	03	Electrical cabling withstands severe environmental conditions M-FS-1585	B66-10427	01
Hermetically sealed cells protected from internal gas pressure GSFC-555	B66-10692	01	Rotating magnetic poles used to pump mercury LEWIS-276	B66-10434	05
Battery charge regulator is coulometer controlled GSFC-561	B67-10446	01	Electroless nickel plating on stainless steels and aluminum GSFC-533	B66-10479	03
Study of thermal effects on nickel-cadmium batteries GSFC-10003	B67-10614	01	Nondestructive test method accurately sorts mixed bolts M-FS-1426	B66-10574	01
Charge control of nickel-cadmium batteries by coulometer and third electrode method GSFC-10487	B68-10431	01	Helical recorder GSFC-10614	B69-10340	01
Battery case shear GSFC-10783	B69-10127	05	Improved nickel plating of Inconel X-750 M-FS-18604	B69-10463	05
Balloon batteries, charged and heated by solar energy GSFC-10769	B69-10585	01	NICKEL STEELS Diaphragm eliminates leakage in cryogenic fluid duct coupling WOO-142	B65-10227	05
Application of cryptanalytic techniques to the analysis of NiCd space batteries GSFC-10569	B69-10731	01	NIKE-CAJUN ROCKET VEHICLE Rocket sonde measurements of ozone in the upper atmosphere GSFC-10580	B69-10077	02
NICKEL COATINGS Electroless nickel resist used in alkali etching of aluminum GSFC-284	B65-10162	03			

SUBJECT INDEX

NITROGEN

NIOBATES

Improved process for making thin-film sodium niobate capacitors
MSC-11231 B68-10163 01

NIOBUM

Niobium thin films are superconductive in strong magnetic fields at low temperatures
JPL-SC-174 B66-10122 02

Simple pump maintains liquid helium level in cryostat
M-FS-1763 B67-10039 05

Tube-to-header joint for bimetallic construction
LEWIS-10282 B67-10464 05

One hundred angstrom niobium wire
LEWIS-10128 B68-10279 03

Superconductive thin film makes convenient liquid helium level sensor
LANGLEY-10289 B68-10341 01

Nickel-base superalloy*s excellent properties promote its service to 2200 degrees F
LEWIS-10355 B68-10380 03

High-emittance coatings on metal substrates
LEWIS-10325 B68-10381 03

Inverted grounding technique for electron beam heating
LEWIS-10543 B68-10411 01

Study of high temperature bearing materials
LEWIS-10829 B69-10252 03

High strength, superplastic superalloy
LEWIS-10805 B69-10293 03

Report on a cryogenic gyroscope
NPO-11200 B69-10504 02

NIOBUM ALLOYS

Protected, high-temperature connecting cable
LEWIS-10149 B67-10461 01

Application of the solid lubricant molybdenum disulfide by sputtering
LEWIS-10544 B68-10340 03

Improved high-temperature silicide coatings
LEWIS-10817 B69-10266 03

Niobium-uranium alloys with voids of predetermined size and total volume
ARG-10490 B69-10641 03

NIOBUM COMPOUNDS

Environmental study of miniature slip rings
M-FS-2443 B67-10210 05

Preparation of superconducting thin films of transition-metal interstitial compounds
HQ-10445 B69-10470 01

NITRATES

Didymium compound improves nickel-cadmium cell
GSFC-295 B65-10083 03

Crack detection method is safe in presence of liquid oxygen
M-FS-236 B65-10107 03

Chromium oxide coatings improve thermal emissivity of alumina
WOO-263 B66-10227 03

Special treatment reduces helium permeation of glass in vacuum systems
HQ-25 B66-10372 02

Coating protects magnesium-lithium alloys against corrosion
M-FS-2446 B67-10149 03

Cobalt improves nickel hydroxide electrodes for batteries
LEWIS-10760 B69-10228 01

NITRIC ACID

Method of welding joint in closed vessel improves quality of seam
JPL-170 B63-10139 05

Modification increases light output of injection-luminescent diodes
M-FS-192 B65-10006 01

Galvanic corrosion reduced in aluminum fabrications
M-FS-272 B65-10140 03

Nonhazardous acid etches weld samples
M-FS-975 B66-10378 05

Gage of 6.5 per cent Si-Fe sheet is chemically reduced
MSC-537 B66-10454 03

Copper-acrylic enamel serves as lubricant for cold drawing of refractory metals
ARG-54 B66-10471 05

Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination
ARG-262 B67-10421 03

Nitric acid-organic mixtures surveyed for use in separation by anion exchange methods
ARG-10065 B68-10425 03

Continuous analysis of nitrogen dioxide in gas streams of plants
ARG-10356 B69-10254 03

Improved nickel plating of Inconel X-750
M-FS-18604 B69-10463 05

A method for precision anodize stripping
MSC-15040 B69-10581 03

NITRIDES

Preparation of superconducting thin films of transition-metal interstitial compounds
HQ-10445 B69-10470 01

NITRILES

Coating permits use of strain gage in water and liquid hydrogen
M-FS-594 B66-10192 01

Gas chromatographic column enables analysis of propellant hydrazines
MSC-1161 B66-10586 03

NITROGEN

Helium tube separates nitrogen gas from liquid nitrogen
JPL-398 B63-10251 05

New method forms bond line free of voids
LANGLEY-20 B63-10558 05

Compressed gas system operates semitrailer brakes during winching operation
JPL-0036 B64-10306 05

Gas diffusion cell removes carbon dioxide from occupied airtight enclosures
MSC-118 B64-10319 03

Apparatus facilitates pressure-testing of metal tubing
LEWIS-174 B65-10131 05

Instrument accurately measures extremely low air densities
M-FS-193 B65-10221 01

Ceramic materials purified by experimental method
LEWIS-225 B65-10270 03

NITROGEN COMPOUNDS

SUBJECT INDEX

Tensile-strength apparatus applies high strain-rate loading with minimum shock JPL-28 B66-10063	05	to ceramics SAN-10012 B68-10204	03
Economical and maintenance-free gas system operates railroad switches NU-0045 B66-10124	05	High-voltage pulse generator developed for wide-gap spark chambers ARG-10136 B68-10283	01
Sniffer used as portable hydrogen leak detector M-FS-846 B66-10356	01	Cryogenic liquid level measuring probe ARG-10138 B68-10291	01
Leak locator for vacuum jacketed pipelines eliminates need for removal of outer jacket M-FS-888 B66-10412	01	One-dimensional reacting gas nonequilibrium performance program MSC-11777 B68-10375	06
Large diameter metal ring seal prevents gas leakage at 5000 psi M-FS-1064 B66-10422	05	One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780 B68-10376	06
Automatic cryogenic liquid level controller is safe for use near combustible substances LEWIS-195 B66-10482	01	Axisymmetric reacting gas nonequilibrium performance program MSC-11781 B68-10377	06
Experimental investigation of megawatt dc arc heating of nitrogen LEWIS-313 B66-10508	02	Titanium-nitrogen reaction investigated for application to gettering systems ARG-10208 B68-10414	03
Process produces chlorinated aromatic isocyanate in high yield M-FS-1658 B66-10646	03	Two systems developed for purifying inert atmospheres ARG-10234 B69-10026	03
Vacuum chamber is remotely sealed by eutectic metal NU-0091 B67-10059	05	Prediction of friction coefficients for gases LEWIS-10774 B69-10112	02
Effects of helium and nitrogen as pressurants in nitrogen tetroxide transfer MSC-924 B67-10083	03	Plasma-heating by induction LEWIS-10528 B69-10185	02
Liquid oxygen dicting cleaned by falling film method M-FS-11816 B67-10299	03	Computer program for high pressure real gas effects LEWIS-10820 B69-10222	06
Cytology is advanced by studying effects of deuterium environment ARG-205 B67-10304	04	Method for copper staining of germanium crystals ARG-10403 B69-10257	03
Precision capacitor has improved temperature and operational stability ARG-189 B67-10313	01	Laser action from a terbium beta-ketoenolate at room temperature GSFC-10593 B69-10324	02
Single-source mechanical loading system produces biaxial stresses in cylinders M-FS-12530 B67-10380	05	Pneumatic flow comparator M-FS-18373 B69-10400	05
Temperature-sensed cryogenic bleed maintains liquid state in transfer line M-FS-12681 B67-10424	01	Control for maintaining constant level of a cryogenic liquid NPO-11177 B69-10573	05
Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133 B67-10437	03	High pressure real gas effects for helium and nitrogen LEWIS-10819 B69-10669	06
Fluid properties handbook M-FS-13462 B67-10440	03	Vacuum gage calibration system for 10 to the minus 8th power to 10 torr LEWIS-11032 B69-10713	01
Foil radiometer accessory improves measurements M-FS-12684 B67-10448	01	Controlled substrate cooling improves reproducibility of vapor deposited semiconductor composites ERC-10161 B69-10732	01
Environmental control system for cryogenic testing of tensile specimens NUC-10523 B67-10618	02	Mixed ether bath for electrodeposition of aluminum LANGLEY-10200 B69-10737	03
Fire extinguisher control system provides reliable cold weather operation M-FS-13031 B67-10622	05	NITROGEN COMPOUNDS Substitution of stable isotopes in Chlorella ARG-10258 B69-10197	04
Air sampler collects and protects minute particles HQ-10037 B67-10661	01	NITROGEN DIOXIDE Nitrogen dioxide produced by self-sustained pyrolysis of nitrous oxide LANGLEY-32 B65-10074	05
High-pressure gas facilitates calibration of turbine flowmeters for liquid hydrogen LEWIS-10402 B68-10145	01	Continuous analysis of nitrogen dioxide in gas streams of plants ARG-10356 B69-10254	03
Manganese-alumina-ceramic glass eliminates rigid controls necessary in bonding metals		NITROGEN ISOTOPES An improved nuclear magnetic resonance	

SUBJECT INDEX

NOISE SPECTRA

spectrometer JPL-762	B67-10234	01	NFO-11220	B69-10733	02
NITROGEN POLYMERS			NOISE INTENSITY		
Flexible protective coatings made from silicon-nitrogen materials M-FS-528	B66-10027	03	Small foamed polystyrene shield protects low-frequency microphones from wind noise M-FS-123	B63-10579	01
Synthesis of various highly halogenated monomers and polymers M-FS-2143	B67-10100	03	SiC/Si diode trigger circuit provides automatic range switching for log amplifier M-FS-1879	B67-10314	01
NITROGEN TETROXIDE			Survey of man-made electrical noise affecting radio broadcasting HQ-10290	B69-10308	01
Effects of helium and nitrogen as pressurants in nitrogen tetroxide transfer MSC-924	B67-10083	03	NOISE METERS		
Glass bead shot peening retards stress corrosion failure of titanium tanks LANGLEY-319	B67-10198	05	Improved S/N meter MSC-11656	B68-10151	01
NITROGUANIDINE			NOISE PROPAGATION		
Explosive bonding of metal-matrix composites M-FS-20657	B69-10804	05	Variable word length encoder reduces TV bandwidth requirements LANGLEY-87	B65-10345	01
NITROPROPANE			Noise study of single stage compressor rotor-stator interaction LANGLEY-137	B67-10516	02
Study made of dielectric properties of promising materials for cryogenic capacitors M-FS-13620	B67-10366	03	Optimum FM pre-emphasis KSC-10151	B69-10359	01
NITROUS OXIDES			NOISE REDUCTION		
Nitrogen dioxide produced by self-sustained pyrolysis of nitrous oxide LANGLEY-32	B65-10074	05	New low-level a-c amplifier provides adjustable noise cancellation and automatic temperature compensation ARC-2	B63-10003	04
NODES (STANDING WAVES)			Flange on microwave antenna subreflector cuts ground noise JPL-362	B63-10229	01
Computer program simplifies transient and steady-state temperature prediction for complex body shapes MSC-989	B66-10619	01	Novel horn antenna reduces side lobes, improves radiation pattern JPL-425	B63-10264	01
Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries M-FS-1910	B67-10329	06	Small digital recording head has parallel bit channels, minimizes cross talk JPL-0029	B63-10284	01
NOISE			Field-effect transistor improves electrometer amplifier ARC-36	B64-10143	01
Noise study of single stage compressor rotor-stator interaction LANGLEY-137	B67-10516	02	Logic circuit exhibits optimum performance LANGLEY-129	B65-10193	01
Simultaneous message framing and error detection MSC-12001	B68-10330	01	Voltage controlled oscillator is easily aligned, has low phase noise JPL-510	B65-10223	01
NOISE (SOUND)			Field effect transistor presents high input impedance in ac amplifier JPL-500	B65-10232	01
Polymer deformation gage measures thickness change in tensile tests JPL-745	B66-10147	01	An investigation of phase-lock loop swept- frequency synchronization M-FS-656	B66-10423	01
Personal communication system combines high performance with miniaturization MSC-720	B67-10119	01	MOSFET analog memory circuit achieves long duration signal storage M-FS-860	B66-10603	01
Accuracy of laser measurements improved by pulse autocorrelator electronic system MSC-10033	B67-10338	01	Laser system generates single-frequency light M-FS-2556	B67-10288	02
Automatic testing device facilitates noise checks and electronic calibrations LHWIS-10173	B67-10467	01	Digital filter suppresses effects of nonstatistical noise bursts on multichannel scalar digital averaging systems ARG-90143	B68-10193	06
Transient sensor development M-FS-13370	B67-10471	01	Low-loss C-band parasitic probe KSC-09348	B69-10251	01
Laser communication system is insensitive to atmospherically induced noise GSFC-10396	B67-10587	01	NOISE SPECTRA		
Noise figure measurement concept for acoustic amplifiers GSFC-10066	B68-10272	01	The effect of mismatched components on microwave noise-temperature calibrations NFO-11163	B69-10333	01
Stereo TV enhancement study M-FS-14805	B69-10497	01			
Gamma radiation characteristics of plutonium dioxide fuel					

NOMENCLATURES

SUBJECT INDEX

NOMENCLATURES

Integrated mobility measurement and notation
system
MSC-726 B67-10114 04

NONDESTRUCTIVE TESTS

Pulse generator permits nondestructive
testing of component breakdown voltage
MSC-122 B65-10054 01

Crack detection method is safe in presence of
liquid oxygen
M-FS-236 B65-10107 03

Apparatus facilitates pressure-testing of
metal tubing
LEWIS-174 B65-10131 05

Force controlled solenoid drives microweld
tester
WOO-125 B65-10182 01

Portable self-powered device detects internal
flaws in tubular structures
NU-0019 B66-10028 01

Pressure transducers dynamically tested with
sinusoidal pressure generator
LEWIS-268 B66-10031 01

Surfactant for dye-penetrant inspection is
insensitive to liquid oxygen
M-FS-475 B66-10131 03

Fatigue cracks detected and measured without
test interruption
LEWIS-266 B66-10178 02

Ultrasonic recording scanner used for
nondestructive weld inspection
M-FS-284 B66-10220 01

Ultrasonic hand tool allows convenient
scanning of spot welds
M-FS-539 B66-10289 02

Simple, nondestructive test identifies metals
MSC-525 B66-10305 03

Semiautomatic device tests components with
biaxial leads
MSC-516 B66-10337 03

Nondestructive test method accurately sorts
mixed bolts
M-FS-1426 B66-10574 01

Portable fixture facilitates pressure
testing of instrumentation fittings
M-FS-2032 B67-10121 03

Calibrating ultrasonic test equipment for
checking thin metal strip stock
NUC-10009 B67-10127 01

Weld procedure produces quality welds for
thick sections of Hastelloy-X
NUC-10048 B67-10195 05

Electron beam welder X-rays its own welds
LEWIS-10111 B67-10216 02

Liquid crystals detect voids in fiber glass
laminates
LEWIS-10104 B67-10286 03

Improved ultrasonic TV images achieved by
use of Lamb-wave orientation technique
ARG-203 B67-10295 02

Thermal neutron image intensifier tube
provides brightly visible radiographic
pattern
ARG-120 B67-10296 02

Braze joint quality tested
electromagnetically
M-FS-12795 B67-10333 01

Handbooks describe eddy current techniques
used in nondestructive testing of metal
parts and components
M-FS-13172 B67-10374 03

Camera lens adapter magnifies image
M-FS-11955 B67-10431 02

Surface-crack detection by microwave methods
ARC-10009 B67-10482 01

Study of stress corrosion in aluminum
alloys
M-FS-13906 B67-10533 03

Mechanized X-ray inspection system for
large tanks
M-FS-12867 B67-10564 02

Nondestructive testing techniques used in
analysis of honeycomb structure bond
strength
M-FS-1214 B67-10574 01

Lamb waves increase sensitivity in
nondestructive testing
ARG-10009 B67-10605 02

Eddy current probe measures size of cracks
in nonmetallic materials
M-FS-14059 B67-10645 03

Dc pin-to-pin testing of integrated
circuits
GSFC-10284 B68-10001 01

Gage monitors quality of cross-wire
resistance welds
GSFC-90549 B68-10002 01

Development of mechanized ultrasonic
scanning system
M-FS-13638 B68-10004 05

Evaluation of methods for nondestructive
testing of brazed joints
ARG-90175 B68-10191 03

Standards for compatibility of printed
circuit and component lead materials
M-FS-14531 B68-10310 01

Automatic, nondestructive test monitors
in-process weld quality
M-FS-14996 B68-10333 01

Nondestructive test determines overload
destruction characteristics of current
limiter fuses
XGS-08566 B68-10364 01

Nondestructive method for measuring residual
stresses in metals, a concept
KSC-10237 B68-10378 03

Automatic system nondestructively monitors
and records fatigue crack growth
LANGLEY-16091 B68-10379 01

Training manuals for nondestructive testing
using magnetic particles
M-FS-20187 B68-10391 03

Nondestructive testing of brazed rocket
engine components
M-FS-18191 B68-10394 03

Hydrostatic testing of porous assemblies
M-FS-18298 B68-10439 05

Rocket engine analog simulation
M-FS-14511 B68-10511 01

Failure rates for accelerated acceptance
testing of silicon transistors
ERC-10198 B68-10541 01

Thick transducers used for generating
short-duration stress pulses in thin

SUBJECT INDEX

NONUNIFORM FLOW

specimens ARG-10232	B69-10045	01	NONLINEAR FEEDBACK Nonlinear feedback reduces analog-to-digital converter error ARC-46	B65-10277	01
Handbooks for nondestructive testing using ultrasonics M-FS-20409	B69-10108	03	NONLINEAR FILTERS Compensation of pulse-rebalanced inertial instruments MSC-13098	B69-10216	01
Instruction manuals for liquid penetrant nondestructive testing M-FS-14010	B69-10278	05	A method for reducing sampling jitter in digital control systems NPO-11088	B69-10338	01
Instrumentation for nondestructive testing of composite honeycomb materials M-FS-20405	B69-10366	03	NONLINEAR SYSTEMS Phase plane displays detect incipient failure in servo system testing BQ-10018	B67-10662	01
Nondestructive testing of welds on thin-walled tubing M-FS-18144	B69-10402	01	Computer program offers new method for constructing periodic orbits in nonlinear dynamical systems M-FS-14654	B68-10217	06
Nondestructive determination of cohesive strength of adhesive-bonded composites M-FS-20397	B69-10464	03	Mechanical properties of a lap joint under uniform clamping pressure M-FS-14538	B69-10141	05
Use of medical and dental X-ray equipment for nondestructive testing MSC-13389	B69-10553	01	NONLINEARITY New package for Belleville spring permits rate change, easy disassembly JPL-392	B63-10247	05
Thermal conductivity probe M-FS-20566	B69-10780	03	Feedback loop compensates for rectifier nonlinearity M-FS-384	B66-10382	01
Exploding bridgwire detonator simulator M-FS-02191	B69-10782	01	A radiometer-pyrometer LEWIS-284	B66-10606	01
NOELECTROLYTES Nonelectrolytic tantalum capacitors developed M-FS-1546	B66-10552	01	Resistance thermometer has linear resistance-temperature coefficient at low temperatures WOO-190	B66-10612	01
NONEQUILIBRIUM CONDITIONS Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters M-FS-13594	B67-10527	03	Concept for using laser beams to measure electron density in plasmas M-FS-965	B66-10645	01
ELAS - A general purpose computer program for the equilibrium problems of linear structures NPO-10598	B68-10187	06	Device enables calibration of microphones at high sound pressure levels M-FS-11980	B67-10336	01
One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06	New technique for optimal smoothing of data MSC-11354	B68-10060	02
Axisymmetric reacting gas nonequilibrium performance program MSC-11781	B68-10377	06	Vibration testing and dynamic studies of relays M-FS-14542	B68-10268	01
NONEQUILIBRIUM FLOW One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06	Low-cost, fast-response drive circuit for electromagnetic torque motors LEWIS-10143	B68-10386	01
NONLINEAR EQUATIONS Computer program determines chemical composition of physical system at equilibrium MSC-1119	B66-10670	01	Computer program analyzes whirl critical speeds and bearing loads for shafts coupled by nonlinear springs to machine housing NUC-10308	B69-10034	06
Computer program determines chemical equilibria in complex systems LEWIS-281	B66-10671	01	Analysis of magnetically-controlled processes in pulse-modulation systems GSFC-10241	B69-10070	01
Equation relates flow at free jet to flow downstream M-FS-13789	B67-10612	06	Compensation of pulse-rebalanced inertial instruments MSC-13098	B69-10216	01
Solution of differential equations by application of transformation groups M-FS-14802	B68-10276	02	NONNEWTONIAN FLOW Flow properties of suspensions rich in solids ARG-10481	B69-10622	02
FORTAN 4 program calculates velocities and streamlines in a tandem blade turbomachine LEWIS-10743	B69-10219	06	NONUNIFORM FLOW Computer program NCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid NUC-10043	B67-10457	06
Buckling Of Shells Of Revolution /BOSOR/ with various wall constructions LANGLEY-10441	B69-10300	06			

NONUNIFORM MAGNETIC FIELDS

SUBJECT INDEX

NONUNIFORM MAGNETIC FIELDS

Superconductor magnets used for stagger-tuning
traveling-wave maser
GSFC-292

B65-10165 01

NONUNIFORMITY

A radiometer-pyrometer
LEWIS-284

B66-10606 01

Bimetal sensor averages temperature of
nonuniform profile
LEWIS-10362

B68-10007 01

NORMAL DENSITY FUNCTIONS

Computer program determines exact two-sided
tolerance limits for normal distributions
M-FS-18045

B68-10158 06

Application of a truncated normal failure
distribution in reliability testing
M-FS-14328

B68-10179 02

NORMAL SHOCK WAVES

Program computes equilibrium normal shock
and stagnation point solutions for
arbitrary gas mixtures
LANGLEY-10090

B67-10509 06

NOSE CONES

Colloidal suspension simulates linear
dynamic pressure profile
WOO-266

B66-10214 05

New class of thermosetting plastics has
improved strength, thermal and chemical
stability
LEWIS-10108

B67-10197 03

NOTCH STRENGTH

New weldable high strength aluminum alloy
developed for cryogenic service
M-FS-737

B66-10613 05

Manual of typical low temperature
mechanical properties of several materials
M-FS-18331

B69-10179 03

NOTCH TESTS

Effect of surface irregularities on bellows
fatigue life
M-FS-14480

B68-10229 05

NOTCHES

Apparatus of small size can be extended into
long, rigid boom
JPL-305

B63-10200 05

NOZZLE DESIGN

Binary fluid amplifier solves stability and
load problems
ERC-15

B66-10177 01

Instrumentation for nondestructive testing
of composite honeycomb materials
M-FS-20405

B69-10366 03

NOZZLE FLOW

Flow control valve is independent of pressure
drop
JPL-WOO-039

B65-10121 05

Elimination of rocket engine asymmetric
loads during tests at sea level
M-FS-1730

B66-10674 05

Flow liner extends operating life of
high-angulation bellows
M-FS-12023

B67-10512 05

Axisymmetric two-phase perfect gas
performance program
MSC-11774

B68-10374 06

One-dimensional two-phase reacting gas
nonequilibrium performance program
MSC-11780

B68-10376 06

Computer program for high pressure real
gas effects

LEWIS-10820

B69-10222 06

Natural gas flow through critical nozzles
LEWIS-11031

B69-10712 02

NOZZLE GEOMETRY

Binary fluid amplifier solves stability and
load problems
ERC-15

B66-10177 01

Venturi meter with separable diffuser
LEWIS-10483

B68-10295 05

One-dimensional reacting gas nonequilibrium
performance program
MSC-11777

B68-10375 06

One-dimensional two-phase reacting gas
nonequilibrium performance program
MSC-11780

B68-10376 06

Axisymmetric reacting gas nonequilibrium
performance program
MSC-11781

B68-10377 06

Bell nozzle kernel analysis program
M-FS-18456

B69-10146 06

NOZZLES

Improved technique for localizing
electropolishing features novel nozzles
WOO-101

B64-10271 01

Heated die facilitates tungsten forming
LEWIS-25A

B66-10047 05

Grit blasting nozzle fabricated from mild
tool steel proves satisfactory
M-FS-1420

B66-10597 05

Miniature paint-spray gun for recessed
areas
MSC-13060

B68-10387 05

System for measuring spatial distribution of
ejected droplets, a concept
NPO-10185

B68-10402 01

High pressure real gas effects for helium
and nitrogen
LEWIS-10819

B69-10669 06

NUCLEAR CHEMISTRY

Compilation of detection sensitivities in
thermal-neutron activation
ARG-10068

B67-10641 03

NUCLEAR ENERGY

Potassium plasma cell facilitates thermionic
energy conversion process
ARG-10010

B67-10399 01

Training course for radiation safety
technicians
ARG-216

B67-10477 02

NUCLEAR EXPLOSIONS

Rapid-response, light-exposure control
system
NPO-10238

B68-10502 01

Hydrodynamics of a new concept of primary
containment by energy absorption
ARG-10242

B69-10046 05

Transplutonium elements processed from
rock debris of underground detonations
ARG-10222

B69-10054 03

NUCLEAR FUEL ELEMENTS

Glassy materials investigated for nuclear
reactor applications
ARG-10075

B68-10103 03

Performance of low-pressure thermionic
converters is evaluated
ARG-10276

B69-10090 01

Fast framing cameras provide high-speed

SUBJECT INDEX

NUCLEAR RADIATION

multi-channel data recording ARG-10252	B69-10102	02	JPL-762	B67-10234	01
Fuel element concept for long life high power nuclear reactors LEWIS-10309	B69-10154	03	The preparation, identification and properties of chlorophyll derivatives ARG-10205	B68-10409	03
NUCLEAR FUELS			Aggregation of metallochlorophylls - Examination by spectroscopy ARG-10273	B69-10163	04
Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys ARG-199	B66-10594	03	Qualitative and quantitative analysis of mixtures of compounds containing both hydrogen and deuterium ARG-10312	B69-10177	04
Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels ARG-232	B67-10032	03	NUCLEAR PARTICLES		
Solubility data are compiled for metals in liquid zinc ARG-149	B67-10191	03	Instrument performs nondestructive chemical analysis, data can be telemetered JPL-SC-078	B65-10317	01
Separation technique provides rapid quantitative determination of cesium-137 in irradiated nuclear fuel NUC-10047	B67-10194	03	Single channel pulse-height analyzer operates in subnanosecond range LEWIS-267	B66-10377	01
Computer program predicts thermal and flow transients experienced in a reactor loss- of-flow accident NUC-10054	B67-10281	06	Improved pulse shape discriminator for fast neutron-gamma ray detection system HQ-10151	B69-10481	01
Thermal neutron image intensifier tube provides brightly visible radiographic pattern ARG-120	B67-10296	02	NUCLEAR PHYSICS		
Neutron irradiation of Am-241 effectively produces curium ARG-10030	B67-10501	03	Ignition of binary alloys of uranium ARG-10057	B68-10280	01
Technological survey of tellurium and its compounds ARG-10119	B68-10201	03	On-line computer system for use with low- energy nuclear physics experiments is reported ARG-10257	B69-10094	01
Characteristics of fluidized-packed beds ARG-10049	B68-10278	03	Handbook explaining the fundamentals of nuclear and atomic physics NUC-10330	B69-10705	02
Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/ ARG-10148	B68-10368	03	NUCLEAR POWER PLANTS		
Refractory oxide insulated thermocouple designed and analyzed for high temperature applications ARG-10202	B69-10053	03	N-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program NUC-10126	B67-10536	06
Effect of interparticle forces on the fluidization of fine particles ARG-10264	B69-10195	03	Fuel element concept for long life high power nuclear reactors LEWIS-10309	B69-10154	03
Induction probe determines levels of liquid metals ARG-10348	B69-10256	03	NUCLEAR POWER REACTORS		
Niobium-uranium alloys with voids of predetermined size and total volume ARG-10490	B69-10641	03	Separation technique provides rapid quantitative determination of cesium-137 in irradiated nuclear fuel NUC-10047	B67-10194	03
Gamma radiation characteristics of plutonium dioxide fuel NPO-11220	B69-10733	02	Computer program FPIP-REV calculates fission product inventory for U-235 fission NUC-10089	B67-10450	06
NUCLEAR FUSION			Neutron irradiation of Am-241 effectively produces curium ARG-10030	B67-10501	03
Method for determining properties of microinstabilities of a magnetized plasma HQ-10447	B69-10462	02	Electronic calorimetric computer LEWIS-90254	B68-10138	01
NUCLEAR HEAT			NUCLEAR POWERED SHIPS		
Servo calorimeter measures material heating rate NU-0024	B65-10247	01	Practical new method of measuring thermal-neutron fluence NUC-10086	B67-10352	02
NUCLEAR MAGNETIC RESONANCE			NUCLEAR RADIATION		
Xenon fluorides show potential as fluorinating agents ARG-113	B67-10185	03	Servo calorimeter measures material heating rate NU-0024	B65-10247	01
An improved nuclear magnetic resonance spectrometer			System transmits mechanical vibration into hazardous environment NU-0025	B65-10248	05
			Aluminum doping improves silicon solar cells LEWIS-206	B66-10181	02
			Mechanisms of superconductivity investigated by nuclear radiation M-FS-1944	B67-10057	02

NUCLEAR RADIATION SPECTROSCOPY

SUBJECT INDEX

Detection of entrapped moisture in honeycomb sandwich structures MSC-1103	B67-10116	01	NUC-10142	B67-10537	06
Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area NUC-10007	B67-10538	01	Glassy materials investigated for nuclear reactor applications ARG-10075	B68-10103	03
Pneumatic analog-to-pulse frequency converter LEWIS-10345	B69-10276	02	Steady-state differential calorimeter measures gamma heating in reactor ARG-10120	B68-10182	01
Live-timer method of automatic dead-time correction for precision counting ARG-10478	B69-10612	01	Portable, high intensity isotopic neutron source provides increased experimental accuracy ARG-90250	B68-10243	02
Highly stable high-rate discriminator for nuclear counting ARG-10483	B69-10614	01	Fuel element concept for long life high power nuclear reactors LEWIS-10309	B69-10154	03
Pulse-height analyzer with digital readout ARG-10503	B69-10640	01	Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems M-FS-14447	B69-10158	06
Gamma radiation characteristics of plutonium dioxide fuel NPO-11220	B69-10733	02	Accurate nine-decade temperature-compensated logarithmic amplifier ARG-10480	B69-10429	01
NUCLEAR RADIATION SPECTROSCOPY			A rotating, noncapillary heat pipe LEWIS-10298	B69-10684	05
Status of ultrachemical analysis for semiconductors M-FS-2254	B67-10138	03	NUCLEAR RESEARCH		
NUCLEAR REACTIONS			Multiaxial analyzer detects low-energy electrons GSFC-329	B65-10213	01
Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations NUC-10052	B67-10345	06	Workmanship standards for fusion welding NUC-10050	B67-10200	05
Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes NUC-10143	B67-10665	06	NUCLEAR ROCKET ENGINES		
An economical method for the continuous production of iodine-123 LEWIS-10518	B68-10433	03	Tester automatically checks insulation of individual conductors in multiple-strand cables NUC-10068	B67-10260	01
NUCLEAR REACTOR CONTROL			Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi NUC-10067	B67-10263	01
Hydrodynamics of a new concept of primary containment by energy absorption ARG-10242	B69-10046	05	Ultrasonic temperature measuring device LEWIS-10446	B68-10319	01
NUCLEAR REACTORS			Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems M-FS-14447	B69-10158	06
Laser beam transmits electric power GSFC-293	B65-10158	01	Prediction of performance of centrifugal pumps during starts under pressure LEWIS-10900	B69-10263	05
Study made of corrosion resistance of stainless steel and nickel alloys in nuclear reactor superheaters ARG-230	B67-10051	03	Pneumatic analog-to-pulse frequency converter LEWIS-10345	B69-10276	02
Uranium isotopes quantitatively determined by modified method of atomic absorption spectrophotometry ARG-210	B67-10236	03	NUCLEAR SCATTERING		
Computer program predicts thermal and flow transients experienced in a reactor loss-of-flow accident NUC-10054	B67-10281	06	Alpha particle backscattering measurements used for chemical analysis of surfaces ARG-116	B67-10186	03
High-strength tungsten alloy with improved ductility LEWIS-10257	B67-10340	03	N-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program NUC-10126	B67-10536	06
Current pulse amplifier transmits detector signals with minimum distortion and attenuation NUC-10055	B67-10347	01	NUCLEAR WEAPONS		
Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid NUC-10043	B67-10457	06	Radiation tolerant silicon nitride insulated gate field effect transistors GSFC-10581	B69-10253	01
SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield			NUCLEATE BOILING		
			Evaluation of superconducting magnets, a study M-FS-14808	B68-10396	02
			Experimental prediction of performance by superconducting cables ARG-10215	B69-10161	01
			NUCLEATION		
			Analytical techniques for determining boron		

SUBJECT INDEX

NUMERICAL CONTROL

in graphite ARG-10087	B68-10102	03	flow is solved by small perturbation techniques M-FS-869	B66-10700	02
Electron beam recrystallization of amorphous semiconductor materials LEWIS-10443	B68-10556	02	Computer program calculates monotonic maximum likelihood estimates using method of reversals M-FS-1516	B67-10136	01
NUCLEI Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations ARG-251	B67-10305	04	A power-spectral-density computer program NFO-10126	B67-10160	01
Stratification of centrifuged amoeba nuclei investigated by electron microscopy ARG-10161	B68-10366	04	A theoretical model for determining turbine flowmeter sensitivity M-FS-1172	B67-10179	01
NUCLEI (NUCLEAR PHYSICS) Four pi-recoil proportional counter used as neutron spectrometer ARG-10101	B68-10326	02	CINDA - Chrysler Improved Numerical Differencing Analyzer computer program M-FS-2298	B67-10278	06
NUCLEIC ACIDS Effect of preparation procedures on intensity of radioautographic labeling is studied ARG-10032	B67-10500	04	Computer program provides linear sampled- data analysis for high order systems M-FS-12821	B67-10287	06
NUCLIDES Calculation of resonance neutron absorption in two-region problems /the GAROL code/ NUC-10045	B67-10223	06	General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-FS-13094	B67-10331	06
Computer program FPIP-REV calculates fission product inventory for U-235 fission NUC-10089	B67-10450	06	Numerical least-square method for resolving complex pulse height spectra GSFC-10142	B67-10480	06
Review of physics, instrumentation and dosimetry of radioactive isotopes ARG-10037	B67-10640	02	Large-amplitude inviscid fluid motion in an accelerating container MSC-11560	B68-10170	02
Neutron therapy of cancer ARG-10310	B69-10203	04	Computer program determines system stability /DIGSTA/ LEWIS-10395	B68-10216	06
Automatic bird watcher ARG-10342	B69-10286	02	Monte Carlo direct view factor and generalized radiative heat transfer programs M-FS-15051	B69-10038	06
Gamma radiation characteristics of plutonium dioxide fuel NFO-11220	B69-10733	02	Some numerical methods for integrating systems of first-order ordinary differential equations ARG-10308	B69-10204	02
NULL ZONES Sensitive bridge circuit measures conductance of low-conductivity electrolyte solutions ARG-147	B67-10294	01	Flow properties of suspensions rich in solids ARG-10481	B69-10622	02
NUMBERS Run numbering system for use with data recorders M-FS-2557	B67-10215	01	Storage of electric and magnetic energy in passive nonreciprocal networks ARG-10360	B69-10630	01
NUMERICAL ANALYSIS Computer modification reduces time of performing iterative division M-FS-166	B65-10005	01	Engineering thermal analyzer /BETA 2/ M-FS-15055	B69-10760	06
Calculations enable optimum design of magnetic brake LEWIS-251	B66-10073	05	Numerical solutions of differential equations M-FS-20537	B69-10779	02
New computer system simplifies programming of mathematical equations M-FS-441	B66-10361	01	Aerodynamic forces of fluttering cylindrical and/or planar structures M-FS-20497	B69-10781	02
Minimum permissible leakage resistance established for instrumentation systems M-FS-848	B66-10397	01	Trajectory optimization using regularized variables MSC-13370	B69-10810	02
New computer program solves wide variety of heat flow problems M-FS-421	B66-10404	01	Determination of permissible applied load stress in structural elements M-FS-16556	B69-10823	02
An orthonormalization procedure for multivariable function approximation M-FS-1313	B66-10579	01	NUMERICAL CONTROL Ellipsoidal optical reflectors reproduced by electroforming GSFC-92	B63-10547	05
Problem of oscillating cone in supersonic			Computer used to program numerically controlled milling machine M-FS-1608	B66-10541	01
			Run numbering system for use with data recorders		

NUMERICAL INTEGRATION

SUBJECT INDEX

M-FS-2557	B67-10215	01	NUC-10043	B67-10457	06
Thread cutting with 3-axis M/C milling machine			Liquid-metal heat transfer in a cocurrent-flow, double-pipe heat exchanger is investigated		
LANGLEY-10017	B68-10055	06	ARG-10261	B69-10091	02
Numerical Control Machine Data Manual			MUTATION		
M-FS-14342	B68-10080	05	Fluid logic control circuit operates nutator actuator motor		
Accurate digital technique simulates flight control system			LEWIS-294	B66-10593	05
M-FS-14787	B68-10569	02	Scanning means for Cassegrainian antenna		
Determination of quadric equation coefficients describing three-dimensional surfaces, their constraint and skewed planes, and view point areas			JPL-946	B67-10174	05
M-FS-15043	B69-10435	06	NUTRITION		
Circuit board hole coordinate locator concept			Experimental study and evaluation of radioprotective drugs		
M-FS-14737	B69-10539	01	ARG-10196	B68-10320	04
NUMERICAL INTEGRATION			Compound equation developed for postnatal growth of birds and mammals		
Self-starting procedure simplifies numerical integration			ARG-10192	B68-10427	04
ARC-50	B67-10013	01	Improved mouse cage provides versatility and ease in handling laboratory mice		
Space trajectories program for IBM 7090			MSC-12250	B69-10124	04
NPO-10125	B67-10172	06	NUTRITIONAL REQUIREMENTS		
Computer program simulates physical systems by solving the simultaneous differential equations describing the systems			Food products for space applications		
NPO-10019	B67-10193	06	MSC-11697	B68-10324	04
Computer program ETC improves computation of elastic transfer matrices of Legendre polynomials P/0/ and P/1/			Life detection		
NUC-10070	B67-10566	06	NPO-10510	B69-10475	04
Computer program determines exact two-sided tolerance limits for normal distributions			NUTS (FASTENERS)		
M-FS-18045	B68-10158	06	Simple mechanism combines positive locking and quick-release features		
Computer program analyzes Buckling Of Shells Of Revolution with various wall construction, BOSOR			WOO-4	B63-10420	05
LANGLEY-10290	B68-10226	06	Fastener provides cooling and compensates for thermal expansion		
CIRCUS--A digital computer program for transient analysis of electronic circuits			NU-0003	B65-10038	05
M-FS-15002	B68-10416	06	Screw locking cups quickly and neatly crimped		
Daughter growth in freshly separated Ra-226, Ac-227 and U-232			NU-0009	B65-10049	05
ARG-10226	B69-10003	02	Coiled spring makes self-locking device for threaded fasteners		
Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes			MSC-149	B65-10135	05
ARG-10274	B69-10047	02	Captive nut fastener securely joins brittle materials		
Numerical integration of ordinary differential equations of various orders			NU-0008	B65-10245	05
ARG-10247	B69-10089	02	Mechanism isolates load weighing cell during lifting of load		
ABTRAJ on-site tracking prediction program			MSC-297	B66-10071	05
NPO-10836	B69-10103	06	Fastener provides for bolt misalignment and quick release of flange		
Some numerical methods for integrating systems of first-order ordinary differential equations			NU-0074	B66-10275	05
ARG-10308	B69-10204	02	Pneumatic wrench retains or discharges nuts or bolts as desired		
Buckling Of Shells Of Revolution /BOSOR/ with various wall constructions			NU-0085	B66-10707	05
LANGLEY-10441	B69-10300	06	Single wrench separates nuts from free-floating bolts		
Computer simulation of high-frequency combustion instability and its suppression			NUC-10013	B67-10158	05
HQ-10391	B69-10368	06	Cable clamp bolt fixture facilitates assembly in close quarters		
NUSSELT NUMBER			KSC-67-80	B67-10244	05
Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid			Tensile testing grips ensure uniform loading of bimetal tubing specimens		
			LEWIS-10267	B68-10248	05
			High-torque power wrench, a concept		
			M-FS-18194	B68-10299	05
			Pressure transducer		
			NPO-10853	B69-10364	01
			Precisely repeatable rotary mechanism		
			NPO-10679	B69-10696	05

O RING SEALS

Vented piston seal prevents fluid leakage between two chambers
JPL-179 B63-10141 05

Self sealing disconnect for tubing forms metal seal after breakaway
JPL-354 B63-10226 05

Filter for high-pressure gases has easy take-down, assembly
JPL-373 B63-10234 03

Modified RF coaxial connector ends vacuum chamber wiring problem
GSFC-150 B64-10010 01

Blade valve isolates compartment in pipe, opens to allow free flow
JPL-585 B64-10188 05

Two-part valve acts as quick coupling
JPL-478 B64-10223 05

Multiple element soft X-ray source produces wide range of radiation
GSFC-286 B65-10082 02

Low-cost tool minimizes damage to O-rings during installation
MSC-140 B65-10116 05

Fluid check valve has fail-safe feature
JPL-0019 B65-10207 05

Reinforcement core facilitates O-ring installation
WOO-228 B65-10378 05

O-ring tube fittings form leakproof seal in hydraulic systems
M-FS-481 B66-10020 05

Epoxy blanket protects milled part during explosive forming
M-FS-307 B66-10029 03

Cryogenic liquid transfer system reduces residual boiloff
LEWIS-274 B66-10157 02

Rubber-coated bellows improves vibration damping in vacuum lines
LEWIS-273 B66-10187 02

Pressure seal ring may be effective over wide temperature range
M-FS-486 B66-10211 05

O-rings with mylar back-up provide high-pressure cryogenic seal
M-FS-603 B66-10278 05

High pressure tube coupling requires no threads or flares
MSC-600 B66-10285 05

Bi-metallic devices help maintain constant sealing forces down to cryogenic temperatures
M-FS-800 B66-10325 02

Inflatable O-ring seal would ease closing of hatch cover plate
MSC-740 B66-10385 05

Large diameter metal ring seal prevents gas leakage at 5000 psi
M-FS-1064 B66-10422 05

Miniature valve accurately controls small volume fluid flow
ARG-66 B66-10473 05

Cryogenic cooling reduces high voltage arcing between electrodes operating in a vacuum
ARG-109 B66-10499 02

Feed-thru flange is useful in vacuum applications to cryogenic temperatures
JPL-846 B66-10615 02

Aluminized thin-window proportional-counter tube is stronger, more responsive in long wavelength region
JPL-689 B67-10015 01

Plasma jet electrode has longer operating life
NU-0098 B67-10024 02

Feed-through connector couples RF power into vacuum chamber
NU-0096 B67-10027 01

Irradiated gases transferred without contamination or dilution
LEWIS-278 B67-10044 03

Laboratory arc furnace features interchangeable hearths
ARG-125 B67-10052 05

Line adapter provides quick disconnect under moderate side loading
M-FS-2159 B67-10256 05

Improved compression molding process
LANGLEY-10027 B67-10302 03

Hand-operated plug insertion valve
M-FS-12019 B67-10466 05

Dynamic valve seal is reliable at cryogenic temperatures
M-FS-12987 B67-10526 05

Lead plated aluminum ring provides static high pressure seal for large diameter pressure vessel
NUC-10008 B67-10539 05

Polystyrene cryostat facilitates testing tensile specimens under liquid nitrogen
NUC-10522 B67-10613 02

Ferromagnetic core valve gives rapid action on minimum energy
LEWIS-10135 B67-10623 05

Eddy current disk valve
LEWIS-10123 B67-10638 05

Cooled miniature pressure transducers effective at high temperatures
LEWIS-10401 B68-10370 01

Insertion device for pressure testing
MSC-15185 B69-10061 03

Improved retort for cleaning metal powders with hydrogen
LEWIS-10718 B69-10468 03

OCEANOGRAPHY

Oceanborne transponder platform has good stability
M-FS-171 B65-10035 05

Extendable mast used in one shot soil penetrometer
JPL-685 B66-10146 05

New method for critical failure prediction of complex systems
M-FS-14133 B68-10252 02

Computer graphics data conditioning
M-FS-14695 B68-10296 06

Charts designate probable future oceanographic research fields
M-FS-20202 B68-10397 01

Analysis of filament reinforced metal-shell pressure vessels
LEWIS-10352 B68-10405 06

OFF-ON CONTROL

SUBJECT INDEX

Dual-mode operation of a neutron source, a concept HQ-10106	B69-10248	02	M-FS-565	B66-10249	05
OFF-ON CONTROL			Vibrator improves spark erosion cutting process NU-0071	B66-10333	01
Safety switch permits emergency bridge crane shutdown M-FS-549	B66-10168	05	Valve effectively controls amount of contaminant in flow stream M-FS-1771	B66-10683	05
Key-locked guard prevents accidental switch actuation MSC-419	B66-10235	05	Method accurately measures mean particle diameters of monodisperse polystyrene latexes ARG-207	B67-10054	02
Electronic shutter gates image orthicon on and off HQ-96	B67-10270	01	Accumulator isolator prevents malfunctioning of faulty hydraulic system M-FS-1415	B67-10528	05
A method for reducing sampling jitter in digital control systems NPO-11088	B69-10338	01	Conceptual apparatus for detecting leaks of nonconductive liquids M-FS-14713	B68-10303	01
OGO			TFE-fluorocarbon liners for flexible hoses M-FS-16480	B69-10288	05
Rotational fluid coupling eliminates hose entanglements MSC-312	B66-10585	05	Apparatus automatically measures soluble residue content of volatile solvents SAN-10032	B69-10292	03
An overview of electromagnetic interference problems in spacecraft NPO-11170	B69-10362	01	Freon, T-B1 cutting fluid MSC-11486	B69-10485	05
OHMMETERS			Synthesis of polyethers of hexafluorobenzene and hexafluoropentanediol M-FS-14962	B69-10636	03
Ohmmeter senses depletion of lubricant in journal bearings LEWIS-37	B64-10042	01	Device for reflowing electrodeposited solder on terminals M-FS-13821	B69-10670	01
Weld leaks rapidly and safely detected M-FS-362	B65-10265	01	Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01
Electronic ohmmeter provides direct digital output GSFC-363	B65-10274	01	OLEIC ACID		
Resistor monitors transfer of liquid helium LANGLEY-229	B66-10580	01	Magnetic fluid readily controlled in zero gravity environment LEWIS-126	B65-10335	03
Electrical continuity scanner facilitates identification of wires for soldering to connectors MSC-626	B66-10605	01	OLIVINE		
Ratio matching of half-bridge weldable strain gages, computer program FRC-10032	B69-10040	06	Epitaxial crystalline growth upon cold substrates MSC-11196	B69-10494	01
Nondestructive evaluation of printed wiring boards by microhm resistance measurements SAN-10034	B69-10272	01	OMNIDIRECTIONAL ANTENNAS		
OILS			Lightweight load support serves as vibration damper JPL-661	B65-10144	05
Oil-smeared models aid wind tunnel measurements LANGLEY-4	B63-10311	03	Omnidirectional antennas transmit and receive over large bandwidth GSFC-436	B66-10133	01
Fine-particle filter prevents damage to vacuum pumps LEWIS-106	B63-10489	05	Interference effects eliminated in random oriented space station antenna system MSC-11004	B67-10435	01
Nonresonant support facilitates vibration testing of structures M-FS-224	B65-10039	05	ON-LINE PROGRAMMING		
Heater decomposes oil backstreaming from high-vacuum pumps GSFC-356	B65-10224	02	New computer system simplifies programming of mathematical equations M-FS-441	B66-10361	01
Oil-damped mercury pool makes precise optical alignment tool GSFC-353	B65-10253	02	Computer program simulates physical systems by solving the simultaneous differential equations describing the systems NPO-10019	B67-10193	06
Tensile-strength apparatus applies high strain-rate loading with minimum shock JPL-28	B66-10063	05	Computer graphics data conditioning M-FS-14695	B68-10296	06
Sensor detects hydrocarbon oil contaminants in fluid lines M-FS-522	B66-10068	01	Simplified system displays complex curves corresponding to input data HQ-10073	B69-10247	01
Fluid damping reduces bellows seal fatigue failures			ONE DIMENSIONAL FLOW		
			One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06

SUBJECT INDEX

OPTICAL EQUIPMENT

OPACITY

Opaque microfiche masthead permits easy reading
HQ-7 B65-10306 01

Optically driven switch turn-off time reduced by opaque coatings
JPL-SC-107 B66-10141 01

Pyrometry handbook describes practical aspects of surface temperature measurements of opaque materials
LEWIS-349 B66-10520 01

Technique for predicting temperature distribution in gases
LEWIS-10918 B69-10329 01

OPENINGS

Expandable rubber plug seals openings for pressure testing
NU-0048 B66-10229 05

Interior servicing platform simplifies maintenance of storage tanks
M-FS-1300 B66-10425 05

OPERATING TEMPERATURE

Precision capacitor has improved temperature and operational stability
ARG-189 B67-10313 01

Transient sensor development
M-FS-13370 B67-10471 01

Liquid crystal calibrator
M-FS-14151 B68-10221 03

OPERATIONAL HAZARDS

Economical and maintenance-free gas system operates railroad switches
NU-0045 B66-10124 05

Lifting clamp positively grips structural shapes
M-FS-593 B66-10176 05

OPERATIONAL PROBLEMS

Logic system aids in evaluation of project readiness
MSC-753 B66-10457 05

Electrochemical cell has internal resistive heater element
GSFC-10358 B68-10325 01

Design and sparring techniques to meet specified performance life
HQ-10200 B69-10528 02

OPERATIONS RESEARCH

Queueing register uses fluid logic elements
M-FS-317 B66-10100 05

OPERATOR PERFORMANCE

Optical projectors simulate human eyes to establish operator's field of view
WOO-250 B66-10010 02

Shoulder adapter steadies spot welding gun
M-FS-321 B66-10076 05

Tape reading fixture
M-FS-14146 B69-10008 05

Astronaut's tool for withdrawing/replacing computer cards
M-FS-20453 B69-10183 05

OPERATORS (MATHEMATICS)

Structure of the isotropic transport operators in three independent space variables
ARG-10448 B69-10432 06

OPERATORS (PERSONNEL)

Human transfer functions used to predict system performance parameters
LANGLEY-203 B66-10379 01

Remotely operated high pressure valve protects test personnel
MSC-11010 B67-10291 05

OPTICAL COMMUNICATION

Local measurements in turbulent flows through cross correlation of optical signals
M-FS-1268 B67-10030 01

Laser communication system is insensitive to atmospherically induced noise
GSFC-10396 B67-10587 01

Site survey for optimum location of Optical Communication Experimental Facility
M-FS-13155 B68-10050 06

Repetitively pulsed, wavelength-selective carbon dioxide laser
ERC-10178 B68-10564 02

Occulting-filter method for obtaining flashing-light visibility data
MSC-13097 B69-10107 02

Multipurpose binocular scanning apparatus
NPO-11002 B69-10311 02

Method of directing a laser beam with very high accuracy
NPO-11087 B69-10508 02

OPTICAL CORRECTION PROCEDURE

Oil-damped mercury pool makes precise optical alignment tool
GSFC-353 B65-10253 02

Image position sensor
M-FS-14101 B69-10783 02

OPTICAL COUPLING

Automatic frequency control of voltage-controlled oscillators
NPO-11064 B69-10569 01

OPTICAL DENSITY

PTFE-aluminum films serve as neutral density filters
LANGLEY-189 B66-10017 02

Digital computer processing of X-ray photos
JPL-792 B67-10005 04

Blood oxygen saturation determined by transmission spectrophotometry of hemolyzed blood samples
MSC-11018 B67-10252 04

Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination
ARG-262 B67-10421 03

VICAR-DIGITAL image processing system
NPO-10770 B69-10139 06

OPTICAL EQUIPMENT

Optics used to measure torque at high rotational speeds
LEWIS-13 B63-10338 01

Mirror device aligns machine surface perpendicular to sight lines
WOO-5 B63-10421 02

Micromachining produces optical apertures to micron dimensions
GSFC-206 B64-10211 05

Radiation-detector optical-imaging device is of simplified construction
GSFC-251 B64-10299 01

Simple optical system used to align spectrograph
LANGLEY-92 B65-10071 02

Computer programs simplify optical system analysis

OPTICAL FILTERS

SUBJECT INDEX

GSFC-306	B65-10093	01	Optical system facilitates inspection of printed circuit boards	GSFC-07971	B68-10021	02	
Light ray modulation controls optical system alignment	GSFC-171	B65-10211	02	Antiglare improvement for optical imaging systems	NPO-10337	B68-10090	02
Oil-damped mercury pool makes precise optical alignment tool	GSFC-353	B65-10253	02	Circuit enhances vertical resolution in raster scanning systems	MSC-12123	B68-10121	01
Multiple test chamber exposes materials to various environments	MSC-179	B65-10268	01	Optical integrating sphere operates at visible and infrared wavelengths	M-FS-14248	B68-10126	02
Interferometer construction assures parallelism of critical components	JPL-704	B65-10292	02	Improved relay optical element for spectroradiometer using cryogenically cooled detector	MSC-11688	B68-10245	02
Unique construction makes interferometer insensitive to mechanical stresses	JPL-725	B65-10295	02	Modified sine bar device measures small angles with high accuracy	GSFC-438	B68-10322	02
Nickel solution prepared for precision electroforming	WOO-070	B65-10303	03	FORTRAN optical lens design program	NPO-10603	B68-10354	06
Optical projectors simulate human eyes to establish operator's field of view	WOO-250	B66-10010	02	Training manual on optical alignment instruments	M-FS-20292	B68-10574	02
Electrodeless discharge lamp is easily started, has high stability	WOO-030	B66-10015	01	Method of making conical fiber optical components	XNP-09745	B69-10020	02
Improved carbon electrode reduces arc sputtering	MSC-219	B66-10026	01	Improved combustion chamber optical probe	MSC-10953	B69-10142	02
Instrument quickly transposes ground reference target to eye level	MSC-275	B66-10061	05	Rectangular-bore, high-gain laser plasma tube	HQ-10234	B69-10193	02
Optically driven switch turn-off time reduced by opaque coatings	JPL-SC-107	B66-10141	01	Liquid laser cavities	GSFC-10592	B69-10234	02
Optical device enables small detector to see large field of view	WOO-253	B66-10263	02	Multipurpose binocular scanning apparatus	NPO-11002	B69-10311	02
Instrument transmits vanishing point to illustration point	MSC-267A	B66-10324	01	A new method for producing optical mirrors	HQ-10227	B69-10529	02
Electrically controlled optical latch and switch requires less current	JPL-SC-111	B66-10414	01	OPTICAL FILTERS			
Optical monitor panel provides flexible test panel configurations	KSC-66-18	B66-10494	01	Thin transparent films formed from powdered glass	GSFC-352	B65-10217	03
Simplified fixture permits precision alignment of an optical target	M-FS-1181	B66-10556	01	Distant objects detected visually with optical filters	LANGLEY-166	B65-10252	02
Sensors measure surface ablation rate of reentry vehicle heat shield	LANGLEY-287	B66-10592	01	Inexpensive infrared source improvised from flashlight	M-FS-494	B66-10096	02
Visual attitude orientation and alignment system	MSC-647	B67-10120	02	Proposed acousto-optic filter	HQ-10440	B69-10466	02
Portable spectrometer monitors inert gas shield in welding process	M-FS-12144	B67-10326	02	OPTICAL MEASUREMENT			
Machining heavy plastic sections	M-FS-12720	B67-10381	03	Ultraviolet photographic pyrometer used in rocket exhaust analysis	M-FS-499	B66-10095	02
Foil radiometer accessory improves measurements	M-FS-12684	B67-10448	01	Solvent residue content measured by light scattering technique	M-FS-850	B66-10320	01
Automatic design of optical systems by digital computer	NPO-10265	B67-10632	06	Laser measuring system accurately locates point coordinates on photograph	ARG-74	B66-10560	02
				Special purpose reflectometer uses modified albricht sphere	MSC-1135	B67-10109	02
				Star/horizon simulator used to test space guidance system	MSC-407	B67-10110	02

SUBJECT INDEX

OPTICAL SCANNERS

Improved atmospheric particle analyzer ERC-33	B67-10231	01	polarized light photography WOO-286	B67-10082	02
Computer program for optical systems ray tracing FRC-10017	B67-10549	06	OPTICAL PROPERTIES Attachment converts microscope to point source autocollimator JPL-499	B64-10124	05
Improved optical diffractometer MSC-12055	B68-10071	02	Lamp enables measurement of oxygen concentration in presence of water vapor MSC-10043	B67-10387	01
Ring laser angle encoder MSC-13099	B69-10115	01	Properties of optics at high temperature and their measurement, a study M-FS-14696	B68-10240	02
OPTICAL MEASURING INSTRUMENTS Ellipsoidal optical reflectors reproduced by electroforming GSFC-92	B63-10547	05	UV detector monitors organic contamination of optical surfaces M-FS-20246	B68-10413	01
Optical output enhances flowmeter accuracy M-FS-482	B65-10395	02	Correction for losses in optical birefringent networks, a concept M-FS-20088	B68-10571	02
Optical gyro pickoff operates at cryogenic temperatures M-FS-407	B66-10128	01	Selective vignetting of Type 1 X-ray telescopes GSFC-10682	B69-10075	02
Mount enables precision adjustment of optical-instrumentation mirror MSC-184	B66-10199	02	Laser microprobe facility used in the elemental analysis of small feature of a sample ARG-10359	B69-10165	02
Dielectrometer design permits measurement in vacuum under irradiation M-FS-359	B66-10401	01	OPTICAL PUMPING Magnetometer measures orthogonal components of magnetic fields GSFC-395	B65-10315	01
Direction indicator system does not require complicated optics WOO-305	B66-10407	01	Optically exciting a magnetic memory - A feasibility study M-FS-14854	B69-10060	02
Point-source light sensor circuit is insensitive to background light JPL-778	B66-10502	01	OPTICAL PYROMETERS Infrared shield facilitates optical pyrometer measurements LANGLEY-133	B65-10272	02
Optical superheterodyne receiver uses laser for local oscillator M-FS-1605	B66-10584	01	Hydrogen-atmosphere induction furnace has increased temperature range LEWIS-153	B66-10055	05
Optical automatic gain channel M-FS-1550	B66-10596	02	Ultraviolet photographic pyrometer used in rocket exhaust analysis M-FS-499	B66-10095	02
Laser Doppler flowmeter measures gas velocity M-FS-1747	B66-10693	02	High temperature thermocouple operates in reduction atmosphere NU-0046	B66-10134	01
Fatigue zones in metals identified by polarized light photography WOO-286	B67-10082	02	Pyrometry handbook describes practical aspects of surface temperature measurements of opaque materials LEWIS-349	B66-10520	01
System enables dimensional inspection of very large structures M-FS-2477	B67-10214	05	OPTICAL REFLECTION Plastic films for reflective surfaces reproduced from masters GSFC-188	B64-10151	03
Optimetric system facilitates colorimetric and fluorometric measurements NPO-10233	B68-10316	01	Improved electro-optical tracking system M-FS-14791	B68-10311	01
Detection of effect of deposits on optical windows of pyrometer measurements LEWIS-10366	B68-10367	01	OPTICAL RESONANCE Magnetometer measures orthogonal components of magnetic fields GSFC-395	B65-10315	01
Improved method of optical design GSFC-10743	B69-10405	02	OPTICAL SCANNERS Sextant measures spacecraft altitude without gravitational reference MSC-200	B66-10143	02
Airborne Fraunhofer Line Discriminator MSC-13146	B69-10594	02	Scanning photometer system automatically determines atmospheric layer height MSC-245	B66-10170	01
Automatic star-horizon angle measurement system MSC-11585	B69-10597	01	Apparatus presents visual display of semiconductor surface characteristics JPL-665	B66-10200	01
OPTICAL MICROSCOPES Color-televised medical microscopy MSC-13086	B68-10314	01			
OPTICAL PATHS Photoelectric system continuously monitors liquid level M-FS-417	B65-10382	01			
OPTICAL POLARIZATION Fatigue zones in metals identified by					

OPTICAL TRACKING

SUBJECT INDEX

Multicolor stroboscope pinpoints resonances in vibrating components JPL-0033	B66-10223	01	Computer optimization program finds values for several independent variables that minimize a dependent variable M-FS-13030	B67-10328	06
Design concept for improved photo-scan tube JPL-818	B67-10157	01	High-strength tungsten alloy with improved ductility LEWIS-10257	B67-10340	03
OPTICAL TRACKING					
Precision CW laser automatic tracking system investigated M-FS-1606	B66-10629	01	Computer programs for antenna feed system design and analysis NPO-10359	B67-10504	06
Improved electro-optical tracking system M-FS-14791	B68-10311	01	SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield NUC-10142	B67-10537	06
OPTICS					
Optics used to measure torque at high rotational speeds LEWIS-13	B63-10338	01	Automatic planning concept - An analysis of optimum scheduling M-FS-14198	B68-10127	06
Liquid-level meter has no moving parts M-FS-3	B63-10378	03	Assembly, checkout, and operation optimization analysis technique for complex systems M-FS-14105	B68-10222	05
Lathe converted for grinding aspheric surfaces GSFC-115	B63-10556	05	HICOV - Newton-Raphson calculus of variation with automatic transversalities M-FS-14468	B68-10232	06
System measures angular displacement without contact LANGLLEY-46	B65-10073	01	Silicon strain sensors enable pressure measurement at cryogenic temperatures M-FS-14703	B68-10262	01
Photosensors used to maintain welding electrode-to-joint alignment MSC-243	B65-10401	05	Computer program analyzes and designs supersonic wing-body combinations ARC-10141	B68-10335	06
Screen of cylindrical lenses produces stereoscopic television pictures M-FS-273	B66-10086	02	Study of optimum discrete estimators in measurement analysis M-FS-14915	B68-10348	02
New camera tube improves ultrasonic inspection system ARG-90237	B68-10088	01	FORTRAN optical lens design program NPO-10603	B68-10354	06
Properties of optics at high temperature and their measurement, a study M-FS-14696	B68-10240	02	Single degree of freedom antenna pointing program /ANTENA/ NPO-10756	B68-10449	06
Improved relay optical element for spectroradiometer using cryogenically cooled detector MSC-11688	B68-10245	02	Computer program for parameter optimization ARC-10168	B68-10453	06
Fluorescent particles enable visualization of gas flow M-FS-14583	B68-10259	02	Radial inflow turbine design charts LEWIS-10720	B68-10567	05
FORTRAN optical lens design program NPO-10603	B68-10354	06	Design and testing of liquid hydrogen-cooled, ultrahigh-speed ball bearings M-FS-18453	B69-10178	05
UV detector monitors organic contamination of optical surfaces M-FS-20246	B68-10413	01	ORBITAL MECHANICS		
Optically induced free carrier light modulator GSFC-10216	B69-10114	01	Generalized Newton-Raphson trajectory optimization-generator 1 M-FS-15020	B68-10422	06
Determination of the absolute contours of optical flats ARG-10352	B69-10209	05	ORBITAL RENDEZVOUS		
OPTICAL CONTROL			Generalized Newton-Raphson trajectory optimization-generator 1 M-FS-15020	B68-10422	06
Design techniques - Stochastic controllers MSC-11554	B68-10234	02	ORBITAL SPACE STATIONS		
OPTIMIZATION			Study indicates fluid digital computation systems are feasible M-FS-520	B67-10181	01
Computer program determines inventory size M-FS-1135	B66-10506	01	Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01
A design procedure for the weight optimization of straight finned radiators GSFC-547	B66-10618	05	ORBITS		
Packaging of electronic modules JPL-801	B66-10664	01	Fortran 4 program for two-impulse rendezvous analysis M-FS-13971	B67-10479	06
Computer program for mass optional solutions of some endpoint trajectory problems M-FS-12976	B67-10310	06	Computer program offers new method for constructing periodic orbits in nonlinear dynamical systems M-FS-14654	B68-10217	06

SUBJECT INDEX

ORTHOGONAL FUNCTIONS

Determination of quadric equation coefficients describing three-dimensional surfaces, their constraint and skewed planes, and view point areas M-FS-15043	B69-10435	06	Hot-air soldering technique prevents overheating of electrical components GSFC-91	B63-10536	01
ORGANIC CHEMISTRY			Modified gas bearing is adjustable to optimum stiffness ratio M-FS-145	B64-10050	05
Study made of Raney nickel technology M-FS-2054	B67-10208	03	Pneumatic power is transmitted through air bearing MSC-8	B64-10141	05
Qualitative and quantitative analysis of mixtures of compounds containing both hydrogen and deuterium ARG-10312	B69-10177	04	Slit feeds reduce unbalanced torques in gas-lubricated bearings JPL-264	B65-10099	05
Production of solvated electrons ARG-10416	B69-10430	03	Averaging probe reduces static-pressure sensing errors LANGLEY-36	B65-10114	05
ORGANIC COMPOUNDS			Combustion chamber inlet manifold separates vapor from liquid M-FS-531	B66-10052	05
Solvent residue content measured by light scattering technique M-FS-850	B66-10320	01	System proportions fluid-flow in response to demand signals GSFC-457	B66-10094	01
Primary cells utilize halogen-organic charge transfer complex JPL-926	B66-10682	02	Soldering tool heats workpieces and applies solder in one operation LEWIS-247	B66-10115	05
Nitric acid-organic mixtures surveyed for use in separation by anion exchange methods ARG-10065	B68-10425	03	Quick-response servo amplifies small hydraulic pressure differences ARG-99	B66-10498	05
Detection of molecular infrared spectra HQ-10377	B69-10172	02	Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates NPO-10316	B67-10418	05
Recent development in organic scintillators ARG-10344	B69-10198	03	Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid NUC-10043	B67-10457	06
The Quantasyn, an improved quantum detector ERC-10148	B69-10443	01	Pressure variable orifice for hydraulic control valve MSC-11323	B68-10120	05
Thermally conducting electron transfer polymers GSFC-10703	B69-10511	03	Vacuum probe sampler removes micron-sized particles from surfaces SAN-10003	B68-10231	04
ORGANIC MATERIALS			Dual rate pressure relief valve MSC-11606	B68-10237	05
Multiple-orifice throttle valve XNP-09698	B69-10030	05	Multiple-orifice throttle valve XNP-09698	B69-10030	05
Testing the flammability of materials exposed to arcs MSC-15225	B69-10531	03	ORIGINS		
ORGANIC SILICON COMPOUNDS			Neutron activation analysis traces copper artifacts to geographical point of origin ARG-119	B67-10036	02
Arylenesiloxane copolymers M-FS-1812	B67-10079	03	ORTHOGONAL FUNCTIONS		
ORGANIZING			Solar-angle sensor has no moving parts JPL-418	B63-10260	02
Computerized Schedule Effectiveness Technique /SET/ determines present and future schedule position M-FS-13012	B67-10522	06	Ball and socket joints provide accurate biaxial gimbal JPL-658	B65-10205	05
ORGANOMETALLIC COMPOUNDS			Magnetometer measures orthogonal components of magnetic fields GSFC-395	B65-10315	01
New class of compounds have very low vapor pressures ARG-115	B67-10184	03	Developmental instrument supplies accurate attitude and attitude-rate data HQ-57	B66-10607	01
Uranyl phthalocyanines show promise in the treatment of brain tumors ARG-100	B67-10188	04	Improved computer program for elastic analysis of highly redundant structural configurations M-FS-13087	B67-10330	06
ORGANOMETALLIC POLYMERS			Oculometer for remote tracking of eye movement ERC-10114	B69-10444	02
Arylenesiloxane copolymers M-FS-1812	B67-10079	03			
ORIFICES					
Elastic orifice automatically regulates gas bearings JPL-135	B63-10123	05			
Method of welding joint in closed vessel improves quality of seam JPL-170	B63-10139	05			
High-pressure regulating system prevents pressure surges JPL-231	B63-10170	05			

ORTHOGONALITY

SUBJECT INDEX

Method reduces computer time for smoothing functions and derivatives through ninth order polynomials NUC-10334	B69-10524	06	Ultrasonic recording scanner used for nondestructive weld inspection M-FS-284	B66-10220	01
ORTHOGONALITY			A conceptual design for squeeze film bearings M-FS-573	B66-10226	05
Twin helix system produces fast scan in infrared detector M-FS-1598	B66-10638	02	Device to color modulate a stationary light beam gives high intensity HQ-44	B66-10476	01
Device measures reaction engine thrust vector deviations JPL-SC-163	B66-10642	05	Automatic system determines moments of inertia of asymmetrical objects M-FS-1769	B66-10636	01
Precision metal molding M-FS-13305	B67-10423	05	Negative feedback system reduces pump oscillations M-FS-1852	B67-10064	05
Conceptual nonorthogonal gyro configuration for guidance and navigation MSC-11363	B67-10433	01	System precisely controls oscillation of vibrating mass M-FS-1875	B67-10276	01
ORTHONORMAL FUNCTIONS			Laser system generates single-frequency light M-FS-2556	B67-10288	02
An orthonormalization procedure for multivariable function approximation M-FS-1313	B66-10579	01	Circuit provides overcurrent protection to push-pull amplifier MSC-12033	B67-10300	01
ORTHOSTATIC TOLERANCE			Portable spectrometer monitors inert gas shield in welding process M-FS-12144	B67-10326	02
Device induces lungs to maintain known constant pressure MSC-50	B64-10108	04	Welding torch and wire feed manipulator M-FS-13102	B67-10385	05
ORTHOTROPIC CYLINDERS			Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates NPO-10316	B67-10418	05
Analysis of stability-critical orthotropic cylinders subjected to axial compression M-FS-12869	B67-10375	03	Apparatus makes klystron operating frequency adjustable from remote point NPO-09831	B67-10514	01
ORTHOTROPIC SHELLS			Amplitude and frequency readout overlay GSFC-10183	B68-10054	01
Computer program analyzes Buckling Of Shells Of Revolution with various wall construction, BOSOR LANGLEY-10290	B68-10226	06	Power consumption in acoustic amplifiers under conditions of maximum stable gain GSFC-10067	B68-10327	01
Buckling Of Shells Of Revolution /BOSOR/ with various wall constructions LANGLEY-10441	B69-10300	06	Instabilities encountered during heat transfer to a supercritical fluid ARG-10266	B69-10042	02
OSCILLATING CYLINDERS			Teflon-packed flexible joint LEWIS-90252	B69-10049	03
Problem of oscillating cone in supersonic flow is solved by small perturbation techniques M-FS-869	B66-10700	02	Performance of low-pressure thermionic converters is evaluated ARG-10276	B69-10090	01
Large-amplitude inviscid fluid motion in an accelerating container MSC-11560	B68-10170	02	Schmitt trigger multivibrator MSC-10955	B69-10143	01
OSCILLATION DAMPERS			Self-shielding printed circuit boards for high frequency amplifiers and transmitters HQ-10433	B69-10314	01
Damping technique gives accelerometer flat frequency response M-FS-471	B66-10293	01	Magnetic forming of resistive materials M-FS-20417	B69-10397	03
Suspended chains damp wind-induced oscillations of tall flexible structures LANGLEY-10193	B68-10042	05	Cryogenic fluid flow instabilities in heat exchangers M-FS-20438	B69-10541	02
Device damps fluid pressure oscillations in vent valve M-FS-13290	B68-10078	05	Self-sustained hydrodynamic oscillations in a natural-circulation two-phase-flow boiling loop ARG-10461	B69-10620	02
Radiometric temperature reference MSC-13276	B69-10507	01	Monopole mass spectrometer with improved sensitivity and reduced background HQ-10476	B69-10666	01
OSCILLATIONS			Miniature backward-diode pressure sensor		
Ellipsoidal optical reflectors reproduced by electroforming GSFC-92	B63-10547	05			
Improved holder protects crystal during high acceleration and impact JPL-463	B65-10037	05			
Device measures curved surface finish on gear teeth WOO-112	B65-10064	05			
Device enables measurement of moments of inertia about three axes GSFC-49	B65-10176	05			

SUBJECT INDEX

OSCILLATORS

features stability and low power consumption ERC-10229	B69-10690	01	LANGLEY-123	B65-10204	01
OSCILLATORS			Sensitive electrometer features digital output GSFC-288	B65-10206	01
Increased performance reliability obtained with dual /redundant/ oscillator system GSFC-36	B63-10027	01	Oscillator circuit measures liquid level in tanks M-FS-245	B65-10209	01
Igniting system for mercury lamps protects transistorized sustaining supply JPL-421	B63-10262	01	Brushless dc motor uses electron beam switching tube as commutator GSFC-345	B65-10237	01
Frequency-shift-keyer circuit improves PCM conversion for radio transmission GSFC-80	B63-10511	01	Inductor flyback characteristic gives voltage regulator fast response GSFC-361	B65-10257	01
Transistorized trigger circuit is frequency- controllable GSFC-111	B63-10553	01	Electronic ohmmeter provides direct digital output GSFC-363	B65-10274	01
High efficient square-wave oscillator operator at high power levels GSFC-112	B63-10554	01	Electrostatically driven dynamic capacitor employs capacitive feedback JPL-771	B65-10293	01
Computer determines high-frequency phase stability GSFC-113	B63-10555	01	Frequency correction device uses digital circuitry GSFC-268	B65-10307	01
Tiny sensor-transmitter can withstand extreme acceleration, gives digital output ABC-22	B63-10561	01	Electronic ampere-hour integrator is accurate to one percent GSFC-203	B65-10308	01
Blocking oscillator uses low triggering voltage MSC-58	B64-10017	01	Hybrid circuit achieves pulse regeneration with low power drain GSFC-382	B65-10314	01
Novel circuit combines pulse stretcher with NOR gate GSFC-187	B64-10150	01	Parallel line raster eliminates ambiguities in reading timing of pulses less than 500 microseconds apart JPL-805	B66-10386	01
Electronic device simulates respiration rate and depth MSC-89	B64-10255	01	Single-sideband modulator accurately reproduces phase information in 2-Mc signals M-FS-664	B66-10437	01
Transistorized converter provides nondissipative regulation GSFC-238	B64-10305	01	Helmet system broadcasts electroencephalograms of wearer ARC-70	B66-10536	01
Voltage generator sweeps oscillator frequency linearly with time M-FS-219	B64-10320	01	Optical superheterodyne receiver uses laser for local oscillator M-FS-1605	B66-10584	01
Circuit converts AM signals to FM for magnetic recording GSFC-227	B65-10001	01	Digital frequency counter permits readout without disturbing counting process JPL-906	B66-10658	01
Metal diaphragm used to calibrate miniature transducers M-FS-207	B65-10059	01	Monitor assures availability and quality of communication channels KSC-66-38	B67-10028	01
Feedback oscillator functions as low-level pulse stretcher GSFC-261	B65-10069	01	Fluidic oscillator used as humidity sensor LEWIS-340	B67-10063	05
Variable frequency transistor inverters use multiple core transformers GSFC-183	B65-10119	01	Instrument continuously measures density of flowing fluids LEWIS-309	B67-10080	01
High permeability semiconductors permit close-tolerance soldering GSFC-319	B65-10134	05	Circuit increases capability of hysteresis synchronous motor MSC-1080	B67-10084	01
Rotor position sensor switches currents in brushless dc motors GSFC-315	B65-10151	01	Plotter design simplifies determination of image sensor transfer characteristic NPO-10164	B67-10206	01
Circuit reduces distortion of FM modulator GSFC-257	B65-10152	01	An efficient, temperature-compensated subcarrier oscillator JPL-SC-091	B67-10251	01
Dc to ac converter operates efficiently at low input voltages GSFC-130	B65-10178	01	A calibration means for spectrum analyzers MSC-10987	B67-10254	01
Analog-to-digital converter has increased reliability and reduced power consumption GSFC-246	B65-10194	01	Absolute frequency stabilization of laser oscillator against laser amplifier M-FS-2559	B67-10255	01
Voltage variable oscillator has high phase stability					

OSCILLOGRAPHS

SUBJECT INDEX

Vibration analysis utilizing Mossbauer effect
M-FS-11974 B67-10339 01

Digital-to-analog converter operates from low level inputs
JPL-907 B67-10357 01

Interference effects eliminated in random oriented space station antenna system
MSC-11004 B67-10435 01

Oscillator circuit operates as digitally controlled frequency synthesizer
GSFC-570 B67-10447 01

Digital voltage-controlled oscillator
GSFC-512 B67-10449 01

Blood pressure reprogramming adapter assists signal recording
MSC-265 B67-10475 01

Improved circuit for measuring capacitive and inductive reactances
M-FS-13083 B67-10513 01

Analog voicing detector responds to pitch
GSFC-10085 B67-10571 01

Conceptual servo technique for controlling tape drivers
M-FS-12955 B67-10595 01

New technique for determination of cross-power spectral density with damped oscillators
M-FS-14022 B67-10602 02

Concept for automatic Doppler compensation in two-way communication systems
GSFC-10213 B67-10643 01

Deep space FM system, a concept
MSC-11825 B68-10289 01

Dynamic linearity measurement technique
KSC-10186 B68-10290 01

Cryogenic liquid level measuring probe
ARG-10138 B68-10291 01

Improved gas ring laser
MSC-11584 B68-10304 02

Communication system features dual mode range acquisition plus time delay measurement
M-FS-14323 B68-10306 01

Laser-Doppler gas-velocity instrument
M-FS-20039 B68-10349 02

A 35 GHz solid state transmitter/driver
M-FS-20152 B68-10545 01

Microelectronic oscillator, 2
GSFC-10387 B69-10063 01

Microelectronic oscillator
GSFC-10375 B69-10064 01

One hundred MHz voltage-controlled oscillator
NPO-11004 B69-10133 01

Rectangular-bore, high-gain laser plasma tube
HQ-10234 B69-10193 02

Technique for tuning antenna systems producing negligible signal radiation
KSC-10060 B69-10215 01

Linear voltage-to-frequency converter
GSFC-10546 B69-10220 01

Induction probe determines levels of liquid metals

ARG-10348 B69-10256 03

Pneumatic analog-to-pulse frequency converter
LEWIS-10345 B69-10276 02

Automatic tuning of hydrogen masers
GSFC-10127 B69-10452 01

Automatic frequency control of voltage-controlled oscillators
NPO-11064 B69-10569 01

Load current sensor for a pulse width modulator power regulator
GSFC-10656 B69-10578 01

Deposition monitor and control
NPO-10706 B69-10722 01

OSCILLOGRAPHS

Microwave technique measures plasma characteristics
LANGLEY-134 B65-10122 02

Manual-feed adapter permits microfilming of continuous oscillograph output
NU-0029 B65-10249 01

Lamp automatically switches to new filament on burnout
M-FS-498 B66-10046 01

Fatigue cracks detected and measured without test interruption
LEWIS-266 B66-10178 02

Indicator system provides complete data of engine cylinder pressure variation
LEWIS-291 B66-10470 05

Monitoring circuit accurately measures movement of solenoid valve
M-FS-1829 B66-10568 01

Instrument accurately measures small temperature changes on test surface
LANGLEY-174 B66-10637 01

Use of color-coded sleeve shutters accelerates oscillograph channel selection
KSC-10092 B67-10382 01

Crack growth measured on flat and curved surfaces at cryogenic temperatures
LEWIS-389 B67-10384 01

Instrumentation monitors transported material through variety of parameters
M-FS-12938 B67-10545 01

Nondestructive test determines overload destruction characteristics of current limiter fuses
XGS-08566 B68-10364 01

Electronic visualization of gas bearing behavior
LEWIS-10711 B69-10073 01

OSCILLOSCOPES

Emission tester for high-power vacuum tubes
JPL-628 B64-10158 01

Raster linearity of video cameras calibrated with precision tester
GSFC-200 B64-10209 01

Highly sensitive solids mass spectrometer uses inert-gas ion source
ERC-11 B66-10114 02

Apparatus presents visual display of semiconductor surface characteristics
JPL-665 B66-10200 01

New computer system simplifies programming of mathematical equations
M-FS-441 B66-10361 01

SUBJECT INDEX

OUTPUT

Parallel line raster eliminates ambiguities in reading timing of pulses less than 500 microseconds apart JPL-805	B66-10386	01	Method for measuring alternator voltage transients LEWIS-10373	B68-10513	01
Photoelectric scanner makes detailed work function maps of metal surface JPL-SC-176	B66-10440	01	Mossbauer-effect data-collection system ARG-10282	B69-10027	01
Thermionic scanner pinpoints work function of emitter surfaces JPL-SC-177	B66-10444	01	Electronic visualization of gas bearing behavior LEWIS-10711	B69-10073	01
Semiconductors can be tested without removing them from circuitry M-FS-1163	B66-10447	01	Concept for a multifunctional oscilloscope probe M-FS-16390	B69-10129	01
Pulse technique provides more accurate checkout of exploding bridge wire device HQ-62	B66-10561	01	Determination of the absolute contours of optical flats ARG-10352	B69-10209	05
Study made of application of stereoscopic display system to analog computer simulation M-FS-1263	B66-10590	01	Simplified system displays complex curves corresponding to input data HQ-10073	B69-10247	01
Magnetoresistor monitors relay performance M-FS-1754	B66-10650	01	Sweep frequency detector NPO-10669	B69-10289	01
Polarimeter provides transient response in nanosecond range JPL-890	B67-10021	02	Automatic Gaussian random-noise limiter NPO-10169	B69-10349	01
Correlation established between heat transfer and ultrasonic transmission properties of copper braze bonds ARG-247	B67-10037	02	OSO Temperature transducer has high output, is time stable GSFC-446	B65-10362	01
Recording and time expansion technique for high-speed, single-shot transient video signal ARC-10003	B67-10139	01	OUTGASSING Vapor pressure measured with inflatable plastic bag GSFC-281	B65-10136	03
Design concept for improved photo-scan tube JPL-818	B67-10157	01	Mechanism facilitates coating of inner surfaces of metal cylinders GSFC-515	B66-10698	05
Numerical data frame readout system used in testing telemetry systems GSFC-551	B67-10175	01	Bacteriostatic conformal coating for electronic components GSFC-10007	B67-10599	03
Oscilloscope used as X-Y plotter or two-dimensional analyzer LEWIS-311	B67-10269	01	Liquid gallium rotary electric contact LEWIS-10828	B69-10138	03
Potassium plasma cell facilitates thermionic energy conversion process ARG-10010	B67-10399	01	Diffusion bond method of joining steel and a TFE-bronze composite M-FS-20482	B69-10237	03
Laser communication system is insensitive to atmospherically induced noise GSFC-10396	B67-10587	01	Precision accounting for instrument optical elements provided by polyimide bonding M-FS-20293	B69-10310	05
Electronic skewing circuit monitors exact position of object underwater NUC-10146	B67-10629	01	OUTPUT Double-throw microwave device switches two lines quickly JPL-410	B63-10258	01
X-Y plotter adapter developed for SDS-930 computer NPO-10220	B67-10654	06	Pressure transducer 3/8-inch in size can be faired into surface WOO-065	B64-10021	05
Damages in rolling element bearings may be detected early HQ-10031	B67-10658	01	Digital logic elements provide additional functions from analog input MSC-64	B64-10064	01
Ultraminiature manometer-tipped cardiac catheter ARC-10054	B67-10669	01	Transistorized converter provides nondissipative regulation GSFC-238	B64-10305	01
System measures arc energy dissipated in relay contact cycling M-FS-14541	B68-10312	01	Stepping motor drive circuit designed for low power drain GSFC-198	B65-10026	01
Nondestructive test determines overload destruction characteristics of current limiter fuses XGS-08566	B68-10364	01	Circuit detects errors in address currents for magnetic core arrays M-FS-234	B65-10047	01
System measures response time of photomultiplier tubes LEWIS-10437	B68-10382	01	Digital-output cardiometer measures rapid changes in heartbeat rate MSC-133	B65-10143	01
			Sensitive electrometer features digital output		

OVENS

SUBJECT INDEX

GSFC-288	B65-10206	01	Full wave dc-to-dc converter using energy storage transformers	LEWIS-10375	B69-10140	01
Electrometer preamplifier has drift correction feedback			Schmitt trigger multivibrator	MSC-10955	B69-10143	01
JPL-SC-074	B65-10267	01	Positive and negative output circuits	LEWIS-10715	B69-10151	01
Frequency divider is free of spurious outputs			Encode/Decode facility for FORTRAN 4	ARG-10335	B69-10169	06
GSFC-308	B65-10334	05	Magnetically coupled emission regulator	GSFC-10056	B69-10213	01
Binary counter uses fluid logic elements			Calibratable solid-state pressure switch	M-FS-20474	B69-10437	05
M-FS-323	B65-10377	01	Special purpose computer provides programmable digital filter for sampled-data control systems	M-FS-20290	B69-10454	06
Automatic gain control circuit handles wide input range			High voltage pulse generator	MSC-12178	B69-10548	01
MSC-166	B66-10089	01	Highly stable high-rate discriminator for nuclear counting	ARG-10483	B69-10614	01
Improved system measures output energy of pyrotechnic devices			OVENS			
WOO-256	B66-10159	01	Adjustable thermal **tree**	MSC-15556	B69-10484	01
Microphone multiplex system provides multiple outlets from single source			OVERPRESSURE			
GSFC-426	B66-10308	01	Pressure sensor responds only to shock wave	M-FS-238	B65-10184	01
Phase inverter provides variable reference push-pull output			Magnetic latches provide positive overpressure control	NU-0057	B66-10279	05
HQ-23	B66-10344	01	Hermetically sealed cells protected from internal gas pressure	GSFC-555	B66-10692	01
Transistor circuit increases range of logarithmic current amplifier			Integral valve provides automatic relief and remote venting	M-FS-12134	B69-10545	05
NU-0018	B66-10350	01	OVERVOLTAGE			
Feedback loop compensates for rectifier nonlinearity			Circuit protects regulated power supply against overload current	GSFC-453	B66-10292	01
M-FS-384	B66-10382	01	Trisphere spark gap actuates overvoltage relay	ARC-68	B66-10557	01
Sensors measure surface ablation rate of reentry vehicle heat shield			Low energy ohmmeter can be used to test sensitive circuits, other meters	SAN-10013	B68-10269	01
LANGLEY-287	B66-10592	01	Current-limiting voltage regulator	MSC-11824	B68-10305	01
MOSFET analog memory circuit achieves long duration signal storage			Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time	ARG-10110	B68-10328	01
M-FS-860	B66-10603	01	Nondestructive test determines overload destruction characteristics of current limiter fuses	XGS-08566	B68-10364	01
Modified univibrator compensates for output timing errors			Low-cost voltage-level detector	LEWIS-10885	B69-10217	01
ARG-85	B67-10130	01	Fuse protects circuit from voltage and current overloads	MSC-12135	B69-10490	01
Amplifier provides dual outputs from a single source with complete isolation			OXIDATION			
NUC-10056	B67-10221	01	Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen	LEWIS-15	B63-10340	05
Limit circuit prevents overdriving of operational amplifier						
NUC-10082	B67-10343	01				
Digital-to-analog converter operates from low level inputs						
JPL-907	B67-10357	01				
Circuit automatically calibrates flowmeter against liquid-level gage reference						
M-FS-2194	B67-10376	01				
Proposed method of rotary dynamic balancing by laser						
M-FS-12422	B67-10452	02				
Tool reconstructs data input points corresponding to first order output graph						
M-FS-18003	B68-10154	02				
Parallel-to-serial biphasic-data converter						
MSC-11600	B68-10241	01				
Performance of low-pressure thermionic converters is evaluated						
ARG-10276	B69-10090	01				
Self-starting circuit for switching regulators						
LEWIS-10686	B69-10128	05				
MAGNTY - Program for calculating velocities in magnified region of turbomachines						
LEWIS-10789	B69-10132	06				
Mass spectograph analysis						
MSC-13239	B69-10134	06				

SUBJECT INDEX

OXIDIZERS

Impurity diffusion process for silicon semiconductors is fast and precise GSFC-397	B65-10300	01	Technique for pinpointing submicron particles in the electron microprobe HQ-10043	B69-10465	01
Improved tool easily removes brazed tube connectors MSC-263	B66-10003	05	OXIDATION RESISTANCE		
Process reduces pore diameters to produce superior filters WOO-093	B66-10037	03	Nickel-base superalloys developed for high-temperature applications LEWIS-226	B66-10222	03
Protective coating withstands high temperature in oxidizing atmosphere M-FS-529	B66-10044	03	Reinforced thermal-shock resistant ceramics LEWIS-10376	B68-10085	03
Tool provides constant purge during tube welding M-FS-547	B66-10093	05	High strength nickel-base alloy with improved oxidation resistance up to 2200 degrees F LEWIS-10115	B68-10094	03
High temperature thermocouple operates in reduction atmosphere NU-0046	B66-10134	01	High-temperature bearing lubricants LEWIS-10408	B68-10249	05
Device removes hydrogen gas from enclosed spaces GSFC-495	B66-10340	03	High temperature alloy LEWIS-10377	B68-10253	03
Thin-film ferrites vapor deposited by one-step process in vacuum MSC-259	B66-10398	03	Nickel base alloy with improved stress rupture properties LEWIS-10283	B68-10344	03
Radioactive method enables determination of surface areas rapidly and accurately NU-0088	B66-10710	03	Tungsten fiber-reinforced nickel superalloy LEWIS-10424	B68-10369	03
Ion exchange determines iodine-131 concentration in aqueous samples ARG-208	B67-10129	04	Nickel-base superalloy*s excellent properties promote its service to 2200 degrees F LEWIS-10355	B68-10380	03
Process facilitates photoresist mask alignment on SiC crystals M-FS-2394	B67-10144	01	Improved high-temperature silicide coatings LEWIS-10817	B69-10266	03
Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination ARG-262	B67-10421	03	OXIDES		
Ultrasonics used to measure residual stress M-FS-12449	B67-10428	02	Reference black body is compact, convenient to use ARC-3	B63-10004	03
Reaction of steam with molybdenum is studied ARG-295	B67-10502	03	Removable preheater elements improve oxide induction furnace JPL-288	B63-10193	01
Silicon oxide films grown in microwave discharge M-FS-14634	B68-10171	01	Improved thermal insulation materials made of foamed refractory oxides M-FS-735	B66-10288	03
Studies in zirconium oxidation ARG-10099	B68-10199	03	Apparatus enables accurate determination of alkali oxides in alkali metals LEWIS-256	B66-10296	03
Manganese-alumina-ceramic glass eliminates rigid controls necessary in bonding metals to ceramics SAN-10012	B68-10204	03	Multilayer refractory nozzles produced by plasma-spray process WOO-318	B66-10611	05
Preparation of silver-activated zinc sulfide thin films GSFC-10687	B68-10271	03	Refractory oxide insulated thermocouple designed and analyzed for high temperature applications ARG-10202	B69-10053	03
Ignition of binary alloys of uranium ARG-10057	B68-10280	01	Multiple-mask chemical etching MSC-13114	B69-10221	01
Precise doping of metals by small gas flows LEWIS-10444	B68-10526	03	Improved retort for cleaning metal powders with hydrogen LEWIS-10718	B69-10468	03
Study of actinide chemistry in saturated potassium fluoride solution ARG-10204	B69-10004	03	Improved method of producing oxide-dispersion-strengthened alloys HQ-10461	B69-10536	03
Electrochemical study of aluminum corrosion in boiling high purity water ARG-10306	B69-10033	03	Electrolytic separation of crystals of transition-metal oxides ARG-10506	B69-10642	03
Technical report on galvanic cells with fused-salt electrolytes ARG-10297	B69-10155	01	Mass-spectrometric study of the rhenium-oxygen system ARG-10421	B69-10645	02
			Reducing contact resistance at semiconductor to metal or aluminum to metal interfaces ERC-10254	B69-10689	01
			OXIDIZERS		
			Fuel and oxidizer valve assembly employs		

OXYACETYLENE

SUBJECT INDEX

single solenoid actuator MSC-1046	B66-10648	05	MSC-11645	B68-10167	03
Spherical pipe joint delivers loads equally to mating flange M-FS-807	B66-10665	05	Saran film is fire-retardant in oxygen atmosphere MSC-11604	B68-10177	03
Addition of solid oxidizer increases liquid fuel specific impulse JPL-861	B67-10058	03	Zinc-oxygen primary cell yields high energy density M-FS-14661	B68-10218	01
Ignition of binary alloys of uranium ARG-10057	B68-10280	01	Improved fuel-cell-type hydrogen sensor M-FS-14656	B68-10263	01
Between-bearing shaft seal, a concept M-FS-18179	B68-10286	05	Rating of electrical wires in vacuum environments MSC-15108	B68-10362	01
Multiple-orifice throttle valve XNP-09698	B69-10030	05	One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06
Two-step rocket engine bipropellant valve concept MSC-10951	B69-10280	05	One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06
OXYACETYLENE			Axisymmetric reacting gas nonequilibrium performance program MSC-11781	B68-10377	06
Electric arc heater is self starting LANGLEY-208	B66-10230	03	Precise doping of metals by small gas flows LEWIS-10444	B68-10526	03
OXYGEN			Two systems developed for purifying inert atmospheres ARG-10234	B69-10026	03
Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen LEWIS-15	B63-10340	05	Coatings decrease metal fatigue failure ARC-10015	B69-10176	03
Gas diffusion cell removes carbon dioxide from occupied airtight enclosures MSC-118	B64-10319	03	Plasma-heating by induction LEWIS-10528	B69-10185	02
Heated die facilitates tungsten forming LEWIS-25A	B66-10047	05	Improved anode design for metal-oxygen cells LEWIS-10871	B69-10318	01
Microorganisms detected by enzyme-catalyzed reaction JPL-782	B66-10117	04	Improved inorganic ion exchange membranes LEWIS-10737	B69-10451	03
Oxygen-hydrogen torch is a small-scale steam generator NU-0042	B66-10120	03	Device for obtaining separation of oxygen LANGLEY-11007	B69-10477	01
Dual regulator controls two gases from a single reference MSC-227	B66-10167	05	Rate of heat extraction controller for environmental control HQ-10318	B69-10516	01
Apparatus enables accurate determination of alkali oxides in alkali metals LEWIS-256	B66-10296	03	Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06
Sniffer used as portable hydrogen leak detector M-FS-846	B66-10356	01	Chromatographic detection and analysis of traces of hydrocarbons KSC-10388	B69-10716	02
Cold trap increases sensitivity of gas chromatography M-FS-1617	B66-10517	03	Burn-rate testing apparatus MSC-10947	B69-10740	03
Grit blasting nozzle fabricated from mild tool steel proves satisfactory M-FS-1420	B66-10597	05	OXYGEN ANALYZERS		
Hermetically sealed cells protected from internal gas pressure GSFC-555	B66-10692	01	Fuel cell serves as oxygen level detector JPL-SC-072	B65-10066	01
Portable spectrometer monitors inert gas shield in welding process M-FS-12144	B67-10326	02	New electrolyte may increase life of polarographic oxygen sensors MSC-1049	B67-10003	03
Wear studies made of slip rings and gas bearing components M-FS-12882	B67-10403	05	Blood oxygen saturation determined by transmission spectrophotometry of hemolyzed blood samples MSC-11018	B67-10252	04
Adhesives for laminating polyimide insulated flat conductor cable M-FS-12066	B67-10429	03	Lamp enables measurement of oxygen concentration in presence of water vapor MSC-10043	B67-10387	01
Fluid properties handbook M-FS-13462	B67-10440	03	Improved sample capsule for determination of oxygen in hemolyzed blood MSC-11017	B67-10408	04
Evaluation of ignition mechanisms in selected nonmetallic materials					

SUBJECT INDEX

P-TYPE SEMICONDUCTORS

OXYGEN BREATHING				Simplified method introduces drift fields into cells			
Respiratory transfer value has fail-safe feature				GSFC-572	B67-10102	03	
ARC-1	B65-10369	01		Process facilitates photoresist mask alignment on SiC crystals			
OXYGEN COMPOUNDS				M-FS-2394	B67-10144	01	
Miniature oxygen-hydrogen cutting torch constructed from hypodermic needle				Silicon carbide diode for increased light output			
JPL-545	B63-10517	05		M-FS-20063	B69-10096	01	
Substitution of stable isotopes in Chloroella				Improved method of fabricating planar gallium arsenide diodes			
ARG-10258	B69-10197	04		INP-04235	B69-10271	01	
OXYGEN CONSUMPTION				Lateral PNP bipolar transistor with aiding field diffusions			
Plant respirometer enables high resolution of oxygen consumption rates				MSC-13072	B69-10741	01	
HQ-47	B66-10406	04		P-N-P JUNCTIONS			
OXYGEN FLUORIDES				Two-stage emitter follower is temperature stabilized			
Single-element coaxial injector for rocket fuel				MSC-20	B63-10493	01	
NFO-11095	B69-10547	05		High efficient square-wave oscillator operator at high power levels			
OXYGEN MASKS				GSFC-112	B63-10554	01	
Miniature oxygen resuscitator				Novel circuit combines pulse stretcher with NOR gate			
KSC-10398	B69-10319	04		GSFC-187	B64-10150	01	
OXYGEN REGULATORS				Economical fabrication process produces high quality junction transistors			
Plant respirometer enables high resolution of oxygen consumption rates				JPL-SC-065	B64-10330	01	
HQ-47	B66-10406	04		Transistor voltage comparator performs own sensing			
OXYGEN SUPPLY EQUIPMENT				GSFC-228	B65-10028	01	
Respiratory transfer value has fail-safe feature				Synchronized pulse generator needs no external power			
ARC-1	B65-10369	01		GSFC-274	B65-10072	01	
Hollow needle used to cut metal honeycomb structures				Electrically controlled optical latch and switch requires less current			
MSC-486	B66-10244	05		JPL-SC-111	B66-10414	01	
Plant respirometer enables high resolution of oxygen consumption rates				Semiconductors can be tested without removing them from circuitry			
HQ-47	B66-10406	04		M-FS-1163	B66-10447	01	
Improved chlorate candle provides concentrated oxygen source				Equivalent circuit for a field effect transistor established for computer simulation			
MSC-1137	B67-10095	03		M-FS-1752	B66-10690	01	
OXYGENATION				Conceptual techniques for reducing parasitic current gain of lateral pnp transistors			
Process reduces pore diameters to produce superior filters				MSC-13199	B69-10244	01	
WOO-093	B66-10037	03		Lateral PNP bipolar transistor with aiding field diffusions			
Blood oxygen saturation determined by transmission spectrophotometry of hemolyzed blood samples				MSC-13072	B69-10741	01	
MSC-11018	B67-10252	04		P-TYPE SEMICONDUCTORS			
OXYHEMOGLOBIN				Miniature stress transducer has directional capability			
Blood oxygen saturation determined by transmission spectrophotometry of hemolyzed blood samples				JPL-591	B65-10023	01	
MSC-11018	B67-10252	04		Radiation used to temperature compensate semiconductor strain gages			
OZONE				LANGLEY-207	B66-10186	02	
Porous glass makes effective substrate for ozone-sensing reagent				Solar cell submodule design facilitates assembly of lightweight arrays			
GSFC-388	B65-10364	03		JPL-728	B66-10231	02	
Reaction rates of graphite with ozone measured by etch decoration				Semiconductor forms biomedical radiation probe			
ARG-10086	B68-10101	03		MSC-320	B66-10252	04	
Rocket sonde measurements of ozone in the upper atmosphere				Simplified method introduces drift fields into cells			
GSFC-10580	B69-10077	02		GSFC-572	B67-10102	03	
P				Process facilitates photoresist mask alignment on SiC crystals			
P-N JUNCTIONS							
Laser beam transmits electric power							
GSFC-293	B65-10158	01					
Preregulator feedback circuit utilizes light actuated switch							
M-FS-1180	B66-10542	01					

PACKAGES

SUBJECT INDEX

M-FS-2394	B67-10144	01	ERC-10322	B69-10687	01
Silicon carbide diode for increased light output			PACKING		
M-FS-20063	B69-10096	01	Nozzles for size reclassification of microfog particles		
PACKAGES			LEWIS-10705	B69-10076	05
Library of documents compressed into lap-held display kit			PACKING DENSITY		
MSC-125	B65-10030	01	PCM magnetic tape system efficiently records and reproduces data		
Battery-package design provides for cell cooling and constraint			GSFC-375	B65-10311	01
MSC-11839	B68-10398	05	Mathematical relation predicts achievable densities of compacted particles		
PACKAGING			ARG-10082	B67-10592	03
Lightweight magnesium-lithium alloys show promise			Development of Curie point switching for thin film, random access, memory device		
M-FS-17	B63-10389	03	NPO-10402	B67-10633	02
New inflatable liferaft is nontippable			PACKINGS (SEALS)		
MSC-4A	B64-10001	05	Plastic plus stainless-steel fibers make resilient, impermeable material		
Molded elastomer provides compact ferrite-core holder, simplifies assembly			WOO-246	B65-10374	03
JPL-584	B64-10084	05	PAD		
Use of tear ring permits repair of sealed module circuitry			Investigation of the development of cracks in solder joints		
M-FS-210	B65-10014	05	M-FS-20444	B69-10807	01
Hollow plastic hoops protect thermocouple in storage and handling			PAIN SENSITIVITY		
NU-0023	B65-10256	05	Modified algometer provides accurate depth measurements		
Frequency discriminator with binary output eliminates tuned circuits			MSC-616	B66-10647	04
M-FS-376	B65-10349	01	PAINTS		
Epoxy-coated containers easily opened by wire band			Inorganic paint is durable, fireproof, easy to apply		
M-FS-592	B66-10174	05	GSFC-366	B65-10156	03
Critical parts are stored and shipped in environmentally controlled reusable container			Aluminum alloys protected against stress-corrosion cracking		
M-FS-703	B66-10258	05	M-FS-235	B65-10172	03
Packaging of electronic modules			Special coatings control temperature of structures		
JPL-801	B66-10664	01	GSFC-444	B65-10337	03
Reparable, high-density microelectronic module provides effective heat sink			Inexpensive infrared source improvised from flashlight		
M-FS-13075	B67-10356	01	M-FS-494	B66-10096	02
Aluminum heat sink enables power transistors to be mounted integrally with printed circuit board			White primer permits a corrosion-resistant coating of minimum weight		
M-FS-13663	B67-10426	01	M-FS-304	B66-10207	03
Cone and column solar energy concentrator			Critical parts are stored and shipped in environmentally controlled reusable container		
LANGLEY-210	B67-10517	01	M-FS-703	B66-10258	05
Piggy-back mounting would increase microcircuit packaging density			Slide rule-type color chart predicts reproduced photo tones		
MSC-12059	B68-10114	01	MSC-1227	B66-10680	01
Packaging criteria for transportation and handling shock and vibration			Technique eliminates high voltage arcing at electrode-insulator contact area		
M-FS-13007	B68-10219	05	LEWIS-10133	B67-10470	01
Low energy ohmmeter can be used to test sensitive circuits, other meters			Improved relay optical element for spectroradiometer using cryogenically cooled detector		
SAN-10013	B68-10269	01	MSC-11688	B68-10245	02
Standards for compatibility of printed circuit and component lead materials			High-voltage pulse generator developed for wide-gap spark chambers		
M-FS-14531	B68-10310	01	ARG-10136	B68-10283	01
Food products for space applications			Miniature paint-spray gun for recessed areas		
MSC-11697	B68-10324	04	MSC-13060	B68-10387	05
One-dimensional reacting gas nonequilibrium performance program			Improved fire resistant radio frequency anechoic materials		
MSC-11777	B68-10375	06	M-FS-16600	B69-10450	05
Contamination control handbook			PAIR PRODUCTION		
M-FS-20185	B68-10392	03	Radiation-detector optical-imaging device is of simplified construction		
Microelectronic device data handbook			GSFC-251	B64-10299	01

SUBJECT INDEX

PAPERS

The response of monoenergetic gamma rays in finite media are investigated ARG-10295	B69-10080	02	Flexible curtain shields equipment from intense heat fluxes M-FS-48	B65-10044	03
PALLADIUM			Transducer senses displacements of panels subjected to vibration ARC-37	B65-10085	01
Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen LEWIS-15	B63-10340	05	Galvanic corrosion reduced in aluminum fabrications M-FS-272	B65-10140	03
New alloy brazes titanium to stainless steel MSC-102	B65-10060	05	Integral ribs formed in metal panels by cold-press extrusion M-FS-230	B65-10141	05
Device removes hydrogen gas from enclosed spaces GSFC-495	B66-10340	03	Expandable insert serves as screw anchor MSC-301	B66-10132	05
Sniffer used as portable hydrogen leak detector M-FS-846	B66-10356	01	Concealed hinge permits flush mounting of doors and hatches MSC-623	B66-10336	03
Purification train produces ultrapure hydrogen gas M-FS-1913	B67-10078	03	Ultrasonic emission method enables testing of adhesive bonds M-FS-799	B66-10341	01
Vibration analysis utilizing Mossbauer effect M-FS-11974	B67-10339	01	Versatile machine mills, saws light materials M-FS-827	B66-10364	05
PALLADIUM ALLOYS			Impact and puncture resistant material protects parts from damage MSC-747	B66-10375	05
Braze alloy holds bonding strength over wide temperature range LEWIS-337	B66-10519	03	Hylar film eliminates silk screening of equipment panels MSC-798	B66-10455	05
Silver-palladium braze alloy recovered from masking materials M-FS-1845	B66-10631	03	Optical monitor panel provides flexible test panel configurations KSC-66-18	B66-10494	01
Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique ARG-277	B67-10324	03	Panels illuminated by edge-lighted lens technique MSC-871	B66-10507	02
High-temperature, gas-filled ceramic rectifiers, thyatrons, and voltage-reference tubes LEWIS-90271	B69-10376	01	Study made to control depth of potting compound for honeycomb sandwich fasteners LEWIS-370	B66-10677	05
Device separates hydrogen from solution in water at ambient temperatures MSC-13335	B69-10635	03	Preformed stiffeners used to fabricate structural components for pressurized tanks M-FS-1796	B66-10688	05
PALLADIUM COMPOUNDS			Application of distorted models in developing scaled structural models M-FS-2540	B67-10321	05
Trace levels of metallic corrosion in water determined by emission spectrography MSC-1193	B66-10701	03	Roll diffusion bonding of titanium alloy panels M-FS-14743	B68-10161	05
Quantitative determination of flavin nucleotide using the bacterial bioluminescent reaction GSFC-10565	B69-10715	04	Simulated hailstone fabrication and use in testing weatherability of structures NPO-10783	B68-10552	03
PANEL FLUTTER			Compound taper milling machine MSC-15174	B69-10018	05
Laser Doppler flowmeter measures gas velocity M-FS-1747	B66-10693	02	Pressure-control purge panel for automatic butt welding M-FS-18465	B69-10403	05
Aerodynamic forces of fluttering cylindrical and/or planar structures M-FS-20497	B69-10781	02	PAPER CHROMATOGRAPHY		
PANELS			Electronic circuitry used to automate paper chromatography JPL-840	B67-10201	01
Portable display paneling has wide use, easy take down and assembly ARC-17	B63-10435	05	PAPERS		
Electronic assembly rack panels snap on and off GSFC-59	B64-10121	05	Mechanism continuously measures static and dynamic cable loads MSC-217	B66-10107	05
Instrument adjustment knob locks to prevent accidental maladjustment M-FS-190	B64-10249	05	Expandable takeup reel facilitates paper tape removal WOO-271	B66-10399	05
Illuminated display panel is easily changed MSC-108	B65-10003	05	Coded photographic proof paper could serve		
Screening technique makes reliable bond at room temperature M-FS-227	B65-10004	03			

PARA HYDROGEN

SUBJECT INDEX

as convenient densitometer M-FS-13374	B67-10443	02	LANGLEY-25	B63-10528	03
Investigation of temperature dependence of development and aging ARG-10145	B69-10022	04	High-temperature bearing lubricants LEWIS-10408	B68-10249	05
Technique for highly efficient recovery of microbiological contaminants MSC-13250	B69-10273	04	PARALLAX Multipurpose binocular scanning apparatus NPO-11002	B69-10311	02
PARA HYDROGEN Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06	Stereo TV enhancement study M-FS-14805	B69-10497	01
PARABOLIC ANTENNAS Computer programs for antenna feed system design and analysis NPO-10359	B67-10504	06	PARALLEL PLATES Absolute viscosity measured using instrumented parallel plate system JPL-874	B67-10041	01
PARABOLIC BODIES Cone and column solar energy concentrator LANGLEY-210	B67-10517	01	Machining heavy plastic sections M-FS-12720	B67-10381	03
Multi-feed cone for Cassegrainian antenna NPO-10539	B69-10269	01	Electrochemical cell has internal resistive heater element GSFC-10358	B68-10325	01
PARABOLIC REFLECTORS Fresnel cup reflector directs maximum energy from light source JPL-424	B63-10263	03	PARALLELEPIPEDS Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries M-FS-1910	B67-10329	06
Interferometer construction assures parallelism of critical components JPL-704	B65-10292	02	PARALYSIS Human transfer functions used to predict system performance parameters LANGLEY-203	B66-10379	01
Unique construction makes interferometer insensitive to mechanical stresses JPL-725	B65-10295	02	PARAMAGNETISM Calibration of a resistance thermometer down to 0.04 degrees K ARG-10318	B69-10149	01
Small, high-intensity flasher permits continuous close-in photography NU-0043	B66-10119	03	Production of solvated electrons ARG-10416	B69-10430	03
Scanning means for Cassegrainian antenna JPL-946	B67-10174	05	PARAMETERIZATION Controllability of distributed-parameter systems M-FS-14929	B68-10346	02
Glancing incidence telescope for far ultraviolet and soft X-rays GSFC-10052	B67-10508	02	Highly linear, sensitive analog-to-digital converter MSC-13110	B69-10230	01
Energy-storage of a prescribed impedance NPO-10303	B69-10380	01	PARAMETRIC FREQUENCY CONVERTERS Parametric up-converter increases flexibility of maser KSC-67-98	B67-10104	01
PARABOLOID MIRRORS Wide-aperture solar energy collector is light in weight JPL-SC-055	B65-10046	02	PARASITES Conceptual techniques for reducing parasitic current gain of lateral pnp transistors MSC-13199	B69-10244	01
Circuit board hole coordinate locator concept M-FS-14737	B69-10539	01	PARITY Simplified circuit corrects faults in parallel binary information channels JPL-SC-090	B66-10261	01
PARACHUTE DESCENT Nylon shock absorber prevents injury to parachute jumpers MSC-226	B66-10080	05	Detection system ensures positive alarm activation in digital message loss WOO-208	B66-10287	01
PARACHUTES Improved control system power unit for large parachutes MSC-12052	B67-10677	05	PARTIAL DIFFERENTIAL EQUATIONS Computer simulation program is adaptable to industrial processes LEWIS-240	B66-10426	01
Quick-attach clamp XPR-05421	B68-10250	05	HICOV - Newton-Raphson calculus of variation with automatic transversalities M-FS-14468	B68-10232	06
Rocket sonde measurements of ozone in the upper atmosphere GSFC-10580	B69-10077	02	Solution of differential equations by application of transformation groups M-FS-14802	B68-10276	02
PARACHUTING INJURY Nylon shock absorber prevents injury to parachute jumpers MSC-226	B66-10080	05	Controllability of distributed-parameter systems M-FS-14929	B68-10346	02
PARAFFINS Variable-transparency wall regulates temperatures of structures					

SUBJECT INDEX

PARTICLE TRAJECTORIES

One-dimensional Coulomb-damped wave motion in prismatic bars M-FS-14815	B68-10548	02	GSFC-252	B65-10048	01
PARTIAL PRESSURE			PARTICLE INTERACTIONS		
Fuel cell serves as oxygen level detector JPL-SC-072	B65-10066	01	Electron interaction in matter M-FS-14886	B69-10674	02
New electrolyte may increase life of polarographic oxygen sensors MSC-1049	B67-10003	03	PARTICLE MASS		
PARTICLE ACCELERATION			Microparticle impact sensor measures energy directly GSFC-252	B65-10048	01
High-speed camera synchronization M-FS-18062	B68-10282	02	Dust particle injector for hypervelocity accelerators provides high charge-to-mass ratio GSFC-509	B66-10347	01
PARTICLE ACCELERATOR TARGETS			PARTICLE MOTION		
Electron interaction in matter M-FS-14886	B69-10674	02	Photographic method measures particle size and velocity in fluid stream M-FS-1536	B66-10668	01
PARTICLE ACCELERATORS			An investigation of particle mixing in a gas-fluidized bed ARG-10182	B68-10407	05
Cold cathode ionization gage has rigid metal housing GSFC-445	B66-10041	01	Fluorescent photography of spray droplets using a laser light source LEWIS-10777	B69-10122	02
Dust particle injector for hypervelocity accelerators provides high charge-to-mass ratio GSFC-509	B66-10347	01	PARTICLE SIZE DISTRIBUTION		
Reducing bubbles in glass coatings improves electrical breakdown strength LEWIS-10278	B68-10214	03	Protective coating withstands high temperature in oxidizing atmosphere M-FS-529	B66-10044	03
Glass coated single grid for charged particle acceleration LEWIS-10106	B68-10215	03	Submicron metal powders produced by ball milling with grinding aids LEWIS-188	B66-10221	03
Advances in light-gas gun technology M-FS-14270	B68-10288	05	Photographic method measures particle size and velocity in fluid stream M-FS-1536	B66-10668	01
On-line computer system for use with low- energy nuclear physics experiments is reported ARG-10257	B69-10094	01	Method accurately measures mean particle diameters of monodisperse polystyrene latexes ARG-207	B67-10054	02
Spherical ion source XNP-08898	B69-10186	01	Improved atmospheric particle analyzer ERC-33	B67-10231	01
PARTICLE BEAMS			Characteristics of fluidized-packed beds ARG-10049	B68-10278	03
Cooling method prolongs life of hot-wire transducer LEWIS-41	B63-10344	02	Preparing rock powder specimens of controlled size distribution NPO-10007	B68-10297	05
PARTICLE DENSITY (CONCENTRATION)			Beam profiles measured with thermoluminescent dosimeters ARG-10229	B69-10024	02
Microparticle impact sensor measures energy directly GSFC-252	B65-10048	01	Direct indication of particle size in fluidized beds ARG-10130	B69-10083	05
Improved atmospheric particle analyzer ERC-33	B67-10231	01	Health hazards of ultrafine metal and metal oxide powders LEWIS-10878	B69-10268	04
Mathematical relation predicts achievable densities of compacted particles ARG-10082	B67-10592	03	A new method for the determination of particulate contamination levels for surface cleanliness of fluid systems KSC-10267	B69-10520	02
Beam profiles measured with thermoluminescent dosimeters ARG-10229	B69-10024	02	Flow properties of suspensions rich in solids ARG-10481	B69-10622	02
PARTICLE DIFFUSION			Surface-renewal models for heat-transfer between walls and fluidized beds ARG-10372	B69-10772	02
Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations NUC-10052	B67-10345	06	PARTICLE THEORY		
PARTICLE EMISSION			Experiments to investigate particulate materials in reduced gravity fields M-FS-13308	B67-10394	02
Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters M-FS-13594	B67-10527	03	PARTICLE TRAJECTORIES		
Graphite cloth facilitates vacuum evaporation of silicon monoxide M-FS-14764	B68-10256	03	An investigation of particle mixing in a		
PARTICLE ENERGY					
Microparticle impact sensor measures energy directly					

PARTICLES

SUBJECT INDEX

gas-fluidized bed ARG-10182	B68-10407	05	technique M-FS-20448	B69-10339	03
PARTICLES			PATHOLOGY		
Probe samples components of rocket engine exhaust M-FS-485	B65-10384	03	Color-televised medical microscopy MSC-13086	B68-10314	01
Cleanroom air sampler counts, categorizes, and records particle data M-FS-2221	B67-10076	01	PATIENTS		
A piezo-bar pressure probe LEWIS-393	B67-10259	01	Buoyant stokes litter assembly used for sea rescue operations MSC-131	B66-10019	05
Air sampler collects and protects minute particles HQ-10037	B67-10661	01	Simulator effects partial gravity conditions MSC-152	B66-10339	05
Microprobe investigation of brittle segregates in aluminum MIG and TIG welds M-FS-14720	B68-10334	03	Automated patient monitoring system M-FS-14552	B68-10131	01
Effect of interparticle forces on the fluidization of fine particles ARG-10264	B69-10195	03	New electrical plethysmograph monitors cardiac output MSC-11447	B68-10220	01
Technique for pinpointing submicron particles in the electron microprobe HQ-10043	B69-10465	01	Electrocardiograph transmitted by RF and telephone links in emergency situations FRC-10031	B68-10233	01
A comparison of two methods of measuring particle size of Al ₂ O ₃ produced by a small rocket motor NPO-11198	B69-10572	03	Automatic patient respiration failure detection system with wireless transmission ARC-10174	B68-10365	01
PARTITIONS (MATHEMATICS)			PATTERN RECOGNITION		
Root-cubing and general root-powering methods for finding the zeros of polynomials ARG-10444	B69-10424	02	Improvement in recording and reading holograms ERC-10151	B68-10347	02
PASSIVITY			PATTERNS		
Concept for passive system to control gas flow independently of temperature M-FS-982	B66-10343	05	Measuring coplanarity of surfaces MSC-12044	B67-10371	02
Abraded cadmium-plated cable connectors repaired by conversion coating M-FS-1424	B67-10014	03	Checking flat conductor cable spacing by means of a moire pattern M-FS-20426	B69-10456	05
Radiation tolerant silicon nitride insulated gate field effect transistors GSFC-10581	B69-10253	01	Measurement technique for the determination of antenna directivity M-FS-12799	B69-10677	01
Storage of electric and magnetic energy in passive nonreciprocal networks ARG-10360	B69-10630	01	PAYLOADS		
PASTES			Speed-sensing device aids crane operators WS-4	B64-10006	05
Improved electrode gives high-quality biological recordings MSC-17	B64-10025	04	Computer program determines thermal environment and temperature history of lunar orbiting space vehicles M-FS-12916	B67-10307	06
Improved conductive paste secures biomedical electrodes MSC-107	B65-10015	03	System automatically provides dynamic launch decision criteria M-FS-13063	B67-10363	01
Wire winding increases lifetime of oxide coated cathodes LEWIS-154	B65-10032	03	Earth orbit rendezvous evaluation program M-FS-13016	B67-10407	06
Composite solar cell matrix is reliable, lightweight and flexible NPO-10821	B67-10503	01	PEAKS		
Improved fuel-cell-type hydrogen sensor M-FS-14656	B68-10263	01	Monitoring system determines amplitude and time of vibration channel peaks JPL-879	B66-10699	01
Quick don-doff electrode pastes MSC-13249	B69-10598	04	PECLET NUMBER		
Analysis of secondary cells with lithium anodes and immobilized fused-salt electrolytes ARG-10452	B69-10613	01	Liquid-metal heat transfer in a cocurrent-flow, double-pipe heat exchanger is investigated ARG-10261	B69-10091	02
PATHOGENS			PEDALS		
Development and test of flexible film coupon strips for use as a sampling			Fingertip current control facilitates use of arc welding gun MSC-289	B66-10092	05
			PEELING		
			Peel resistance of adhesive bonds accurately measured GSFC-320	B65-10173	03
			Soluble undercoating facilitates removal of foamed-in-place insulation LEWIS-193	B65-10344	03
			Rotary-knife stripper facilitates removal		

SUBJECT INDEX

PERFORATION

of X-ray film from pack M-FS-14837	B68-10509	05	Sealed container sampling device GSFC-10690	B69-10682	03
Simple test indicates degree of cure of polyimide coatings MSC-15487	B69-10330	03	Surface-renewal models for heat-transfer between walls and fluidized beds ARG-10372	B69-10772	02
PEENING			PENETROMETERS		
Peel resistance of adhesive bonds accurately measured GSFC-320	B65-10173	03	Extendable mast used in one shot soil penetrometer JPL-685	B66-10146	05
PELLETS			Radiographic threshold detection levels of aluminum weld defects M-FS-20487	B69-10418	01
Standards for electron probe microanalysis of silicates prepared by convenient method GSFC-469	B66-10234	03	PENNING EFFECT		
PENDULUMS			Cold cathode ionization gage has rigid metal housing GSFC-445	B66-10041	01
Viscous-pendulum damper suppresses structural vibrations LANGLEY-45	B64-10272	05	PENNING GAGES		
Seismic transducer measures small horizontal displacements M-FS-81	B65-10029	05	Rod and dish cathode improves penning-type vacuum gage GSFC-447	B66-10082	01
Device enables measurement of moments of inertia about three axes GSFC-49	B65-10176	05	PENS		
Shock-operated valve would automatically protect fluid systems M-FS-801	B66-10335	03	Soldering tool heats workpieces and applies solder in one operation LEWIS-247	B66-10115	05
Automatic system determines moments of inertia of asymmetrical objects M-FS-1769	B66-10636	01	Machining technique prevents undercutting in tensile specimens LANGLEY-10281	B68-10352	05
PENETRANTS			A magnifying scratch-gage force transducer LANGLEY-10496	B69-10212	01
Surfactant for dye-penetrant inspection is insensitive to liquid oxygen M-FS-475	B66-10131	03	PENTANES		
Instruction manuals for liquid penetrant nondestructive testing M-FS-14010	B69-10278	05	Tritiated alumina serves as reagent for self-labeling analysis ARG-209	B67-10315	03
PENETRATION			Synthesis of polyethers of hexafluorobenzene and hexafluoropentanediol M-FS-14962	B69-10636	03
Improved sensor counts micrometeoroid penetrations LEWIS-76	B63-10443	01	PENTODES		
Insulated weld tooling permits uniform, high quality weld MSC-42	B64-10058	05	Igniting system for mercury lamps protects transistorized sustaining supply JPL-421	B63-10262	01
Corrosion of metal samples rapidly measured NU-0041	B66-10140	03	Field Effect Transistor /FET/ circuit for variable gain amplifiers GSFC-10116	B69-10322	01
Minimum permissible leakage resistance established for instrumentation systems M-FS-848	B66-10397	01	PEPTIDES		
Modified algometer provides accurate depth measurements MSC-616	B66-10647	04	Rate constants measured for hydrated electron reactions with peptides and proteins ARG-10195	B68-10424	04
System maintains constant penetration during fusion welding M-FS-937	B67-10091	01	Inhibition of browning in foodstuffs HQ-10177	B69-10493	04
Study to minimize hydrogen embrittlement of ultrahigh-strength steels M-FS-2455	B67-10141	03	PERCEPTION		
Hand-held instrument should relieve hematoma pressure MSC-599	B67-10332	04	Improved perceptual-motor performance measurement system HQ-10123	B69-10385	01
Cut-through tester accurately measures insulation failure rates M-FS-12506	B67-10354	03	PERCHLORIC ACID		
Ultrasonics used to measure residual stress M-FS-12449	B67-10428	02	Quantitative determination of flavin nucleotide using the bacterial bioluminescent reaction GSFC-10565	B69-10715	04
Mixing weld gases offers advantages M-FS-16413	B69-10145	05	PERFLUORO COMPOUNDS		
			Solder flux leaves corrosion-resistant coating on metal JPL-611	B64-10206	03
			PERFORATED PLATES		
			Filter for high-pressure gases has easy take- down, assembly JPL-373	B63-10234	03
			PERFORATION		
			Helium tube separates nitrogen gas from liquid nitrogen JPL-398	B63-10251	05

PERFORMANCE

SUBJECT INDEX

Perforations in jet engine supersonic inlet increase shock stability NEO-8	B66-10530	05	Prediction of performance of centrifugal pumps during starts under pressure LEWIS-10900	B69-10263	05
PERFORMANCE			Method for predicting pump cavitation performance LEWIS-10916	B69-10446	02
Titanium diaphragm makes excellent amplatron cathode support GSFC-394	B65-10298	01	Estimating reliability by application of matrix representation HQ-10246	B69-10793	02
Centrifugal device separates liquid from gas MSC-282	B65-10394	05	PERFORMANCE TESTS		
Electron multiplier has improved performance and stability GSFC-546	B67-10060	01	Temperature-compensation circuit stabilizes performance of vidicons JPL-486	B64-10226	01
Experimental scaling study of fluid amplifier elements M-FS-1882	B67-10088	02	Vibration tests on vidicons made by improved method JPL-SC-115	B66-10042	01
General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-FS-13094	B67-10331	06	Linear signal noise summer accurately determines and controls S/N ratio JPL-SC-152	B66-10433	01
Performance of low-pressure thermionic converters is evaluated ARG-10276	B69-10090	01	An improved method for testing performance of vidicons during vibration JPL-SC-113	B66-10442	01
Programmed schedule holds for improving launch vehicle holds M-FS-14502	B69-10602	03	Fixture tests bellows reliability through repetitive pressure/temperature cycling MSC-1176	B67-10111	01
PERFORMANCE PREDICTION			Personal communication system combines high performance with miniaturization MSC-720	B67-10119	01
High efficient square-wave oscillator operator at high power levels GSFC-112	B63-10554	01	Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01
Human transfer functions used to predict system performance parameters LANGLEY-203	B66-10379	01	Assembly, checkout, and operation optimization analysis technique for complex systems M-FS-14105	B68-10222	05
Computer program determines performance efficiency of remote measuring systems M-FS-1137	B66-10503	01	Calibrated water tank facilitates proof-loading of cranes and derricks M-FS-15059	B69-10109	05
Performance of turbine-type flowmeters in liquid hydrogen LEWIS-10137	B67-10506	01	Battery case shear GSFC-10783	B69-10127	05
Computerized Schedule Effectiveness Technique /SET/ determines present and future schedule position M-FS-13012	B67-10522	06	Performance statistics of the FORTRAN 4 /H/ library for the IBM system/360 ARG-10299	B69-10157	06
Development of reliability prediction technique for semiconductor diodes GSFC-10231	B67-10651	06	Computer programs for axial flow compressor design LEWIS-10765	B69-10174	06
Effect of surface irregularities on bellows fatigue life M-FS-14480	B68-10229	05	Design and testing of liquid hydrogen-cooled, ultrahigh-speed ball bearings M-FS-18453	B69-10178	05
New method for critical failure prediction of complex systems M-FS-14133	B68-10252	02	Computer program for off-design performance of radial inflow turbines LEWIS-10764	B69-10267	06
Nondestructive test determines overload destruction characteristics of current limiter fuses XGS-08566	B68-10364	01	Hydrogen flash lamps studied ARG-10419	B69-10411	02
Axisymmetric two-phase perfect gas performance program MSC-11774	B68-10374	06	Design and sparing techniques to meet specified performance life HQ-10200	B69-10528	02
One-dimensional two-phase reacting gas nonequilibrium performance program MSC-11780	B68-10376	06	PERIGES		
Propellant tank pressurization analysis program M-FS-12623	B69-10007	06	Computer program determines thermal environment and temperature history of lunar orbiting space vehicles M-FS-12916	B67-10307	06
Experimental prediction of performance by superconducting cables ARG-10215	B69-10161	01	PERIODIC VARIATIONS		
			Radioactive tracer system detects oil contaminants in fluid lines M-FS-512	B66-10090	03
			Tester periodically registers dc amplifier characteristics		

SUBJECT INDEX

PH

MSC-190	B66-10148	01	Vis-A-Plan /visualize a plan/ management technique provides performance-time scale	KSC-10073	B67-10240	06
PERIODICALS						
A simplified PERT system			A simplified PERT system	M-FS-2267	B67-10241	05
M-FS-2267	B67-10241	05				
PERMANGANATES			Computerized Schedule Effectiveness Technique /SET/ determines present and future schedule position	M-FS-13012	B67-10522	06
Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination						
ARG-262	B67-10421	03				
PERMEABILITY			Graphic visualization of program performance aids management review	NUC-10011	B67-10568	06
Gas diffusion cell removes carbon dioxide from occupied airtight enclosures						
MSC-118	B64-10319	03	Visual task analysis /VISTA/	M-FS-14716	B69-10394	06
Double gloves reduce contamination of dry box atmosphere						
LEWIS-211	B65-10117	03	PERTURBATION			
Plastic plus stainless-steel fibers make resilient, impermeable material			Study of dynamic response of elastic space stations	NPO-10124	B67-10169	06
WOO-246	B65-10374	03	Algebraic Monte Carlo procedure reduces statistical analysis time and cost factors	M-FS-1887	B67-10434	01
Improved electrode paste provides reliable measurement of galvanic skin response			Study made of large amplitude fuel sloshing	M-FS-12381	B67-10439	03
MSC-146	B66-10049	04	Propagation of density disturbances in air-water flow	ARG-10260	B69-10043	02
New energy storage concept uses tapes			A sterilizable high-impact antenna	NPO-10231	B69-10697	01
LEWIS-239	B66-10098	02	PERTURBATION THEORY			
Special treatment reduces helium permeation of glass in vacuum systems			Problem of oscillating cone in supersonic flow is solved by small perturbation techniques	M-FS-869	B66-10700	02
HQ-25	B66-10372	02	Dynamics of moving bubbles in single and binary component systems	M-FS-14845	B68-10339	02
Braze joint quality tested electromagnetically			Dynamic calibration of turbine flowmeters	LEWIS-11014	B69-10764	01
M-FS-12795	B67-10333	01	Trajectory optimization using regularized variables	MSC-13370	B69-10810	02
Spiral-flow apparatus for measuring permeation of solids by gases			PETROGRAPHY			
M-FS-16517	B69-10357	03	Preparing rock powder specimens of controlled size distribution	NPO-10007	B68-10297	05
Device for obtaining separation of oxygen			PH			
LANGLEY-11007	B69-10477	01	Adherent protective coatings plated on magnesium-lithium alloy	M-FS-365	B65-10294	03
Ionene membrane battery separator			Reusable chelating resins concentrate metal ions from highly dilute solutions	JPL-758	B66-10451	03
NPO-11091	B69-10501	03	Large volume continuous counterflow dialyzer has high efficiency	HQ-10055	B67-10395	04
PERMEATING			Hydrogen peroxide etching proves useful for germanium	ARG-10170	B68-10454	03
Device separates hydrogen from solution in water at ambient temperatures			Improved pH buffering agent for sodium hypochlorite	MSC-15443	B69-10084	03
MSC-13335	B69-10635	03	Primary radical yields in pulse irradiated alkaline aqueous solution	ARG-10322	B69-10167	02
Thermal conductivity probe			Improved nickel plating of Inconel X-750	M-FS-18604	B69-10463	05
M-FS-20566	B69-10780	03	Life detection			
PERMUTATIONS						
Substitution of stable isotopes in Chlorella						
ARG-10258	B69-10197	04				
PEROXIDES						
New energy storage concept uses tapes						
LEWIS-239	B66-10098	02				
PERSONNEL						
A simplified PERT system						
M-FS-2267	B67-10241	05				
Computer program conducts facilities utilization and occupancy survey						
NPO-10438	B68-10137	06				
PERSONNEL SELECTION						
Contamination control handbook						
M-FS-20185	B68-10392	03				
PERSPIRATION						
Improved electrode paste provides reliable measurement of galvanic skin response						
MSC-146	B66-10049	04				
PERT						
Computer/PERT technique monitors actual versus allocated costs						
LEWIS-260	B67-10025	01				

PHARMACOLOGY

SUBJECT INDEX

NPO-10510	B69-10475	04	PHASE LOCK DEMODULATORS		
PHARMACOLOGY			Improved phase locked loop receiver	B68-10008	01
Development and test of flexible film coupon strips for use as a sampling technique			GSFC-09561		
M-FS-20448	B69-10339	03	PHASE LOCKED SYSTEMS		
PHASE CONTROL			Bandwidth switching is transient-free, avoids loss of loop lock	B64-10349	01
Phase inverter provides variable reference push-pull output			W00-054		
HQ-23	B66-10344	01	Electronic phase-locked-loop speed control system is stable	B66-10232	01
JPL-SC-084					
Phase multiplying electronic scanning array			An investigation of phase-lock loop swept-frequency synchronization	B66-10423	01
NPO-10302	B69-10381	01	M-FS-656		
PHASE DEMODULATORS			Single-sideband modulator accurately reproduces phase information in 2-Mc signals	B66-10437	01
PN acquisition demodulator achieves automatic synchronization of a telemetry channel			M-FS-664		
JPL-612	B66-10271	01	Experimental coherent fractional frequency multiplier at S-band	B67-10250	01
PHASE DETECTORS			M-FS-2427		
Phase detector circuit synthesizes own reference signal					
M-FS-247	B65-10080	01	Solid state phase detector replaces bulky transformer circuit	B67-10253	01
Electronic ohmmeter provides direct digital output			MSC-11007		
GSFC-363	B65-10274	01	Interference effects eliminated in random oriented space station antenna system	B67-10435	01
Magnetometer measures orthogonal components of magnetic fields			MSC-11004		
GSFC-395	B65-10315	01	Video synchronization processor overcomes poor signal-to-noise ratio	B67-10515	01
Control circuit maintains unity power factor of reactive load			KSC-10002		
MSC-192	B66-10431	01	Diversity RF receiving system with improved phase-lock characteristics	B68-10068	01
Single-sideband modulator accurately reproduces phase information in 2-Mc signals			XGS-01222		
M-FS-664	B66-10437	01	Phase-lock loop frequency control and the dropout problem	B68-10130	01
Circuit increases capability of hysteresis synchronous motor			M-FS-13948		
MSC-1080	B67-10084	01	New passive telemetry system	B69-10312	01
Solid state phase detector replaces bulky transformer circuit			HQ-10214		
MSC-11007	B67-10253	01	A method for reducing sampling jitter in digital control systems	B69-10338	01
Sensitive bridge circuit measures conductance of low-conductivity electrolyte solutions			NPO-11088		
ARG-147	B67-10294	01	Wide-band doubler and sine wave quadrature generator	B69-10383	01
NPO-11133					
Improved circuit for measuring capacitive and inductive reactances			Phase-locked-loop phase modulator with high modulation index, low distortion	B69-10487	01
M-FS-13083	B67-10513	01	MSC-12247		
Conceptual servo technique for controlling tape drivers			Design for a rapid automatic sync acquisition system	B69-10538	01
M-FS-12955	B67-10595	01	NPO-10214		
One hundred MHz voltage-controlled oscillator			Data processing method for a weak, moving telemetry signal	B69-10639	01
NPO-11004	B69-10133	01	NPO-11003		
Improved VHF direction finding system			PHASE MODULATION		
M-FS-20439	B69-10378	01	Laser system generates single-frequency light		
Phase-locked-loop phase modulator with high modulation index, low distortion			M-FS-2556	B67-10288	02
MSC-12247	B69-10487	01	Stable ac phase and amplitude comparator	B67-10459	01
An interferometer tracking radar system			M-FS-13086		
MSC-10956	B69-10523	01	Laser communication system is insensitive to atmospherically induced noise	B67-10587	01
PHASE DEVIATION			GSFC-10396		
Improved gas ring laser			Electro-optic modulator for infrared laser using gallium arsenide crystal	B68-10255	02
MSC-11584	B68-10304	02	GSFC-10686		
PHASE ERROR			Acquisition of pseudonoise signals by sequential estimation	B68-10258	01
Method of reducing time base error in digital magnetic recorders			M-FS-13898		
GSFC-10108	B68-10317	01	Communication system features dual mode		
Multi-feed cone for Cassegrainian antenna					
NPO-10539	B69-10269	01			

SUBJECT INDEX

PHENYLS

range acquisition plus time delay measurement M-FS-14323	B68-10306	01	ARG-10428	B69-10431	02
System converts optical phase changes to RF phase changes M-FS-20091	B68-10430	01	Fast Fourier Transform Spectral Analysis Program M-FS-15062	B69-10434	06
Active frequency control system for argon FH laser M-FS-14988	B69-10099	02	PCM synchronization by word stuffing NPO-10688	B69-10695	01
New passive telemetry system HQ-10214	B69-10312	01	PHASE SHIFT CIRCUITS PCM magnetic tape system efficiently records and reproduces data GSFC-375	B65-10311	01
A theoretical study of radar backscatter from distributed targets with emphasis on polarization dependence M-FS-13775	B69-10560	02	Thermionic scanner pinpoints work function of emitter surfaces JPL-SC-177	B66-10444	01
Long range holographic contour mapping concept HQ-10350	B69-10700	02	Electronic frequency discriminator M-FS-2434	B67-10151	01
PHASE RULE The thermodynamic properties of the wustite phase are studied ARG-10200	B68-10408	03	High power dc/dc and dc/ac electrical power conversion techniques developed M-FS-13227	B67-10390	01
PHASE SHIFT Computer circuit will fit on single silicon chip JPL-513	B63-10514	01	Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01
Phase shift frequency synthesizer is efficient, small in size M-FS-250	B65-10169	01	PHASE SHIFT KEYING FM acquisition demodulator achieves automatic synchronization of a telemetry channel JPL-612	B66-10271	01
Magnetometer measures orthogonal components of magnetic fields GSFC-395	B65-10315	01	Simple demodulator for telemetry phase-shift keyed subcarriers NPO-11000	B69-10095	01
Circuit operates as sine function generator MSC-255	B66-10038	01	Improved phase-shift-keyed detector M-FS-20064	B69-10101	01
Multicolor stroboscope pinpoints resonances in vibrating components JPL-0033	B66-10223	01	PHASE TRANSFORMATIONS CINDA - Chrysler Improved Numerical Differencing Analyzer computer program M-FS-2298	B67-10278	06
Linear signal noise summer accurately determines and controls S/N ratio JPL-SC-152	B66-10433	01	Thick transducers used for generating short-duration stress pulses in thin specimens ARG-10232	B69-10045	01
Antenna simulator permits preinstallation system checkout GSFC-522	B66-10518	01	Laser interferometer micrometer system M-FS-14747	B69-10633	02
Mechanical device accurately measures RF phase differences in VHF or UHF ranges M-FS-1738	B66-10694	05	PHASE VELOCITY A positive taper traveling-wave tube LANGLEY-10263	B69-10407	01
Means for improving apparent resolution of television ERC-65	B67-10152	01	A sterilizable high-impact antenna NPO-10231	B69-10697	01
Improved circuit for measuring capacitive and inductive reactances M-FS-13083	B67-10513	01	PHENOLIC RESINS Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02
Method of reducing time base error in digital magnetic recorders GSFC-10108	B68-10317	01	Mill profiler machines soft materials accurately M-FS-692	B66-10254	05
Amplifier improvement circuit LEWIS-10712	B68-10456	01	Improved method facilitates debulking and curing of phenolic impregnated asbestos MSC-949	B66-10459	05
Flow angle sensor and readout system LEWIS-90298	B69-10050	01	Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01
Phase multiplying electronic scanning array NPO-10302	B69-10381	01	A method for observing gas evolution during plastic laminate cure MSC-15592	B69-10530	03
A thirty-six element array antenna system M-FS-20435	B69-10390	01	PHENOLS Composite bulkhead fabrication development M-FS-1264	B66-10582	05
A compact rotary vane attenuator NFO-10562	B69-10427	01	PHENYLS Recent development in organic scintillators ARG-10344	B69-10198	03
Energy-storage of a prescribed impedance					

PHONOCARDIOGRAPHY

SUBJECT INDEX

PHONOCARDIOGRAPHY

Phonocardiograph system monitors heart sounds
MSC-185 B66-10154 04

Phonocardiograph microphone is rugged and
moistureproof
MSC-212 B66-10314 04

A phonocardiogram simulator
KSC-67-94 B67-10239 01

PHONONS

Measurements of thermoelectric power in
annealed and quenched gold-platinum alloys
ARG-10303 B69-10206 03

PHOSPHATES

Inorganic paint is durable, fireproof, easy
to apply
GSFC-366 B65-10156 03

Dry film lubricant is effective at extreme
loads
M-FS-628 B66-10256 03

Purification and characterization of two
fully deuterated enzymes
ARG-10314 B69-10207 04

PHOSPHIDES

Study of mechanical properties of uranium
compounds
ARG-10074 B68-10197 03

PHOSPHORIC ACID

Electrolytic etching process provides
effective bonding surface on stainless steel
GSFC-484 B66-10299 03

Electrochemical milling removes burrs and
solder from tubing ends
M-FS-714 B66-10358 03

Gage of 6.5 per cent Si-Fe sheet is
chemically reduced
MSC-537 B66-10454 03

Method for removing surface-damaged layers
from nickel alloys
M-FS-18151 B68-10522 03

Improved inorganic ion exchange membranes
LEWIS-10737 B69-10451 03

PHOSPHORS

Plastic scintillator converts standard
photomultiplier to ultraviolet range
ERC-9 B66-10108 02

Practical new method of measuring
thermal-neutron fluence
NUC-10086 B67-10352 02

Reparable, high-density microelectronic
module provides effective heat sink
M-FS-13075 B67-10356 01

Preparation of silver-activated zinc sulfide
thin films
GSFC-10687 B68-10271 03

A prototype high power portable lamp
M-FS-20229 B69-10189 02

The Quantasyn, an improved quantum
detector
ERC-10148 B69-10443 01

Precisely repeatable rotary mechanism
NPO-10679 B69-10696 05

PHOSPHORUS

Vapor grown silicon dioxide improves
transistor base-collector junctions
GSFC-389 B66-10091 01

Luminescent screen composition for
cathode ray tubes
ERC-19 B68-10056 01

Lateral PNP bipolar transistor with
aiding field diffusions
MSC-13072 B69-10741 01

PHOSPHORUS COMPOUNDS

Impurity diffusion process for silicon
semiconductors is fast and precise
GSFC-397 B65-10300 01

Sintering characteristics and properties
of PuS and PuP are determined
ARG-10228 B69-10058 03

PHOSPHORUS ISOTOPES

An improved nuclear magnetic resonance
spectrometer
JPL-762 B67-10234 01

PHOTOCATHODES

Point-source light sensor circuit is
insensitive to background light
JPL-778 B66-10502 01

Design concept for improved photo-scan tube
JPL-818 B67-10157 01

Electronic shutter gates image orthicon on
and off
HQ-96 B67-10270 01

Laser system generates single-frequency
light
M-FS-2556 B67-10288 02

Improved electro-optical tracking system
M-FS-14791 B68-10311 01

A simple electrometer for measuring small
photoelectric currents
GSFC-10603 B69-10734 01

PHOTOCHEMICAL REACTIONS

Heparin insolubilized with crosslinking
agent
NPO-10834 B69-10299 03

PHOTOCONDUCTIVITY

System for etching thick aluminum layers
minimizes bridging and undercutting
M-FS-1366 B66-10400 03

Process facilitates photoresist mask
alignment on SiC crystals
M-FS-2394 B67-10144 01

Improved radiographic image amplifier panel
M-FS-14522 B68-10363 02

Integrated metal transistor leads
GSFC-90536 B68-10518 01

Wide-band doubler and sine wave quadrature
generator
NPO-11133 B69-10383 01

PHOTOCONDUCTORS

Light-sensitive potentiometer measures
product of two variables
GSFC-240 B65-10076 01

Light-controlled resistors provide
quadrature signal rejection for high-gain
servo systems
WSO-340 B67-10552 01

Automatic frequency control of
voltage-controlled oscillators
NPO-11064 B69-10569 01

PHOTODIODES

Compact cartridge drives coded tape at
constant readout speed
JPL-472 B64-10222 01

Simple circuit positions film frames in
projector
JPL-508 B65-10132 02

Instrument calibrates low gas-rate flowmeters

SUBJECT INDEX

PHOTOELECTRICITY

MSC-134	B65-10137	01	Scanning photometer system automatically determines atmospheric layer height	MSC-245	B66-10170	01
Laser beam transmits electric power				Direction indicator system does not require complicated optics		
GSFC-293	B65-10158	01		W00-305	B66-10407	01
Brushless dc motor uses electron beam switching tube as commutator				Remote preamplifier circuit maintains stability over wide temperature range		
GSFC-345	B65-10237	01		W00-278	B66-10432	01
Photoresistance analog multiplier has wide range				Photocell shadowing technique improves light source detector		
GSFC-360	B65-10287	01		JPL-809	B66-10564	01
Miniature servo accelerometer is force-balanced				Point-source detection system rejects spatially extended radiation sources		
JPL-155	B65-10340	01		GSFC-486	B66-10622	01
Optical output enhances flowmeter accuracy				Continuous microbial cultures maintained by electronically-controlled device		
M-FS-482	B65-10395	02		ARG-177	B67-10556	04
Photosensors used to maintain welding electrode-to-joint alignment				High-speed camera synchronization		
MSC-243	B65-10401	05		M-FS-18062	B68-10282	Q2
Brushless dc motor has high efficiency, long life				Telescope dome control system automatically tracks sun		
GSFC-181	B66-10355	01		MSC-10966	B68-10521	02
System enables more complete calibrations of dynamic-pressure transducers				Remote balance weighs accurately amid high radiation		
M-FS-2063	B67-10099	01		ARG-10387	B69-10242	05
Selective video blanking technique				Semiautomatic inspection of microfilm records		
M-FS-20013	B68-10434	01		M-FS-20240	B69-10301	02
Use of both linear and logarithmic transfer functions to increase dynamic range of visual channel				The Quantasyn, an improved quantum detector		
GSFC-10675	B69-10037	01		ERC-10148	B69-10443	01
Optimizing solar-cell grid geometry				Circuit board hole coordinate locator concept		
HQ-10417	B69-10460	01		M-FS-14737	B69-10539	01
PHOTOELASTIC ANALYSIS				A simple electrometer for measuring small photoelectric currents		
Servo system facilitates photoelastic strain measurements on resins				GSFC-10603	B69-10734	01
JPL-504	B64-10280	01		Burn-rate testing apparatus		
Proposed acousto-optic filter				MSC-10947	B69-10740	03
HQ-10440	B69-10466	02		PHOTOELECTRIC EFFECT		
PHOTOELECTRIC CELLS				The response of monoenergetic gamma rays in finite media are investigated		
Solar-angle sensor has no moving parts				ARG-10295	B69-10080	02
JPL-418	B63-10260	02		RF noise suppression using the photodiodelectric effect in semiconductors		
Liquid-level meter has no moving parts				MSC-12259	B69-10225	01
M-FS-3	B63-10378	03		PHOTOELECTRIC EMISSION		
New method used to fabricate gallium arsenide photovoltaic device				CIRCUS--a digital computer program for transient analysis of electronic circuits		
W00-062	B64-10019	01		M-FS-15002	B68-10416	06
Nulling pyrometer uses Kerr cell shutter for fast responses				PHOTOELECTRIC MATERIALS		
NU-0010	B65-10050	01		Low-cost tape system measures velocity of acceleration		
Sensitive level sensor made with spirit level, gives electrical output				GSFC-85	B63-10512	01
LANGLEY-49	B65-10067	01		Photoelectric scanner makes detailed work function maps of metal surface		
System measures angular displacement without contact				JPL-SC-176	B66-10440	01
LANGLEY-46	B65-10073	01		PHOTOELECTRICITY		
Magnetometer measures orthogonal components of magnetic fields				Photoelectric semiconductor switch operates with low level inputs		
GSFC-395	B65-10315	01		JPL-SC-068	B65-10033	01
Photoelectric system continuously monitors liquid level				Photoelectric sensor output controlled by eyeball movements		
M-FS-417	B65-10382	01		M-FS-274	B65-10079	01
Flowmeter measures low gas-flow rates				Star/horizon simulator used to test space guidance system		
M-FS-215	B66-10036	01		MSC-407	B67-10110	02
Sensor detects hydrocarbon oil contaminants in fluid lines						
M-FS-522	B66-10068	01				

PHOTOENGRAVING

SUBJECT INDEX

Determination of the absolute contours of optical flats ARG-10352	B69-10209	05	Modified procedure speeds camera copy layout for offset printing GSFC-424	B65-10373	02
Multichannel spectroscopy guide HQ-10441	B69-10550	01	Ultraviolet photographic pyrometer used in rocket exhaust analysis M-FS-499	B66-10095	02
PHOTOENGRAVING					
Impurity diffusion process for silicon semiconductors is fast and precise GSFC-397	B65-10300	01	Small, high-intensity flasher permits continuous close-in photography NU-0043	B66-10119	03
Vapor grown silicon dioxide improves transistor base-collector junctions GSFC-389	B66-10091	01	Optical device enables small detector to see large field of view WOO-253	B66-10263	02
Offset lenses add versatility to phototypesetting machine HQ-9	B66-10173	02	Automated drafting system uses computer techniques M-FS-788	B66-10362	01
Design of printed circuit coils HQ-10431	B69-10665	01	Simplified technique demonstrates magnetic domain switching M-FS-13153	B67-10342	02
PHOTOGRAPHMETRY					
Ultraviolet photographic pyrometer used in rocket exhaust analysis M-FS-499	B66-10095	02	Aerial-image enables diagrams and animation to be inserted in motion pictures ARG-165	B67-10398	02
PHOTOGRAPHIC DEVELOPERS					
Modified developer increases line resolution in photosensitive resist GSFC-386	B65-10278	01	Camera lens adapter magnifies image M-FS-11955	B67-10431	02
Commercial film produces positive X-ray photo in ten seconds M-FS-521	B66-10307	02	Improvement in recording and reading holograms ERC-10151	B68-10347	02
Dual photochemical replenisher system reduces chemical losses KSC-67-111	B67-10485	02	Rotary-knife stripper facilitates removal of X-ray film from pack M-FS-14837	B68-10509	05
Shortened processing time technique for color industrial radiography ARG-10235	B69-10001	02	Camera mount for close-up stereo photographs LANGLEY-10442	B69-10226	02
A concept for magazine Bimat processor KSC-06786	B69-10275	02	Improved camera for better X-ray powder photographs HQ-10424	B69-10537	01
PHOTOGRAPHIC EMULSIONS					
Rotating filters permit wide range of optical pyrometry LANGLEY-33	B65-10100	02	PHOTOGRAPHIC FILM		
Means for improving apparent resolution of television ERC-65	B67-10152	01	Illuminated display panel is easily changed MSC-108	B65-10003	05
Shortened processing time technique for color industrial radiography ARG-10235	B69-10001	02	Modified contour projector makes excellent contour densitometer LANGLEY-93	B65-10084	02
Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04	System selects framing rate for spectrograph camera LANGLEY-55	B65-10086	01
PHOTOGRAPHIC EQUIPMENT					
Illuminated display panel is easily changed MSC-108	B65-10003	05	Magnets position X-ray film for weld inspection M-FS-253	B65-10110	05
Nulling pyrometer uses Kerr cell shutter for fast responses NU-0010	B65-10050	01	Simple circuit positions film frames in projector JPL-508	B65-10132	02
Modified contour projector makes excellent contour densitometer LANGLEY-93	B65-10084	02	Single projector accommodates slides of different size and format GSFC-439	B66-10016	02
Rotating filters permit wide range of optical pyrometry LANGLEY-33	B65-10100	02	FORTTRAN program flow chart is automatically produced M-FS-369	B66-10062	01
Simple circuit positions film frames in projector JPL-508	B65-10132	02	Small, high-intensity flasher permits continuous close-in photography NU-0043	B66-10119	03
Planetary camera control improves microfiche production HQ-1	B65-10313	01	Commercial film produces positive X-ray photo in ten seconds M-FS-521	B66-10307	02
			Inflatable holding fixture permits X-rays to be taken of inner weld areas M-FS-856	B66-10327	03
			Mylar film eliminates silk screening of equipment panels MSC-798	B66-10455	05

SUBJECT INDEX

PHOTOGRAPHY

Gas pressure feeds film into camera at high speed ARG-97	B66-10474	02	Indicator system provides complete data of engine cylinder pressure variation LEWIS-291	B66-10470	05
Polaroid film helps locate objects in inaccessible areas quickly MSC-960	B67-10008	02	VICAR-DIGITAL image processing system NPO-10770	B69-10139	06
Means for improving apparent resolution of television ERC-65	B67-10152	01	Stereo TV enhancement study M-FS-14805	B69-10497	01
Electron beam welder X-rays its own welds LEWIS-10111	B67-10216	02	Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01
Fresnel diffraction plates are simple and inexpensive M-FS-12731	B67-10297	02	PHOTOGRAPHY		
Areas of irregular, discontinuous patterns rapidly and accurately measured GSFC-10184	B67-10674	01	Electromechanically operated camera shutter provides uniform exposure JPL-357	B63-10227	01
Hydra 1 data display system MSC-11594	B68-10155	01	Camera shutter is actuated by electric signal ARC-20	B63-10560	05
X-ray film holder permits single continuous picture of tubing joint LEWIS-10382	B68-10343	05	Front and back printed circuit layouts presented on single sheet GSFC-93	B63-10596	01
Rotary-knife stripper facilitates removal of X-ray film from pack M-FS-14837	B68-10509	05	Magnets position X-ray film for weld inspection M-FS-253	B65-10110	05
Shortened processing time technique for color industrial radiography ARG-10235	B69-10001	02	Beam splitter used in dual filming technique M-FS-501	B66-10072	02
Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04	Commercial film produces positive X-ray photo in ten seconds M-FS-521	B66-10307	02
A concept for magazine Bimat processor KSC-06786	B69-10275	02	Inflatable holding fixture permits X-rays to be taken of inner weld areas M-FS-856	B66-10327	03
Electrooptical scanning of film NPO-11106	B69-10568	01	Dot patterns provide reproducible flaw areas for study of adhesive bonds M-FS-862	B66-10367	05
PHOTOGRAPHIC MEASUREMENT			Exposure Value /EV/ system expanded to include filter factors and transmittance LANGLEY-190	B66-10602	02
Photographic method measures particle size and velocity in fluid stream M-FS-1536	B66-10668	01	Rocket engine vibration accurately measured by photography M-FS-1916	B66-10652	02
Slide rule-type color chart predicts reproduced photo tones MSC-1227	B66-10680	01	Digital computer processing of X-ray photos JPL-792	B67-10005	04
PHOTOGRAPHIC PROCESSING			Fatigue zones in metals identified by polarized light photography WOO-286	B67-10082	02
Commercial film produces positive X-ray photo in ten seconds M-FS-521	B66-10307	02	Improved television signal processing system NPO-10140	B67-10246	01
PHOTOGRAPHIC PROCESSING EQUIPMENT			Computer program for Video Data Processing System /VDPS/ NPO-10042	B67-10630	06
Dual photochemical replenisher system reduces chemical losses KSC-67-111	B67-10485	02	PHOTOGRAPHIC RECORDING		
PHOTOGRAPHIC RECORDING			Photographic and drafting techniques simplify method of producing engineering drawings MSC-716	B68-10128	02
Numerical data frame readout system used in testing telemetry systems GSFC-551	B67-10175	01	Fluorescent particles enable visualization of gas flow M-FS-14583	B68-10259	02
Measuring coplanarity of surfaces MSC-12044	B67-10371	02	X-ray film holder permits single continuous picture of tubing joint LEWIS-10382	B68-10343	05
High-speed camera synchronization M-FS-18062	B68-10282	02	An investigation of particle mixing in a gas-fluidized bed ARG-10182	B68-10407	05
Microscopes and computers combined for analysis of chromosomes ARG-10256	B69-10088	04	Rapid-response, light-exposure control system NPO-10238	B68-10502	01
Electrooptical scanning of film NPO-11106	B69-10568	01	Fluorescent photography of spray droplets		
PHOTOGRAPHS					
Built-in templates speed up process for making accurate models LANGLEY-23	B63-10526	05			

PHOTOINTERPRETATION

SUBJECT INDEX

using a laser light source
LEWIS-10777 B69-10122 02

A prototype high power portable lamp
M-FS-20229 B69-10189 02

Multipurpose binocular scanning apparatus
NPO-11002 B69-10311 02

Technique for pinpointing submicron
particles in the electron microprobe
HQ-10043 B69-10465 01

Automatic sample rotator for metallographic
polishing
NPO-11015 B69-10596 03

PHOTOINTERPRETATION
Laser measuring system accurately locates
point coordinates on photograph
ARG-74 B66-10560 02

PHOTOIONIZATION
Ion chambers simplify absolute intensity
measurements in the vacuum ultraviolet
ERC-10 B66-10439 01

An improved soft X-ray photoionization
detector
GSFC-540 B67-10072 02

PHOTOLUMINESCENCE
Electronic gating circuit and ultraviolet
laser excitation permit improved dosimeter
sensitivity
ARG-10109 B68-10077 02

PHOTOLYSIS
Production of crystalline polymers via
liquid crystal monomers
HQ-10235 B69-10744 03

PHOTOMETERS
New method used to fabricate gallium arsenide
photovoltaic device
WOO-062 B64-10019 01

Electromechanical flowmeter accurately
monitors fluid flow
GSFC-357 B65-10273 01

Sensor detects hydrocarbon oil contaminants
in fluid lines
M-FS-522 B66-10068 01

Scanning photometer system automatically
determines atmospheric layer height
MSC-245 B66-10170 01

Optical device enables small detector to see
large field of view
WOO-253 B66-10263 02

Solvent residue content measured by light
scattering technique
M-FS-850 B66-10320 01

Uniform reflective films deposited on large
surfaces
GSFC-507 B66-10483 02

Preregulator feedback circuit utilizes
Light Actuated Switch
M-FS-1180 B66-10542 01

Photocell shadowing technique improves light
source detector
JPL-809 B66-10564 01

Sensors measure surface ablation rate of
reentry vehicle heat shield
LANGLEY-287 B66-10592 01

Blackbody cavity radiometer has rapid
response
JPL-521 B66-10679 01

Local measurements in turbulent flows
through cross correlation of optical signals

M-FS-1268 B67-10030 01

Stereo photomacrography system
LANGLEY-10176 B68-10141 01

UV detector monitors organic contamination
of optical surfaces
M-FS-20246 B68-10413 01

Rocket sonde measurements of ozone in the
upper atmosphere
GSFC-10580 B69-10077 02

Active frequency control system for
argon FM laser
M-FS-14988 B69-10099 02

Ring laser angle encoder
MSC-13099 B69-10115 01

PHOTOMETRY
PTFE-aluminum films serve as neutral
density filters
LANGLEY-189 B66-10017 02

Special purpose reflectometer uses modified
ulbricht sphere
MSC-1135 B67-10109 02

VICAR-DIGITAL image processing system
NPO-10770 B69-10139 06

Zone purification of potassium chloride
ARG-10377 B69-10241 03

Instrumentation for nondestructive testing
of composite honeycomb materials
M-FS-20405 B69-10366 03

Quantitative determination of flavin nucleotide
using the bacterial bioluminescent reaction
GSFC-10565 B69-10715 04

PHOTOMICROGRAPHY
Inspection of fine wires simplified by
capillary tube wire holder
MSC-358 B66-10329 01

Method accurately measures mean particle
diameters of monodisperse polystyrene
latexes
ARG-207 B67-10054 02

Stereo photomacrography system
LANGLEY-10176 B68-10141 01

One hundred angstrom niobium wire
LEWIS-10128 B68-10279 03

PHOTOMULTIPLIER TUBES
Variable light source with a million-to-one
intensity ratio
JPL-WOO-008 B63-10424 03

System selects framing rate for spectrograph
camera
LANGLEY-55 B65-10086 01

Multiaxial analyzer detects low-energy
electrons
GSFC-329 B65-10213 01

Instrument accurately measures extremely low
air densities
M-FS-193 B65-10221 01

Communication system uses modulated laser beam
GSFC-377 B65-10333 01

Plastic scintillator converts standard
photomultiplier to ultraviolet range
ERC-9 B66-10108 02

Improved design provides faster response
time in photomultiplier
GSFC-451 B66-10526 01

Laser measuring system accurately locates
point coordinates on photograph

SUBJECT INDEX

PHOTOVOLTAGES

ARG-74 B66-10560 02

Polarimeter provides transient response
in nanosecond range
JPL-890 B67-10021 02

Electron multiplier has improved
performance and stability
GSFC-546 B67-10060 01

Cleanroom air sampler counts, categorizes,
and records particle data
M-FS-2221 B67-10076 01

Special purpose reflectometer uses modified
ulbricht sphere
MSC-1135 B67-10109 02

Uranium isotopes quantitatively determined
by modified method of atomic absorption
spectrophotometry
ARG-210 B67-10236 03

Self-balancing line-reversal pyrometer
automatically measures gas temperatures
LEWIS-348 B67-10268 01

New electron microscope employs new video
display technique
ARG-158 B67-10312 03

Vibration analysis utilizing Mossbauer
effect
M-FS-11974 B67-10339 01

Control apparatus for spectral energy
source
LEWIS-391 B67-10404 01

Laser communication system is insensitive
to atmospherically induced noise
GSFC-10396 B67-10587 01

New camera tube improves ultrasonic
inspection system
ARG-90237 B68-10088 01

Improved electro-optical tracking system
M-FS-14791 B68-10311 01

Laser-Doppler gas-velocity instrument
M-FS-20039 B68-10349 02

System measures response time of
photomultiplier tubes
LEWIS-10437 B68-10382 01

Microscopes and computers combined for
analysis of chromosomes
ARG-10256 B69-10088 04

Direct measurement of carbon-14 in carbon
dioxide by liquid scintillation counting
ARG-10237 B69-10092 03

Dual-mode operation of a neutron source, a
concept
HQ-10106 B69-10248 02

The Quantasyn, an improved quantum
detector
ERC-10148 B69-10443 01

Improved pulse shape discriminator for fast
neutron-gamma ray detection system
HQ-10151 B69-10481 01

Multichannel spectroscopy guide
HQ-10441 B69-10550 01

Airborne Fraunhofer Line Discriminator
MSC-13146 B69-10594 02

Manganese-56 coincidence-counting facility
precisely measures neutron-source strength
ARG-90261 B69-10621 01

Image position sensor
M-FS-14101 B69-10783 02

PHOTON DENSITY
An improved soft X-ray photoionization
detector
GSFC-540 B67-10072 02

PHOTONS
Concept for improved vacuum pressure
measuring device
M-FS-20172 B69-10421 02

Ion mass spectrometer for special uses
HQ-10418 B69-10510 02

PHOTOSENSITIVITY
Modified developer increases line resolution
in photosensitive resist
GSFC-386 B65-10278 01

Selenium bond decreases ON resistance of
light-activated switch
JPL-SC-101 B65-10324 01

Vibration tests on vidicons made by improved
method
JPL-SC-115 B66-10042 01

New television camera eliminates vidicon tube
M-FS-472 B66-10112 01

Plotter design simplifies determination of
image sensor transfer characteristic
NPO-10164 B67-10206 01

Photosensitive filler minimizes internal
stresses in epoxy resins
M-FS-1880 B67-10227 03

Portable spectrometer monitors inert gas
shield in welding process
M-FS-12144 B67-10326 02

Gimbal angle sensor
GSFC-10305 B68-10315 01

System measures response time of
photomultiplier tubes
LEWIS-10437 B68-10382 01

PHOTOSTRESSES
Ultrasonics used to measure residual stress
M-FS-12449 B67-10428 02

PHOTOSYNTHESIS
Aggregation of metallochlorophylls -
Examination by spectroscopy
ARG-10273 B69-10163 04

PHOTOTRANSISTORS
Instrument accurately measures extremely low
air densities
M-FS-193 B65-10221 01

New television camera eliminates vidicon tube
M-FS-472 B66-10112 01

Electrically controlled optical latch and
switch requires less current
JPL-SC-111 B66-10414 01

Selective video blanking technique
M-FS-20013 B68-10434 01

An integrated circuit switch
NPO-11073 B69-10326 01

PHOTOTUBES
Analog device simulates physiological
waveforms
MSC-51 B64-10109 01

Servo system facilitates photoelastic strain
measurements on resins
JPL-504 B64-10280 01

Design concept for improved photo-scan tube
JPL-818 B67-10157 01

PHOTOVOLTAGES
New method used to fabricate gallium arsenide

PHOTOVOLTAIC CELLS

SUBJECT INDEX

photovoltaic device WOO-062	B64-10019	01	M-FS-1959	B67-10089	03
Cuprous selenide and sulfide form improved photovoltaic barriers WOO-212	B66-10025	01	Analytical technique characterizes all trace contaminants in water MSC-11032	B67-10243	03
PHOTOVOLTAIC CELLS			Fluid properties handbook M-FS-13462	B67-10440	03
Optics used to measure torque at high rotational speeds LEWIS-13	B63-10338	01	Hastelloy X properties, data, and metallurgical characteristics NUC-10302	B68-10023	03
Laser beam transmits electric power GSFC-293	B65-10158	01	Materials data handbook, aluminum alloy 6061 M-FS-20381	B69-10065	03
Cuprous selenide and sulfide form improved photovoltaic barriers WOO-212	B66-10025	01	PHYSICS		
Solar cell submodule design facilitates assembly of lightweight arrays JPL-728	B66-10231	02	Review of physics, instrumentation and dosimetry of radioactive isotopes ARG-10037	B67-10640	02
Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01	Structure of the isotropic transport operators in three independent space variables ARG-10448	B69-10432	06
PHOTOVOLTAIC EFFECT			PHYSIOLOGICAL EFFECTS		
Photovoltaic effect in organic polymer-iodine complex NPO-10373	B67-10634	03	Subminiature biotelemetry unit permits remote physiological investigations ARC-39	B64-10171	01
Method for copper staining of germanium crystals ARG-10403	B69-10257	03	Electronic device simulates respiration rate and depth MSC-89	B64-10255	01
Optimizing solar-cell grid geometry HQ-10417	B69-10460	01	Hand-held instrument should relieve hematoma pressure MSC-599	B67-10332	04
PHTHALOCYANIN			Study of radiation effects on mammalian cells in vitro ARG-10191	B68-10294	02
Uranyl phthalocyanines show promise in the treatment of brain tumors ARG-100	B67-10188	04	Rate of heat extraction controller for environmental control HQ-10318	B69-10516	01
PHYSICAL CHEMISTRY			PHYSIOLOGICAL FACTORS		
Apparatus presents visual display of semiconductor surface characteristics JPL-665	B66-10200	01	A phonocardiogram simulator KSC-67-94	B67-10239	01
Production of solvated electrons ARG-10416	B69-10430	03	PHYSIOLOGICAL RESPONSES		
PHYSICAL EXERCISE			Infrared viewing permits human iris response studies ERC-10003	B68-10206	04
Improved electrode gives high-quality biological recordings MSC-17	B64-10025	04	PHYSIOLOGICAL TESTS		
Spray-on electrodes enable EKG monitoring of physically active subjects FRC-36	B66-10649	04	Cardiotachometer with linear beat-to-beat frequency response ARC-10033	B67-10598	01
PHYSICAL FACTORS			Improved perceptual-motor performance measurement system HQ-10123	B69-10385	01
Special tool kit aids heavily garmented workers MSC-163	B66-10403	05	Biomedical bulk data processing program FRC-10015	B69-10720	06
Study of hydrogen slush-hydrogen gel utilization M-FS-13068	B67-10413	02	PHYSIOLOGY		
Photomicrometrology M-FS-14556	B69-10736	01	Test monkeys anesthetized by routine procedure HQ-18	B65-10332	04
PHYSICAL FITNESS			Computer circuit calculates cardiac output MSC-274	B66-10006	01
Simulator effects partial gravity conditions MSC-152	B66-10339	05	Automated patient monitoring system M-FS-14552	B68-10131	01
PHYSICAL PROPERTIES			New passive telemetry system HQ-10214	B69-10312	01
Substituted silane-diol polymers have improved thermal stability M-FS-469	B66-10259	03	PIERCING		
Silazane elastomer remains resilient at 400 deg C M-FS-1144	B66-10667	05	Extendable mast used in one shot soil penetrometer JPL-685	B66-10146	05
Materials data handbooks prepared for aluminum alloys 2014, 2219, and 5456, and stainless steel alloy 301			Epoxy-coated containers easily opened by wire band		

SUBJECT INDEX

PIGMENTS

M-FS-592	B66-10174	05	forming system	B67-10126	02
Impact and puncture resistant material protects parts from damage	MSC-747		M-FS-2142		
	B66-10375	05	Design concepts using ring lasers for frequency stabilization	M-FS-2448	B67-10143 01
Welded repairs of punctured thin-walled aluminum pressure vessels	M-FS-14836	B69-10051 05	Automatic system nondestructively monitors and records fatigue crack growth	LANGLEY-10091	B68-10379 01
Sealed container sampling device	GSFC-10690	B69-10682 03	PIEZOELECTRICITY		
PIEZOELECTRIC CRYSTALS			Simple device produces accelerometer calibration pulse	M-FS-363	B65-10269 01
Improved holder protects crystal during high acceleration and impact	JPL-463	B65-10037 05	A conceptual design for squeeze film bearings	M-FS-573	B66-10226 05
Piezoresistive gage tests pin-connector sockets	JPL-675	B65-10128 01	Miniature piezoelectric triaxial accelerometer measures cranial accelerations	ARC-71	B66-10534 01
Crystal measures short-term, large-magnitude forces	JPL-77	B65-10187 01	Improved gas ring laser	MSC-11584	B68-10304 02
Voltage variable oscillator has high phase stability	LANGLEY-123	B65-10204 01	Power consumption in acoustic amplifiers under conditions of maximum stable gain	GSFC-10067	B68-10327 01
Communication system uses modulated laser beam	GSFC-377	B65-10333 01	Piezoelectric lock mechanism resists lockpicking	SAN-10037	B69-10281 01
Phonocardiograph system monitors heart sounds	MSC-185	B66-10154 04	A laboratory method for precisely determining the micro-volume-magnitudes of liquid efflux	ARC-10052	B69-10295 05
Acceleration-compensated pressure transducer has fast response	LANGLEY-113	B66-10353 01	PIEZOMETERS		
Quartz crystals detect gas contaminants during vacuum chamber evacuation	NPO-10144	B67-10205 01	Piezoresistive gage tests pin-connector sockets	JPL-675	B65-10128 01
A piezo-bar pressure probe	LEWIS-393	B67-10259 01	PIEZORESISTIVE TRANSDUCERS		
Fluidic-thermochromic display device	ERC-10031	B68-10350 01	Pressure transducer 3/8-inch in size can be faired into surface	WOO-065	B64-10021 05
Gage measures total radiation, including vacuum UV, from ionized high-temperature gases	KNP-09802	B69-10028 02	Miniature stress transducer has directional capability	JPL-591	B65-10023 01
Piezoelectric linear actuator	MSC-13194	B69-10469 02	Gas pressure in sealed electrochemical cells measured externally	GSFC-10004	B67-10551 03
PIEZOELECTRIC GAGES			Pressure-sensitive bonded junction transducers	ERC-10087	B68-10563 01
A piezo-bar pressure probe	LEWIS-393	B67-10259 01	PIGGYBACK SYSTEMS		
PIEZOELECTRIC TRANSDUCERS			Concept to standardize space vehicle piggyback experiment modules	M-FS-1697	B68-10038 05
Device calibrates vibration transducer at amplitudes up to 20 g	M-FS-86	B63-10572 01	PIGMENTS		
Ultra-sensitive transducer advances micro-measurement range	ARC-26	B64-10004 01	Inorganic paint is durable, fireproof, easy to apply	GSFC-366	B65-10156 03
Damping technique gives accelerometer flat frequency response	M-FS-471	B66-10293 01	Pigmented coating resists thermal shock	JPL-SC-083	B65-10354 03
Phonocardiograph microphone is rugged and moistureproof	MSC-212	B66-10314 04	White primer permits a corrosion-resistant coating of minimum weight	M-FS-304	B66-10207 03
Ultrasonic emission method enables testing of adhesive bonds	M-FS-799	B66-10341 01	Film coating permits low-force scribing	MSC-990	B66-10609 03
Method permits mechanical and electrical checkout of piezoelectric transducers while installed in a system	ARC-73	B66-10533 01	Cytology is advanced by studying effects of deuterium environment	ARG-205	B67-10304 04
High-energy-rate magnetohydraulic metal			Advances in aluminum anodizing	M-FS-14600	B69-10144 05
			Comparative chromatography of chloroplast		

PILOT PERFORMANCE

SUBJECT INDEX

pigment ARG-10415	B69-10425	03	applications ARG-10202	B69-10053	03
PILOT PERFORMANCE			Repair of honeycomb panels with welded breakaway studs MSC-15046	B69-10261	05
Helmet system broadcasts electroencephalograms of wearer ARC-70	B66-10536	01	Countersunk headscrew retainer M-FS-16481	B69-10282	05
Integral valve provides automatic relief and remote venting M-FS-12134	B69-10545	05	Breakaway electrical connector NPO-11140	B69-10474	01
PILOT SELECTION			Improved camera for better X-ray powder photographs HQ-10424	B69-10537	01
Improved perceptual-motor performance measurement system HQ-10123	B69-10385	01	An electrical connector pin protector MSC-15660	B69-10742	01
PINHOLES			PIPE FLOW		
Improved system measures output energy of pyrotechnic devices WOO-256	B66-10159	01	Studies reveal effects of pipe bends on fluid flow cavitation M-FS-516	B66-10228	05
Optical device enables small detector to see large field of view WOO-253	B66-10263	02	Thermal neutron image intensifier tube provides brightly visible radiographic pattern ARG-120	B67-10296	02
PINS			PIPE NOZZLES		
Tool facilitates sealing of metal fill tubes MSC-24	B63-10519	05	Oxygen-hydrogen torch is a small-scale steam generator NU-0042	B66-10120	03
Gage measures electrical connector pin retention force JPL-SC-071	B65-10034	03	PIPELINES		
Screw locking cups quickly and neatly crimped NU-0009	B65-10049	05	Blade valve isolates compartment in pipe, opens to allow free flow JPL-585	B64-10188	05
Piezoresistive gage tests pin-connector sockets JPL-675	B65-10128	01	Sensor detects hydrocarbon oil contaminants in fluid lines M-FS-522	B66-10068	01
Floating device aligns blind connections MSC-256	B66-10007	05	Capacitive system detects and locates fluid leaks M-FS-478	B66-10099	01
Single connector provides safety fuses for multiple lines MSC-199	B66-10050	01	Portable power tool machines weld joints in field M-FS-258	B66-10145	05
Plugged hollow shaft makes fatigue-resistant shear pin LANGLEY-195	B66-10077	05	Studies reveal effects of pipe bends on fluid flow cavitation M-FS-516	B66-10228	05
Polarizing keys prevent mismatch of connector plugs and receptacles MSC-443	B66-10251	01	Expandable rubber plug seals openings for pressure testing NU-0048	B66-10229	05
Alignment tool facilitates pin placement on irregular horizontal surfaces LANGLEY-219	B66-10410	05	Computer program determines gas flow rates in piping systems M-FS-443	B66-10300	01
Controlled release device prevents damage from dynamic stresses KSC-66-14	B66-10628	05	External linkage tie permits reduction in ducting system flange thickness M-FS-823	B66-10326	05
Coldplate of pin fin design makes efficient heat exchanger MSC-1093	B67-10073	05	Inexpensive insulation is effective for cryogenic transfer lines MSC-618	B66-10348	02
Cracks in glass electrical connector headers removed by dry blasting with fine abrasive LEWIS-381	B67-10148	03	Closed loop operation eliminates need for auxiliary gas in high pressure pumping station M-FS-893	B66-10408	05
Test device prevents weld joint damage by eliminating axial pin forces on unpotted modules LEWIS-10201	B67-10359	01	Leak locator for vacuum jacketed pipelines eliminates need for removal of outer jacket M-FS-888	B66-10412	01
Machine tests slow-speed sliding friction in high vacuum M-FS-12341	B67-10379	05	Teflon sheet permits valve and valve operator to move as a single unit in a cryogenic pipe line NU-0077	B66-10702	05
Connector shorting cap provides pin alignment, inspection, and stray voltage protection M-FS-13111	B67-10635	01	Technique cuts time and cost of bending jacketed piping WSO-333	B67-10018	05
Refractory oxide insulated thermocouple designed and analyzed for high temperature					

SUBJECT INDEX

PIPES (TUBES)

Inexpensive cryogenic insulation replaces vacuum jacketed line NUC-10061	B67-10264	02	cooling-down of cryogenic system JPL-655	B65-10068	01
Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133	B67-10437	03	Inert gas spraying device aids in repair of hazardous systems LEWIS-8B	B65-10115	05
Conceptual apparatus for detecting leaks of nonconductive liquids M-FS-14713	B68-10303	01	Multiple test tubes stirred mechanically ARC-42	B65-10120	01
Weld preparation tool for pipes and tubing KSC-09955	B68-10551	05	Apparatus facilitates pressure-testing of metal tubing LEWIS-174	B65-10131	05
Shell design computer program LEWIS-10734	B69-10175	06	Metal bellows custom-fabricated from tubing LEWIS-192	B65-10150	05
Tracer of electrical conduit or pipes MSC-15223	B69-10347	01	Angular glass tubing drawn from round tubing HQ-20	B65-10235	05
Magnetomotive forming for precision sizing and joining of large-diameter tubes M-FS-20481	B69-10422	05	Portable tool removes burrs from pipe and tubing MSC-237	B65-10360	05
Flow properties of suspensions rich in solids ARG-10481	B69-10622	02	Portable tool cleans pipes and tubing MSC-238	B65-10375	05
PIPES (TUBES)			Probe samples components of rocket engine exhaust M-FS-485	B65-10384	03
Self sealing disconnect for tubing forms metal seal after breakaway JPL-354	B63-10226	05	Tungsten wire and tubing joined by nickel brazing M-FS-394	B65-10391	05
Filter for high-pressure gases has easy take-down, assembly JPL-373	B63-10234	03	Centrifugal device separates liquid from gas MSC-282	B65-10394	05
Sleeve and cutter simplify disconnecting welded joint in tubing JPL-384	B63-10240	05	Forming tool improves quality of tubing flares WOO-231	B66-10001	05
Level of super-cold liquids automatically maintained by levelometer JPL-397	B63-10250	01	Improved tool easily removes brazed tube connectors MSC-263	B66-10003	05
Helium tube separates nitrogen gas from liquid nitrogen JPL-398	B63-10251	05	Coiled sheet metal strip opens into tubular configuration GSFC-425	B66-10009	03
Improved variable-reluctance transducer measures transient pressures LANGLEY-10	B63-10321	01	O-ring tube fittings form leakproof seal in hydraulic systems M-FS-481	B66-10020	05
Connector for vacuum-jacketed lines cuts tubing system cost LEWIS-66	B63-10367	05	Portable self-powered device detects internal flaws in tubular structures NU-0019	B66-10028	01
Composite, vacuum-jacketed tubing replaces bellows in cryogenic systems LEWIS-67	B63-10368	05	Flowmeter measures low gas-flow rates M-FS-215	B66-10036	01
Vacuum-type backup bar speeds weld repairs M-FS-12	B63-10384	05	Heated die facilitates tungsten forming LEWIS-25A	B66-10047	05
Tool facilitates sealing of metal fill tubes MSC-24	B63-10519	05	Hydrogen-atmosphere induction furnace has increased temperature range LEWIS-153	B66-10055	05
Connector for thermocouple leads saves costly wire, makes reliable connectors LANGLEY-26	B63-10529	01	Bench vise adapter grips tubing securely and safely MSC-279	B66-10056	05
Ellipsoidal optical reflectors reproduced by electroforming GSFC-92	B63-10547	05	Beam splitter used in dual filming technique M-FS-501	B66-10072	02
Guide for extrusion dies eliminates straightening operation LEWIS-152	B64-10014	05	Tool provides constant purge during tube welding M-FS-547	B66-10093	05
Stringent cleaning technique assures reliable epoxy bond GSFC-161	B64-10142	03	Pipe cutting tool is useful in limited space MSC-36	B66-10102	05
Spring loaded beaded cable makes efficient wire puller WOO-108	B65-10031	05	Telescoping of instrumentation tubing eliminates swaging M-FS-546	B66-10116	05
Automatic thermal switch accelerates			Economical and maintenance-free gas system operates railroad switches NU-0045	B66-10124	05

PIPES (TUBES) CONT.

SUBJECT INDEX

Aluminum oxide filler prevents obstructions in tubing during welding MSC-222	B66-10125	05	during high pressure tests MSC-563	B66-10330	02
Bismuth alloy potting seals aluminum connector in cryogenic application WOO-200	B66-10138	03	Inductive system detects level of conducting fluids LEWIS-322	B66-10392	01
Portable power tool machines weld joints in field M-FS-258	B66-10145	05	High pressure cryogenic liquid flow sight assembly provides streamlined flow for easy observation LEWIS-310	B66-10394	01
Split glass tube assures quality in electron beam brazing M-FS-564	B66-10151	05	Copper-acrylic enamel serves as lubricant for cold drawing of refractory metals ARG-54	B66-10471	05
Argon purge gas cooled by chill box M-FS-560	B66-10153	02	Hydraulic fluid serves as mandrel for small diameter refractory tube drawing ARG-44	B66-10523	05
Simple device facilitates inert-gas welding of tubes M-FS-558	B66-10155	05	Gage tests tube flares quickly and accurately KSC-66-19	B66-10537	05
Cryogenic liquid transfer system reduces residual boiloff LEWIS-274	B66-10157	02	Ductile mandrel and parting compound facilitate tube drawing ARG-43	B66-10571	05
Thin-film gage measures low heat-transfer rates LANGLEY 205	B66-10180	01	Rotational fluid coupling eliminates hose entanglements MSC-312	B66-10585	05
Wide-range instrument monitors flow rates of chemically active fluids MSC-186	B66-10205	01	Plastic tubing protects flexible copper hose M-FS-772	B66-10588	05
Liquid trap seals thermocouple leads M-FS-688	B66-10212	05	Sensors measure surface ablation rate of reentry vehicle heat shield LANGLEY-287	B66-10592	01
Electric arc heater is self starting LANGLEY-208	B66-10230	03	Grit blasting nozzle fabricated from mild tool steel proves satisfactory M-FS-1420	B66-10597	05
Insert sleeve prevents tube soldering contamination MSC-552	B66-10238	05	Pressure probe compensates for dimensional tolerance variations LEWIS-302	B66-10599	01
Hand tool permits shrink sizing of assembled tubing MSC-504	B66-10239	05	Lightweight, all-metal hose assembly has high flexibility and strength over wide range of temperature and pressure M-FS-1831	B66-10635	05
Pressure-welded flange assembly provides leaktight seal at reduced bolt loads M-FS-640	B66-10247	05	Combustion chamber struts can be effectively transpiration cooled M-FS-1830	B66-10643	03
Tool separates sleeve-type unions without heat MSC-497	B66-10253	05	Mechanical gauge accurately checks tubing flare, roundness, and concentricity M-FS-1822	B66-10656	05
Remotely controlled system couples and decouples large diameter pipes NU-0062	B66-10276	05	Spherical pipe joint delivers loads equally to mating flange M-FS-807	B66-10665	05
O-rings with mylar back-up provide high-pressure cryogenic seal M-FS-603	B66-10278	05	Glass formulation has high coefficient of thermal expansion NU-0084	B66-10705	03
High pressure tube coupling requires no threads or flares MSC-600	B66-10285	05	Orbital tube flaring system produces tubing connectors with zero leakage M-FS-2016	B67-10019	05
Bypass rod transfers heat developed in thermionic diode JPL-SC-136	B66-10303	05	Holding fixture facilitates pipe thread gage measurements M-FS-2009	B67-10066	05
Union would facilitate joining of tubing, minimize braze contamination MSC-777	B66-10311	05	Clamp provides efficient connection for high-density currents M-FS-2417	B67-10140	01
Torus elements used in effective shock absorber WOO-114	B66-10318	05	Fixture facilitates helium leak testing of pipe welds M-FS-2167	B67-10178	05
Special mandrel permits uniform welding of out-of-round tubing M-FS-706	B66-10323	05	Weld procedure produces quality welds for thick sections of Hastelloy-X NUC-10048	B67-10195	05
Inspection of fine wires simplified by capillary tube wire holder MSC-358	B66-10329	01	Workmanship standards for fusion welding		
Adapter assembly prevents damage to tubing					

SUBJECT INDEX

PIPES (TUBES) CONT

NUC-10050	B67-10200	05	Heat-shrink plastic tubing seals joints in glass tubing	B68-10040	05
Pipe joints reinforced in place with fitted aluminum sleeves			LEWIS-10329		
MSC-11109	B67-10271	05	Remotely installed pipe plug provides effective seal in hazardous environment	B68-10053	05
Square tubing reduces cost of telescoping bridge crane hoist			NUC-10303		
ARG-13	B67-10293	05	Method for reinforcing tubing joints	B68-10115	05
Liquid oxygen dicting cleaned by falling film method			MSC-11108		
M-FS-11816	B67-10299	03	System remotely inspects, measures, and records internal irregularities in piping	B68-10149	01
Jacketed cryogenic piping is stress relieved			M-FS-14545		
M-FS-985	B67-10308	05	Tube swaging device uses explosive force	B68-10235	05
ULTRASONIC wrench produces leaktight connections			LANGLEY-10092		
M-FS-12561	B67-10353	05	Tensile testing grips ensure uniform loading of bimetal tubing specimens	B68-10248	05
LEWIS-10267					
Extrusion of small-diameter, thin-wall tungsten tubing			LEWIS-10267	B68-10248	05
LEWIS-90335	B67-10355	05	One hundred angstrom niobium wire	B68-10279	03
LEWIS-10128					
Transducer measures embedment stresses in electronic modules			Fabrication techniques developed for small-diameter, thin-wall tungsten and tungsten alloy tubing	B68-10284	05
M-FS-13486	B67-10367	01	ARG-10100		
Use of color-coded sleeve shutters accelerates oscillograph channel selection			Electron beam selectively seals porous metal filters	B68-10331	05
KSC-10092	B67-10382	01	LEWIS-10162		
Large volume continuous counterflow dialyzer has high efficiency			X-ray film holder permits single continuous picture of tubing joint	B68-10343	05
HQ-10055	B67-10395	04	LEWIS-10382		
Standard surface grinder for precision machining of thin-wall tubing			Hand-tightened, high-pressure seal	B68-10417	05
ARG-10014	B67-10400	05	M-FS-18416		
Metal tube reducer is inexpensive and simple to operate			Tube joint leak repair coupling	B68-10540	05
ARG-49	B67-10401	05	MSC-15022		
Improved sample capsule for determination of oxygen in hemolyzed blood			Weld preparation tool for pipes and tubing	B68-10551	05
MSC-11017	B67-10408	04	KSC-09955		
Fluid behavioral patterns found in subscale geysering study			Insertion device for pressure testing	B69-10061	03
M-FS-13582	B67-10462	02	MSC-15185		
Aluminum and stainless steel tubes joined by simple ring and welding process			Surface irregularities detected by flare inspection instrument	B69-10152	01
M-FS-13120	B67-10472	05	M-FS-20157		
Study made of thin-walled pipe response to turbulent fluids			Improved liquid-level sensor for cryogenics	B69-10210	02
M-FS-1321	B67-10518	05	ARG-10162		
Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area			J-beveling of pipe ends with a hand-held tool	B69-10229	05
NUC-10007	B67-10538	01	KSC-10356		
Plastic shoe facilitates ultrasonic inspection of thin wall metal tubing			Tool simplifies machining of pipe ends for precision welding	B69-10231	05
NUC-10010	B67-10542	02	KSC-10361		
Study made of heat transfer and pressure drop through tubes with internal interrupted fins			Thermal radiation shields for piping in vacuum environments	B69-10262	03
LEWIS-10280	B67-10555	05	LEWIS-10899		
Lamb waves increase sensitivity in nondestructive testing			Technique for anchoring fasteners to honeycomb panels	B69-10265	03
ARG-10009	B67-10605	02	LEWIS-10888		
Thoriated tungsten tube provides improved high temperature thermocouple sheath			Repair of weld defects in thin-walled stainless steel tubes	B69-10305	05
NUC-10145	B67-10627	03	M-FS-16293		
Flow tube used to cool solar-pumped laser			Remote control thermal actuator	B69-10307	01
MSC-11026	B68-10010	02	LEWIS-10873		
			A mechanically extendible boom	B69-10328	05
			NPO-11118		
			Restricted-flow junction between liquids	B69-10332	02
			NPO-10682		
			Removal of retaining washers of the waffle-spring type	B69-10350	05
			MSC-15531		

PIPETTES

SUBJECT INDEX

High-temperature, gas-filled ceramic rectifiers, thyratrons, and voltage-reference tubes LEWIS-90271	B69-10376	01	Device disconnects several couplings simultaneously JPL-226	B65-10163	05
Tool repairs tube components in situ MSC-15348	B69-10379	05	Inexpensive check valve is installed in standard AN fittings JPL-2A	B65-10222	05
Magnetic forming of resistive materials M-FS-20417	B69-10397	03	Shock absorber operates over wide range MSC-168	B65-10241	05
Pneumatic flow comparator M-FS-18373	B69-10400	05	Respiratory transfer valve has fail-safe feature ARC-1	B65-10369	01
Nondestructive testing of welds on thin-walled tubing M-FS-18144	B69-10402	01	Tensile-strength apparatus applies high strain-rate loading with minimum shock JPL-28	B66-10063	05
Wall-thickness changes predicted in hollow-drawn tubing ARG-10425	B69-10428	02	Tool post modification allows easy turret lathe cutting-tool alignment M-FS-581	B66-10191	05
Improved nickel plating of Inconel X-750 M-FS-18604	B69-10463	05	Quick-closing valve is actuated by explosive discharge ARC-55	B66-10233	05
Device for obtaining separation of oxygen LANGLEY-11007	B69-10477	01	Labyrinth-type valve seat increases valve life by decreasing fluid velocity M-FS-1051	B66-10424	05
Freon, T-B1 cutting fluid MSC-11486	B69-10485	05	Device accurately measures and records low gas-flow rates M-FS-1077	B66-10569	01
Heat-shrinkable jacket holds fluid in contact with tensile test specimen MSC-13195	B69-10495	05	Positive displacement cylinder measures corrosive liquid volume MSC-1038	B66-10589	05
Boron fiber-reinforced aluminum alloy tubing /experimental/ MSC-15633	B69-10509	05	Design concept for pressure switch calibrator HQ-36	B66-10598	01
Flared-tube fittings with replaceable seat inserts MSC-15372	B69-10519	05	Friction brake cushions acceleration and vibration loads MSC-715	B66-10608	05
Device separates hydrogen from solution in water at ambient temperatures MSC-13335	B69-10635	03	Check valve installation in pilot operated relief valve prevents reverse pressurization M-FS-1925	B66-10655	05
Sealed container sampling device GSFC-10690	B69-10682	03	Negative feedback system reduces pump oscillations M-FS-1852	B67-10064	05
Flow direction measurement with fixed probes LEWIS-11044	B69-10714	02	Device enables calibration of microphones at high sound pressure levels M-FS-11980	B67-10336	01
PIPETTES			Metal tube reducer is inexpensive and simple to operate ARG-49	B67-10401	05
Mouthpiece adapter for pipettes protects mouth from harmful liquids LANGLEY-47	B65-10043	03	Fluorocarbon seal replaces metal piston ring in low density gas environment LEWIS-10277	B67-10591	05
Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination ARG-262	B67-10421	03	Pneumatic pressure wave generator provides economical, simple testing of pressure transducers NUC-10024	B67-10664	05
PIRANI GAGES			Conceptual dead weight device to provide pressure calibration M-FS-14672	B68-10264	01
Vapor pressure measured with inflatable plastic bag GSFC-281	B65-10136	03	Two-axis winch installer for heavy ducts in confined space M-FS-14254	B69-10062	05
PISTONS			Quick-acting backup tool for welding ducts M-FS-18404	B69-10396	05
Vented piston seal prevents fluid leakage between two chambers JPL-179	B63-10141	05	Calibratable solid-state pressure switch M-FS-20474	B69-10437	05
High-pressure regulating system prevents pressure surges JPL-231	B63-10170	05	Integral valve provides automatic relief and remote venting M-FS-12134	B69-10545	05
Device induces lungs to maintain known constant pressure MSC-50	B64-10108	04			
Nonresonant support facilitates vibration testing of structures M-FS-224	B65-10039	05			
Improved fluid control valve extends diaphragm life JPL-345	B65-10147	05			

SUBJECT INDEX

PLANETARY ATMOSPHERES

Liquid-metal-piston MHD generator ARG-10500	B69-10771	02	Automatic leveling and equalizing hoist device M-FS-16549	B69-10514	05
PITCH A positive taper traveling-wave tube LANGLEY-10263	B69-10407	01	Hermetically sealed vibration damper MSC-10959	B69-10634	05
Pocket-sized tone-modulated FM transmitter NPO-11180	B69-10725	01	Precisely repeatable rotary mechanism NPO-10679	B69-10696	05
PITCH (INCLINATION) Knob linkage permits one-hand control of several operations MSC-30	B65-10022	05	PL/1 LABCON - Laboratory Job Control program M-FS-18141	B69-10106	06
Spiral heater coils hand-formed with fixture LEWIS-208	B65-10192	05	PLANAR STRUCTURES Vapor grown silicon dioxide improves transistor base-collector junctions GSPC-389	B66-10091	01
Developmental instrument supplies accurate attitude and attitude-rate data HQ-57	B66-10607	01	Work platform is supported by self-locking blades M-FS-2297	B67-10180	05
Three-axis attitude and direction reference instrument has only one moving part M-FS-1819	B66-10644	01	Study made of large amplitude fuel sloshing M-FS-12381	B67-10439	03
PITCHING MOMENTS Air-cushion lift pad M-FS-14685	B69-10448	05	Blood pressure reprogramming adapter assists signal recording MSC-265	B67-10475	01
PITOT TUBES Probe measures characteristics of hot gas stream M-FS-240	B65-10133	02	Program computes zero lift wave drag of entire aircraft LANGLEY-10079	B67-10530	06
Noise study of single stage compressor rotor-stator interaction LANGLEY-137	B67-10516	02	Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01
A mass flux probe for measurement in a supersonic stream LEWIS-10695	B68-10533	02	Multichannel analyzers at high rates of input ARG-10355	B69-10214	02
PITTING Chemical milling solution produces smooth surface finish on aluminum MSC-549	B66-10312	03	Improved method of fabricating planar gallium arsenide diodes XNP-04235	B69-10271	01
PIVOTS Setting of angles on machine tools speeded by magnetic protractor ARC-5	B63-10006	01	Resonant microwave dichroic surface GSPC-10658	B69-10274	01
Electrical probe ensures reliable contact in socket M-FS-315	B65-10215	01	Improved circularly polarized planar-array antenna NPO-10301	B69-10382	01
Scoop attachment makes helicopter recoveries easier and safer MSC-130	B65-10229	05	Quick-release hook-and-loop fastener MSC-10950	B69-10388	05
Fatigue tester achieves true axial motion through flex plates and bars NU-0021	B66-10164	01	Aerodynamic forces of fluttering cylindrical and/or planar structures M-FS-20497	B69-10781	02
Cylindrical claw clamp has quick release feature M-FS-513	B66-10213	05	PLANCKS CONSTANT A radiometer-pyrometer LEWIS-284	B66-10606	01
Universal transloader moves delicate equipment without stress MSC-654	B66-10384	05	Surface temperature mapping with infrared photographic pyrometry LEWIS-10763	B69-10113	01
Spherical joint connects axially misaligned flanges M-FS-2238	B67-10273	05	PLANE WAVES Concept for using laser beams to measure electron density in plasmas M-FS-965	B66-10645	01
Rugged switch responds to minute pressure differentials M-FS-12704	B67-10389	01	Improved ferrous shielding for flat cables M-FS-14524	B69-10401	01
Swing arm carrier protects flexible lines during test item rotation MSC-11464	B68-10037	05	Experimental design for research on shock-turbulence interaction M-FS-20031	B69-10604	02
Electronic visualization of gas bearing behavior LEWIS-10711	B69-10073	01	PLANETARIUMS Analog solar system model relates celestial bodies spatially JPL-195	B66-10413	01
			PLANETARY ATMOSPHERES High intensity radiation heat source is		

PLANETARY COMPOSITION

SUBJECT INDEX

capable of sustained operation ARC-61	B66-10547	02	electron density in plasmas M-FS-965	B66-10645	01
PLANETARY COMPOSITION Study made of far infrared spectra of silicate minerals M-FS-1811	B67-10075	02	PLASMA DENSITY Microwave technique measures plasma characteristics LANGLEY-134	B65-10122	02
PLANETARY ENVIRONMENTS Experiments to investigate particulate materials in reduced gravity fields M-FS-13308	B67-10394	02	Spherical ion source XNP-08898	B69-10186	01
PLANETARY QUARANTINE SPAN C - Terminal sterilization process analysis program NPO-10805	B69-10039	06	Method for determining properties of microinstabilities of a magnetized plasma HQ-10447	B69-10462	02
SPAN - Terminal sterilization process analysis program NPO-10804	B69-10104	06	PLASMA DIODES Thermionic diode switching has high temperature application NPO-10404	B67-10672	01
PLANETARY SURFACES Combination ranging system and mapping radar NPO-11001	B69-10325	01	PLASMA ELECTRODES Plasma jet electrode has longer operating life NU-0098	B67-10024	02
PLANETS Analog solar system model relates celestial bodies spatially JPL-195	B66-10413	01	PLASMA GENERATORS Plasma jet electrode has longer operating life NU-0098	B67-10024	02
PLANFORMS Modified Multhopp mean camber computer program LANGLEY-10376	B68-10446	06	Studies of cycles for liquid-metal magnetohydrodynamic generation of power ARG-10250	B69-10194	02
PLANOTBOWS Titanium diaphragm makes excellent amplitron cathode support GSFC-394	B65-10298	01	PLASMA GUNS Fast-acting calorimeter measures heat output of plasma gun accelerator LEWIS-388	B67-10192	01
Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01	PLASMA HEATING Plasma-heating by induction LEWIS-10528	B69-10185	02
PLANTS (BOTANY) Plant respirometer enables high resolution of oxygen consumption rates HQ-47	B66-10406	04	PLASMA JETS Carbon arc ignition improved by simple auxiliary circuit MSC-103	B65-10018	01
Cytology is advanced by studying effects of deuterium environment ARG-205	B67-10304	04	Pulsed plasma accelerator operates repetitively without complex controls LANGLEY-48	B65-10062	01
Airborne Fraunhofer Line Discriminator MSC-13146	B69-10594	02	Protective coating withstands high temperature in oxidizing atmosphere M-FS-529	B66-10044	03
PLASMA ACCELERATION Gas-injection valve operates at high speed HQ-49	B66-10381	05	Suppressor plate eliminates undesired arcing during electron beam welding M-FS-1126	B66-10357	05
PLASMA ACCELERATORS Pulsed plasma accelerator operates repetitively without complex controls LANGLEY-48	B65-10062	01	Light-intensity modulator withstands high heat fluxes MSC-246	B66-10532	02
Segmented electrode increases operating pressure of MHD accelerator LANGLEY-95	B65-10356	02	Plasma jet electrode has longer operating life NU-0098	B67-10024	02
Large capacitor performs as a distributed parameter pulse line LEWIS-176	B66-10291	01	Sprayed shielding of plastic-encapsulated electronic modules M-FS-13570	B69-10607	01
Fast-acting calorimeter measures heat output of plasma gun accelerator LEWIS-388	B67-10192	01	PLASMA SHEATHS Plasma-heating by induction LEWIS-10528	B69-10185	02
Movable RF probe eliminates need for calibration in plasma accelerators LEWIS-10127	B67-10362	01	PLASMA SPRAYING Multilayer refractory nozzles produced by plasma-spray process WOO-318	B66-10611	05
Ferromagnetic core valve gives rapid action on minimum energy LEWIS-10135	B67-10623	05	Intergranular metal phase increases thermal shock resistance of ceramic coating M-FS-1862	B66-10651	03
PLASMA COMPOSITION Concept for using laser beams to measure			High temperature coatings for gas bearings LEWIS-10793	B69-10200	03

SUBJECT INDEX

PLASTICS

PLASMA TEMPERATURE

Microwave technique measures plasma characteristics
 LANGLEY-134 B65-10122 02

PLASMAS (PHYSICS)

Computer programs calculate potential and charge distributions in a plasma
 M-FS-871 B66-10553 01

Sensors measure surface ablation rate of reentry vehicle heat shield
 LANGLEY-287 B66-10592 01

Movable RF probe eliminates need for calibration in plasma accelerators
 LEWIS-10127 B67-10362 01

Potassium plasma cell facilitates thermionic energy conversion process
 ARG-10010 B67-10399 01

PLASTERS

Spray-on technique simplifies fabrication of complex thermal insulation blanket
 M-FS-497 B66-10053 03

Cork is used to make tooling patterns and molds
 MSC-425 B66-10328 01

PLASTIC COATINGS

Flexible magnetic planning boards are easily transported
 M-FS-340 B65-10219 05

Fogging technique used to coat magnesium with plastic
 LEWIS-10316 B67-10584 03

Sprayed shielding of plastic-encapsulated electronic modules
 M-FS-13570 B69-10607 01

PLASTIC DEFORMATION

New package for Belleville spring permits rate change, easy disassembly
 JPL-392 B63-10247 05

Plastic plus stainless-steel fibers make resilient, impermeable material
 WOO-246 B65-10374 03

Rubber-coated bellows improves vibration damping in vacuum lines
 LEWIS-273 B66-10187 02

Treatment increases stress-corrosion resistance of aluminum alloys
 M-FS-1840 B66-10595 05

Hydrodynamics of a new concept of primary containment by energy absorption
 ARG-10242 B69-10046 05

PLASTIC FLOW

Integral ribs formed in metal panels by cold-press extrusion
 M-FS-230 B65-10141 05

PLASTIC PROPERTIES

High strength, superplastic superalloy
 LEWIS-10805 B69-10293 03

PLASTIC TAPES

Calibrating ultrasonic test equipment for checking thin metal strip stock
 NUC-10009 B67-10127 01

Automated microorganism Sample Collection Module
 HQ-10421 B69-10223 04

Masking of aluminum surface against anodizing
 M-FS-12964 B69-10335 05

Helical recorder
 GSFC-10614 B69-10340 01

PLASTICIZERS

Mechanical properties of plastics predetermined by empirical method
 ARC-28 B64-10068 03

PLASTICS

Quick-hardening problems are eliminated with spray gun modification which mixes resin and accelerator liquids during application
 LANGLEY-6A B63-10318 03

Flexible honeycomb structure can bend to fit compound curves
 M-FS-13 B63-10385 05

Portable flooring protects finished surfaces, is easily moved
 M-FS-15 B63-10387 05

Variable-transparency wall regulates temperatures of structures
 LANGLEY-25 B63-10528 03

Connector for thermocouple leads saves costly wire, makes reliable connectors
 LANGLEY-26 B63-10529 01

A technique for making animal restraints
 ARC-25 B63-10564 05

Plastic molds reduce cost of encapsulating electric cable connectors
 M-FS-69 B63-10568 05

Front and back printed circuit layouts presented on single sheet
 GSFC-93 B63-10596 01

Cryogenic waveguide window is sealed with plastic foam
 JPL-559 B63-10613 01

Modified RF coaxial connector ends vacuum chamber wiring problem
 GSFC-150 B64-10010 01

Mechanical properties of plastics predetermined by empirical method
 ARC-28 B64-10068 03

Plastic films for reflective surfaces reproduced from masters
 GSFC-188 B64-10151 03

Gas diffusion cell removes carbon dioxide from occupied airtight enclosures
 MSC-118 B64-10319 03

Polychart contour plotter enables data extrapolation from multiple plotting charts
 M-FS-37 B64-10406 05

Illuminated display panel is easily changed
 MSC-108 B65-10003 05

Helical coaxial-resonator makes excellent RF filter
 GSFC-243 B65-10012 01

Optical arrangement increases useful light output of semiconductor diodes
 JPL-SC-064 B65-10020 05

Seismic transducer measures small horizontal displacements
 M-FS-81 B65-10029 05

Improved holder protects crystal during high acceleration and impact
 JPL-463 B65-10037 05

Thermistor connector assembly increases accuracy of measurements
 LANGLEY-62 B65-10045 01

Spherical model provides visual aid for cubic crystal study
 LEWIS-108 B65-10065 03

PLASTICS CONT

SUBJECT INDEX

Simple scale interpolator facilitates reading of graphs LANGLEY-88	B65-10070	05	Flow ring valve is simple, quick-acting M-FS-752	B66-10255	05
Compact assembly generates plastic foam, inflates flotation bag LANGLEY-96	B65-10090	05	Electrically conductive fibers thermally isolate temperature sensor GSFC-456	B66-10349	01
Vapor pressure measured with inflatable plastic bag GSFC-281	B65-10136	03	Device serves as hinge and electrical connector for circuit boards M-FS-743	B66-10359	01
Epoxy-resin patterns speed shell-molding of aluminum parts M-FS-303	B65-10177	05	Alignment tool facilitates pin placement on irregular horizontal surfaces LANGLEY-219	B66-10410	05
Inexpensive electrical connector is moisture and corrosion-proof MSC-164	B65-10196	01	Plastic tubing protects flexible copper hose M-FS-772	B66-10588	05
Hollow plastic hoops protect thermocouple in storage and handling NU-0023	B65-10256	05	Thin plastic sheet eliminates need for expensive plating M-FS-1896	B66-10681	03
Organic reactants rapidly produce plastic foam LANGLEY-37	B65-10288	03	Thermocouple-flexible cable connector insulator is highly reliable NU-0082	B66-10709	01
Removable well in reaction flask facilitates carbon dioxide collection ARC-47	B65-10316	03	Dispersion of borax in plastic is excellent fire-retardant heat insulator ARG-5	B67-10016	03
Inert-gas welding and brazing enclosure fabricated from sheet plastic LEWIS-220	B65-10338	05	Static electricity of polymers reduced by treatment with iodine NFO-10062	B67-10132	03
Improved poppet valve provides positive damageproof seal M-FS-293	B65-10346	05	Cryogenic seal remains leaktight during thermal displacement ARG-96	B67-10134	02
Fastener distributes stress evenly from sandwich-panel-hung items MSC-236	B65-10358	05	Improved compression molding process LANGLEY-10027	B67-10302	03
Flexible plastic ring assembly makes durable shaft seal WOO-227	B65-10367	05	Pocket-size manual tape reader device aids computer tape checking KSC-10058	B67-10361	01
Respiratory transfer valve has fail-safe feature ARC-1	B65-10369	01	Machining heavy plastic sections M-FS-12720	B67-10381	03
Plastic plus stainless-steel fibers make resilient, impermeable material WOO-246	B65-10374	03	Polarized light reveals stress in machined laminated plastics LEWIS-10018	B67-10383	03
Device detects unbonded areas in plastic laminates WOO-206	B65-10380	01	Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01
Drill bit design assures clean holes in laminated materials WOO-098	B65-10386	05	Adhesives for laminating polyimide insulated flat conductor cable M-FS-12066	B67-10429	03
Shrinkable sleeve eliminates shielding gap in RF cable WOO-207	B65-10387	01	Warpage eliminated in copper-clad microwave circuit laminates M-FS-13892	B67-10454	03
Bench vise adapter grips tubing securely and safely MSC-279	B66-10056	05	Plastic shoe facilitates ultrasonic inspection of thin wall metal tubing NUC-10010	B67-10542	02
Plastic scintillator converts standard photomultiplier to ultraviolet range ERC-9	B66-10108	02	Epoxy resins produce improved plastic scintillators ARG-241	B67-10596	03
Rotating mandrel speeds assembly of plastic inflatables LANGLEY-155	B66-10137	05	Dynamic captive plastic seal M-FS-12988	B67-10600	03
Corrosion of metal samples rapidly measured NU-0041	B66-10140	03	Connector shorting cap provides pin alignment, inspection, and stray voltage protection M-FS-13111	B67-10635	01
Silazane polymers show promise for high-temperature application M-FS-466	B66-10194	03	Heat-shrink plastic tubing seals joints in glass tubing LEWIS-10329	B68-10040	05
Special tool seals conductors with combination of plastic sleeves M-FS-579	B66-10209	05	Plastic preforms facilitate fabrication of welded cordwood electronic modules LEWIS-90339	B68-10063	01
			Improved molding process ensures plastic		

SUBJECT INDEX

PLATING

parts of higher tensile strength
 LANGLEY-10033 B68-10132 05

X-ray film holder permits single
 continuous picture of tubing joint
 LEWIS-10382 B68-10343 05

Evaluation of a fluorocarbon plastic used
 in cryogenic valve seals
 M-FS-18189 B68-10523 03

Microwave interferometer controls cutting
 depth of plastics
 M-FS-14673 B69-10012 01

Refractory-metal compound impregnation of
 polytetrafluoroethylene
 LEWIS-10733 B69-10072 03

Finite element analysis of compressible
 solids with nonlinear material properties
 MUC-10342 B69-10238 06

Hermetically sealed pump
 LEWIS-10837 B69-10320 05

Pressure transducer
 NPO-10853 B69-10364 01

Generation of sonic power during welding
 M-FS-20339 B69-10404 05

Freon, T-B1 cutting fluid
 MSC-11486 B69-10485 05

Heat-shrinkable jacket holds fluid in
 contact with tensile test specimen
 MSC-13195 B69-10495 05

Flared-tube fittings with replaceable seat
 inserts
 MSC-15372 B69-10519 05

Two-functional seal for hose connection
 M-FS-14062 B69-10588 05

Photomicrometry
 M-FS-14556 B69-10736 01

PLASTISOLS
 Electronic dummy for acoustical testing
 MSC-206 B67-10298 01

Compressible sleeve provides automatic
 centering for grinding or turning of
 cylinders
 SAN-10021 B68-10318 05

PLATEMS
 Gas pressure feeds film into camera at high
 speed
 ARG-97 B66-10474 02

A method for observing gas evolution during
 plastic laminate cure
 MSC-15592 B69-10530 03

PLATES
 Forming blocks speed production of strain gage
 grids
 LEWIS-182 B65-10009 05

Fastener provides cooling and compensates for
 thermal expansion
 NU-0003 B65-10038 05

Splice plate design assures structural
 separation by mild explosive
 MSC-137 B65-10166 05

PLATES (STRUCTURAL MEMBERS)
 Device transmits rotary motion through
 hermetically sealed wall
 JPL-303 B63-10198 05

Improved sensor counts micrometeoroid
 penetrations
 LEWIS-76 B63-10443 01

Fine-mesh screen made by simplified method
 WOO-104 B64-10282 03

Splice plate design assures structural
 separation by mild explosive
 MSC-137 B65-10166 05

Modular thermoelectric cell is easily packaged
 in various arrays
 GSFC-339 B65-10199 01

Fatigue tester achieves true axial motion
 through flex plates and bars
 NU-0021 B66-10164 01

Teflon sheet permits valve and valve
 operator to move as a single unit in a
 cryogenic pipe line
 NU-0077 B66-10702 05

Machine tests slow-speed sliding friction in
 high vacuum
 M-FS-12341 B67-10379 05

Improved sample capsule for determination
 of oxygen in hemolyzed blood
 MSC-11017 B67-10408 04

Infrared radiometer
 M-FS-13373 B67-10422 01

Weld joint strength and mechanical properties
 in 2219-T81 aluminum alloy
 LEWIS-10479 B68-10561 03

Detecting hydrogen-containing contaminants
 on metal surfaces
 M-FS-20456 B69-10192 03

Technique for anchoring fasteners to
 honeycomb panels
 LEWIS-10888 B69-10265 03

Modified cryogenic storage tank subsystem
 KSC-10380 B69-10556 02

PLATFORMS
 Apparatus measures very small thrusts
 WOO-048 B64-10284 05

Interior servicing platform simplifies
 maintenance of storage tanks
 M-FS-1300 B66-10425 05

Work platform is supported by self-locking
 blades
 M-FS-2297 B67-10180 05

Space-saving hoist for tank manholes
 M-FS-16508 B69-10180 05

PLATING
 Adherent protective coatings plated on
 magnesium-lithium alloy
 M-FS-365 B65-10294 03

Plated nickel wire mesh makes superior
 catalyst bed
 MSC-216 B65-10321 03

Differential expansion provides pressure for
 diffusion bonding of large diameter rings
 M-FS-588 B66-10269 05

Improved memory word line configuration
 allows high storage density
 GSFC-559 B66-10617 01

Thin plastic sheet eliminates need for
 expensive plating
 M-FS-1896 B66-10681 03

Complex surfaces plated by thin-film
 deposition in one operation
 LEWIS-292 B67-10006 05

Undercoat prevents blistering of silver
 plating at elevated temperatures
 M-FS-2049 B67-10096 05

PLATINUM

SUBJECT INDEX

Environmental study of miniature slip rings M-FS-2443	B67-10210	05	catheter ARC-10054	B67-10669	01
High-strength braze joints between copper and steel M-FS-2519	B67-10211	05	Method of maintaining activity of hydrogen-sensing platinum electrode M-FS-1422	B68-10049	03
Welding, bonding, and sealing of refractory metals by vapor deposition LEWIS-123	B67-10232	03	Viscosity and density of methanol/water mixtures at low temperatures M-FS-14991	B68-10274	03
Steel test panel helps control additives in pyrophosphate copper plating LEWIS-10101	B67-10358	05	Optimetric system facilitates colorimetric and fluorometric measurements NPO-10233	B68-10316	01
Lead plated aluminum ring provides static high pressure seal for large diameter pressure vessel NUC-10008	B67-10539	05	Improved radiographic image amplifier panel M-FS-14522	B68-10363	02
Ion plating technique improves thin film deposition SAN-10006	B68-10212	03	Millivolt signal limiter LEWIS-90297	B69-10015	01
Method for copper staining of germanium crystals ARG-10403	B69-10257	03	Reducing contact resistance at semiconductor to metal or aluminum to metal interfaces ERC-10254	B69-10689	01
Improved vacuum deposition apparatus NPO-11009	B69-10365	02	PLATINUM ALLOYS Measurements of thermoelectric power in annealed and quenched gold-platinum alloys ARG-10303	B69-10206	03
Pulsed high-voltage dc RF sputtering LEWIS-10920	B69-10699	01	PLATINUM BLACK Blackbody cavity radiometer has rapid response JPL-521	B66-10679	01
PLATINUM New sintering process adjusts magnetic value of ferrite cores GSFC-129	B63-10606	01	Improved inorganic ion exchange membranes LEWIS-10737	B69-10451	03
Titanium diaphragm makes excellent amplitron cathode support GSFC-394	B65-10298	01	PLATINUM ISOTOPES Sensing disks for slug-type calorimeters have higher temperature stability M-FS-1867	B67-10161	01
Process reduces pore diameters to produce superior filters WOO-093	B66-10037	03	PLAYBACKS Electronic phase-locked-loop speed control system is stable JPL-SC-084	B66-10232	01
Thin-film gage measures low heat-transfer rates LANGLEY 205	B66-10180	01	Recording and time expansion technique for high-speed, single-shot transient video signal ARC-10003	B67-10139	01
Subminiaturized gas chromatograph gives fast, efficient analysis JPL-735	B66-10182	01	Scan rate converter for tape recording and playback of TV pictures NPO-10166	B67-10676	01
Standards for electron probe microanalysis of silicates prepared by convenient method GSFC-469	B66-10234	03	PLENUM CHAMBERS Pneumatic power is transmitted through air bearing MSC-8	B64-10141	05
Device removes hydrogen gas from enclosed spaces GSFC-495	B66-10340	03	Averaging probe reduces static-pressure sensing errors LANGLEY-36	B65-10114	05
Hollow spherical rotors fabricated by electroplating JPL-SC-117	B66-10366	05	Liquid laser cavities GSFC-10592	B69-10234	02
Submicron holes in thin films increase sampling range of mass spectrometers JPL-SC-097	B66-10380	03	High pressure real gas effects for helium and nitrogen LEWIS-10819	B69-10669	06
Resistance thermometer has linear resistance-temperature coefficient at low temperatures WOO-190	B66-10612	01	PLOTTERS Veitch diagram plotter simplifies Boolean functions JPL-385	B63-10241	05
Substituting gold for silver improves electrical connections M-FS-2390	B67-10228	03	Polychart contour plotter enables data extrapolation from multiple plotting charts M-FS-37	B64-10406	05
High-temperature /1100 degrees F/ capacitors operate without supplement cooling LEWIS-10324	B67-10550	01	Simple scale interpolator facilitates reading of graphs LEWIS-92	B66-10302	05
Improved cavity-type absolute total-radiation radiometer JPL-807	B67-10557	01	Instrument calculates moments of inertia of complex plane figures MSC-628	B66-10306	01
Ultraminiature manometer-tipped cardiac					

SUBJECT INDEX

PLUGS

Recording and time expansion technique for high-speed, single-shot transient video signal ARC-10003	B67-10139	01	HQ-10018	B67-10662	01
Plotter design simplifies determination of image sensor transfer characteristic NPO-10164	B67-10206	01	Experimental prediction of performance by superconducting cables ARG-10215	B69-10161	01
Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter NUC-10044	B67-10222	06	Determination of permissible applied load stress in structural elements M-FS-16556	B69-10823	02
Rectilinear display gives acceleration load factor and velocity information MSC-1045	B67-10248	01	PLUGGING Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons LEWIS-263	B66-10104	03
Oscilloscope used as X-Y plotter or two-dimensional analyzer LEWIS-311	B67-10269	01	PLUGS Design of valve permits sealing even if the stem is misaligned LEWIS-38	B63-10341	05
Computer program utilizes FORTRAN 4 subroutines for contour plotting NPO-10127	B67-10323	06	Two-part valve acts as quick coupling JPL-478	B64-10223	05
X-Y plotter adapter developed for SDS-930 computer NPO-10220	B67-10654	06	Keyed plugs and sockets prevent improper connections MSC-231	B65-10381	01
FORTRAN optical lens design program NPO-10603	B68-10354	06	Electron beam seals outer surfaces of porous bodies M-FS-562	B66-10033	03
Calibration standard for dynamic evaluation of a profile-plotter M-FS-16476	B69-10458	05	Plugged hollow shaft makes fatigue-resistant shear pin LANGLEY-195	B66-10077	05
PLOTTING Contact stresses calculated for miniature slip rings M-FS-280	B65-10098	05	Aluminum oxide filler prevents obstructions in tubing during welding MSC-222	B66-10125	05
Variable load automatically tests dc power supplies GSFC-291	B65-10105	01	Split glass tube assures quality in electron beam brazing M-FS-564	B66-10151	05
Computer routine adds plotting capabilities to existing programs GSFC-490	B66-10511	01	Soft-seal valve holds hazardous fluids safely LEWIS-275	B66-10216	05
Computer program performs statistical analysis for random processes M-FS-723	B66-10525	01	Expandable rubber plug seals openings for pressure testing NU-0048	B66-10229	05
Alpha particle backscattering measurements used for chemical analysis of surfaces ARG-116	B67-10186	03	Quick-closing valve is actuated by explosive discharge ARC-55	B66-10233	05
Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter NUC-10044	B67-10222	06	Shock-operated valve would automatically protect fluid systems M-FS-801	B66-10335	03
Computer program calculates steady-state temperature distribution within plane or axisymmetric solids NUC-10049	B67-10224	06	Concept for passive system to control gas flow independently of temperature M-FS-982	B66-10343	05
Computer program samples digital data for CRT display MSC-999	B67-10249	01	Diaphragm valve for corrosive and high temperature fluid flow control has unique features LEWIS-304	B66-10365	05
Computer programs for antenna feed system design and analysis NPO-10359	B67-10504	06	Plug replaces weld filler as seal in complex casting NU-0049	B66-10489	05
SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield NUC-10142	B67-10537	06	Study made to control depth of potting compound for honeycomb sandwich fasteners LEWIS-370	B66-10677	05
Analytical drafting curves provide exact equations for plotted data LANGLEY-285	B67-10601	02	Hand-operated plug insertion valve M-FS-12019	B67-10466	05
Compilation of detection sensitivities in thermal-neutron activation ARG-10068	B67-10641	03	Remotely installed pipe plug provides effective seal in hazardous environment NUC-10303	B68-10053	05
Phase plane displays detect incipient failure in servo system testing			X-ray film holder permits single continuous picture of tubing joint LEWIS-10382	B68-10343	05
			Fluid sample collection and storage device MSC-10962	B69-10816	05

PLUMES

SUBJECT INDEX

PLUMES

Predicting surface heating rates and pressures resulting from hot exhaust gases
MSC-971 B66-10633 05

Computer program uses characteristics method for free-jet investigation
LANGLEY-10117 B67-10490 06

Prediction of thermal radiation from a rocket's exhaust plume
M-FS-20414 B69-10371 02

PLUNGERS

One-shot valve may be remotely actuated
WOO-195 B65-10266 05

High-speed pulse camera
MSC-11353 B68-10329 02

Improved retort for cleaning metal powders with hydrogen
LEWIS-10718 B69-10468 03

Life detection
NPO-10510 B69-10475 04

PLUTONIUM

Neutron irradiation of Am-241 effectively produces curium
ARG-10030 B67-10501 03

Magnesium-zinc reduction is effective in preparation of metals
ARG-10050 B67-10579 03

Daughter growth in freshly separated Ra-226, Ac-227 and U-232
ARG-10226 B69-10003 02

Thick transducers used for generating short-duration stress pulses in thin specimens
ARG-10232 B69-10045 01

Gamma radiation characteristics of plutonium dioxide fuel
NPO-11220 B69-10733 02

PLUTONIUM COMPOUNDS

Sintering characteristics and properties of PuS and PuP are determined
ARG-10228 B69-10058 03

PLUTONIUM ISOTOPES

Transplutonium elements processed from rock debris of underground detonations
ARG-10222 B69-10054 03

PLUTONIUM 239

Transplutonium elements processed from rock debris of underground detonations
ARG-10222 B69-10054 03

PLYWOOD

Argon purge gas cooled by chill box
M-FS-560 B66-10153 02

PNEUMATIC CIRCUITS

Pneumatic analog-to-pulse frequency converter
LEWIS-10345 B69-10276 02

PNEUMATIC CONTROL

Electropneumatic transducer automatically limits motor current
LEWIS-253 B66-10160 01

Pneumatic shutoff and time-delay valve operates at controlled rate
M-FS-602 B66-10189 05

Pneumatic binary encoder replaces multiple solenoid system
M-FS-665 B66-10374 01

Miniature valve accurately controls small volume fluid flow
ARG-66 B66-10473 05

Multidimensional Reaction Kinetic Ablation Program /BEKAP/
MSC-143 B66-10495 05

Hydraulically controlled flexible arm can bend in any direction
KSC-66-20 B66-10626 05

Actuator device schedules rate of valve closure
M-FS-1556 B66-10686 05

Lock-disconnect mechanism gives positive release to joined bodies
M-FS-2147 B67-10123 05

Resilient bearing supports are gas controlled
LEWIS-10109 B67-10364 05

Fire extinguisher control system provides reliable cold weather operation
M-FS-13031 B67-10622 05

PNEUMATIC EQUIPMENT

Pneumatic power is transmitted through air bearing
MSC-8 B64-10141 05

Electropneumatic rheostat regulates high current
ARC-44 B65-10299 01

Economical and maintenance-free gas system operates railroad switches
NU-0045 B66-10124 05

Critical parts are stored and shipped in environmentally controlled reusable container
M-FS-703 B66-10258 05

Pneumatic separator gives quick release to heavy loads
KSC-66-10 B66-10294 05

Automatic protective vent has fail-safe feature
LANGLEY-218 B66-10369 05

Fluid logic control circuit operates nutator actuator motor
LEWIS-294 B66-10593 05

Pneumatic wrench retains or discharges nuts or bolts as desired
NU-0085 B66-10707 05

Orbital tube flaring system produces tubing connectors with zero leakage
M-FS-2016 B67-10019 05

Single wrench separates nuts from free-floating bolts
NUC-10013 B67-10158 05

Single-source mechanical loading system produces biaxial stresses in cylinders
M-FS-12530 B67-10380 05

Study made of pneumatic high pressure piping materials /10,000 psi/
KSC-10133 B67-10437 03

Analysis of dynamic systems with DAP4H computer program
M-FS-13999 B67-10523 06

Air sampler collects and protects minute particles
HQ-10037 B67-10661 01

Reconnect mechanism
M-FS-12968 B67-10670 05

Pneumatic raft automatically reforms after rupture of buoyant member
MSC-11562 B68-10011 05

High- and low-pressure pneumotachometers

SUBJECT INDEX

POLARIZATION

measure respiration rates accurately in adverse environments FRC-10012	B68-10188	01	GSFC-486	B66-10622	01
Portable, high intensity isotopic neutron source provides increased experimental accuracy ARG-90250	B68-10243	02	POINT TO POINT COMMUNICATIONS Omnidirectional antennas transmit and receive over large bandwidth GSFC-436	B66-10133	01
Indium adhesion provides quantitative measure of surface cleanliness SAN-10024	B68-10342	01	POINTS (MATHEMATICS) The X square statistic and goodness of fit test GSFC-10547	B68-10136	02
Fluidic-thermochromic display device ERC-10031	B68-10350	01	POISONING Product identification techniques used as training aids for analytical chemists SAN-10025	B68-10373	03
Two-axis winch installer for heavy ducts in confined space M-FS-14254	B69-10062	05	POISONING (REACTION INHIBITION) Gas chromatograph injection port protective device M-FS-18585	B69-10788	03
Pneumatic analog-to-pulse frequency converter LEWIS-10345	B69-10276	02	POISSON DENSITY FUNCTIONS Improved design of item in high speed rotating machinery M-FS-18441	B69-10373	05
Two-step rocket engine bipropellant valve concept MSC-10951	B69-10280	05	POISSON EQUATION Design and sparring techniques to meet specified performance life HQ-10200	B69-10528	02
Stress-testing of the throat of a rocket's nozzle NFO-10311	B69-10358	05	POISSON RATIO Contact stresses calculated for miniature slip rings M-FS-280	B65-10098	05
Quick-acting backup tool for welding ducts M-FS-18404	B69-10396	05	Computer program for determination of natural frequencies of closed spherical sandwich shells MSC-1246	B67-10279	06
Pneumatic flow comparator M-FS-18373	B69-10400	05	An ultrasonic method for studying elastic moduli as a function of temperature ARG-10187	B69-10082	02
Improved solenoid valve design GSFC-10607	B69-10704	05	Damping of thermoelastic structures M-FS-20002	B69-10467	02
PNEUMATICS Pneumatic pressure wave generator provides economical, simple testing of pressure transducers NUC-10024	B67-10664	05	POLAR COORDINATES Radiation-detector optical-imaging device is of simplified construction GSFC-251	B64-10299	01
Diffusion of trace gases for leak detection - A study M-FS-20254	B69-10067	03	A polar graphic method for determining the attitude of rocket vehicles GSFC-10860	B69-10591	02
Automatic filter-blowback systems used with sintered-metal filters ARG-10324	B69-10342	05	POLARIMETERS Polarimeter provides transient response in nanosecond range JPL-890	B67-10021	02
Hydraulic calipers M-FS-18052	B69-10399	05	POLARITY Circuit switches latching relay in response to signals of different polarity WOO-055	B63-10508	01
PNEUMOGRAPHY Electronic device simulates respiration rate and depth MSC-89	B64-10255	01	Threshold detector produces narrow pulses at high repetition rates GSFC-383	B65-10310	01
Pneumotachometer counts respiration rate of human subject MSC-92	B64-10259	01	Simple, nondestructive test identifies metals MSC-525	B66-10305	03
Gelatin coated electrodes allow prolonged bioelectronic measurements MSC-153	B66-10088	01	Shaft encoder presents digital output JPL-SC-191	B66-10436	01
PODS (EXTERNAL STORES) Program computes zero lift wave drag of entire aircraft LANGLEY-10079	B67-10530	06	Positive and negative output circuits LEWIS-10715	B69-10151	01
POIKILOthermia Investigation of temperature dependence of development and aging ARG-10145	B69-10022	04	Magnetic field mapper LEWIS-10782	B69-10476	01
POINT DEFECTS Resistivity measurements of neutron-irradiated pure metals and Al-Zn alloys ARG-10108	B68-10200	03	POLARIZATION Magnetic field controls carbon arc tail flame MSC-139	B65-10108	01
POINT SOURCES Point-source detection system rejects spatially extended radiation sources			Isotopically pure magnesium isotope-24 is		

POLARIZATION (CHARGE SEPARATION)

SUBJECT INDEX

prepared from magnesium-24 oxide ARG-10154	B68-10293	02	M-FS-14854	B69-10060	02
POLARIZATION (CHARGE SEPARATION)			POLARIZED RADIATION		
Polarizing keys prevent mismatch of connector plugs and receptacles MSC-443	B66-10251	01	Improved circularly polarized planar-array antenna NPO-10301	B69-10382	01
Electrochemical study of aluminum corrosion in boiling high purity water ARG-10306	B69-10033	03	A sterilizable high-impact antenna NPO-10231	B69-10697	01
High-power microwave power divider concept NPO-11031	B69-10290	01	POLARIZERS		
Storage of electric and magnetic energy in passive nonreciprocal networks ARG-10360	B69-10630	01	Servo system facilitates photoelastic strain measurements on resins JPL-504	B64-10280	01
POLARIZATION (WAVES)			Nulling pyrometer uses Kerr cell shutter for fast responses NU-0010	B65-10050	01
Wideband, high efficiency optical modulator requires less than 10 watts drive power M-FS-12733	B67-10289	01	Rapid-response, light-exposure control system NPO-10238	B68-10502	01
Range recording technique enables four-way polarization measurements M-FS-12447	B67-10460	01	POLAROGRAPHY		
Electro-optic modulator for infrared laser using gallium arsenide crystal GSFC-10686	B68-10255	02	New electrolyte may increase life of polarographic oxygen sensors MSC-1049	B67-10003	03
Energy-storage of a prescribed impedance NPO-10303	B69-10380	01	Coordination chemistry in fused-salt solutions ARG-10469	B69-10423	03
Instrumentation for potentiostatic corrosion studies with distilled water ARG-10409	B69-10413	03	Rate of heat extraction controller for environmental control HQ-10318	B69-10516	01
Proposed acousto-optic filter HQ-10440	B69-10466	02	POLES		
Rotary antenna attenuator NPO-10648	B69-10502	01	Threading hook facilitates safe recovery of heavy loads MSC-46	B64-10185	05
POLARIZATION CHARACTERISTICS			POLISHING		
Meter accurately measures flow of low-conductivity fluids JPL-0021	B63-10280	01	Ellipsoidal optical reflectors reproduced by electroforming GSFC-92	B63-10547	05
Antenna configurations provide polarization diversity GSFC-74	B66-10066	01	Portable tool cleans pipes and tubing MSC-238	B65-10375	05
A theoretical study of radar backscatter from distributed targets with emphasis on polarization dependence M-FS-13775	B69-10560	02	Seal surfaces protected during assembly NU-0067	B66-10266	05
POLARIZED LIGHT			Inspection of fine wires simplified by capillary tube wire holder MSC-358	B66-10329	01
Servo system facilitates photoelastic strain measurements on resins JPL-504	B64-10280	01	Study made of destructive sectioning of complex structures for examination LEWIS-341	B66-10676	05
Photosensitive filler minimizes internal stresses in epoxy resins M-FS-1880	B67-10227	03	Process sequence produces strong, lightweight reflectors of excellent quality LEWIS-331	B67-10010	05
Simplified technique demonstrates magnetic domain switching M-FS-13153	B67-10342	02	Chemical milling solution reveals stress corrosion cracks in titanium alloy LANGLEY-10077	B67-10322	03
Polarized light reveals stress in machined laminated plastics LEWIS-10018	B67-10383	03	Machining heavy plastic sections M-FS-12720	B67-10381	03
Aerial-image enables diagrams and animation to be inserted in motion pictures ARG-165	B67-10398	02	Silicon carbide diode for increased light output M-FS-20063	B69-10096	01
Synthesis of electro-optic modulators for amplitude modulation of light M-FS-14268	B68-10275	02	Basal-plane metallography of deformed pyrolytic carbon NPO-11196	B69-10488	03
Flow angle sensor and readout system LEWIS-90298	B69-10050	01	Automatic sample rotator for metallographic polishing NPO-11015	B69-10596	03
Optically exciting a magnetic memory - A feasibility study			POLLUTION		
			New method for critical failure prediction of complex systems M-FS-14133	B68-10252	02

SUBJECT INDEX

POLYETHYLENES

POLONIUM ISOTOPES

Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna
ARG-10345 B69-10258 02

POLYAMIDE RESINS

Adhesive for vacuum environments resists shock and vibration
MSC-56 B65-10016 03

Aluminum alloys protected against stress-corrosion cracking
M-FS-235 B65-10172 03

Improved poppet valve provides positive damageproof seal
M-FS-293 B65-10346 05

Buoyant stokes litter assembly used for sea rescue operations
MSC-131 B66-10019 05

Nylon shock absorber prevents injury to parachute jumpers
MSC-226 B66-10080 05

Nylon bit removes cork insulation without damage to substrate
MSC-381 B66-10152 05

Self-inflating lifevest stores in small package
MSC-5A B66-10184 04

Improved adhesive for cryogenic applications cures at room temperature
WOO-132 B66-10185 03

Sea dye marker provides visibility for 20 hours
MSC-714 B66-10313 03

Phonocardiograph microphone is rugged and moistureproof
MSC-212 B66-10314 04

Impact and puncture resistant material protects parts from damage
MSC-747 B66-10375 05

Adhesive for polyester films cures at room temperature, has high initial tack
M-FS-938 B66-10487 03

Synthesis of various highly halogenated monomers and polymers
M-FS-2143 B67-10100 03

Primary cell uses neither liquid nor fused electrolytes
NPO-10001 B67-10275 01

Quick-release hook-and-loop fastener
MSC-10950 B69-10388 05

POLYBENZIMIDAZOLE

Polymer film exhibits thermal and radiation stability
LANGLEY-100 B66-10043 03

POLYBUTADIENE

New class of thermosetting plastics has improved strength, thermal and chemical stability
LEWIS-10108 B67-10197 03

POLYCARBONATES

One-piece transparent shell improves design of helmet assembly
MSC-187 B66-10390 05

Thermocouple-flexible cable connector insulator is highly reliable
NU-0082 B66-10709 01

Synthesis of various highly halogenated monomers and polymers
M-FS-2143 B67-10100 03

POLYCRYSTALS

Cuprous selenide and sulfide form improved photovoltaic barriers
WOO-212 B66-10025 01

Grain-boundary migration in KCl bicrystals
ARG-10181 B68-10455 03

Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons
ARG-10220 B69-10211 02

Preferred-orientation analysis of polycrystalline materials
NPO-10604 B69-10336 02

POLYESTER RESINS

Modified filter prevents conduction of microwave signals along high-voltage power supply leads
JPL-63 B63-10091 01

Improved variable-reluctance transducer measures transient pressures
LANGLEY-10 B63-10321 01

Adhesive for polyester films cures at room temperature, has high initial tack
M-FS-938 B66-10487 03

Dispersion of borax in plastic is excellent fire-retardant heat insulator
ARG-5 B67-10016 03

Multi-feed cone for Cassegrainian antenna
ARG-10025 B67-10484 03

Thermal protective visor for entering high temperature areas
MSC-10285 B68-10277 05

Improved primer for bonding polyurethane adhesives to metals
M-FS-90591 B69-10540 03

POLYESTERS

Irradiation improves properties of an aromatic polyester
LANGLEY-115 B65-10164 03

High-temperature bearing lubricants
LEWIS-10408 B68-10249 05

A concept for magazine Bimat processor
KSC-06786 B69-10275 02

Quick-release hook-and-loop fastener
MSC-10950 B69-10388 05

POLYETHER RESINS

Organic reactants rapidly produce plastic foam
LANGLEY-37 B65-10288 03

Synthesis of polyethers of hexafluorobenzene and hexafluoropentanediol
M-FS-14962 B69-10636 03

POLYETHYLENE TEREPHTHALATE

Modified filter prevents conduction of microwave signals along high-voltage power supply leads
JPL-63 B63-10091 01

POLYETHYLENES

Inert-gas welding and brazing enclosure fabricated from sheet plastic
LEWIS-220 B65-10338 05

Primary cells utilize halogen-organic charge transfer complex
JPL-926 B66-10682 02

Trace hydrazines in aqueous solutions accurately determined by gas chromatography
MSC-11222 B67-10290 03

Vibration damping composition has flush-away feature

POLYIMIDE RESINS

SUBJECT INDEX

M-FS-597	B67-10432	03	Cone and column solar energy concentrator LANGLEY-210	B67-10517	01
Rapid and precise analysis for calcium in blood serum ARG-10246	B69-10160	04	Thermal protective visor for entering high temperature areas MSC-10285	B68-10277	05
POLYIMIDE RESINS			Balloon batteries, charged and heated by solar energy GSFC-10769	B69-10585	01
New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118	03	POLYMERIZATION		
Precision mounting for instrument optical elements provided by polyimide bonding M-FS-20293	B69-10310	05	Low-cost seal compensates for surface irregularities NU-0016	B65-10160	05
Simple test indicates degree of cure of polyimide coatings MSC-15487	B69-10330	03	Storage-stable foamable polyurethane is activated by heat LANGLEY-187	B66-10111	03
High-pressure seals for rotary shafts M-FS-18548	B69-10649	05	Substituted silane-diol polymers have improved thermal stability M-FS-469	B66-10259	03
POLYIMIDES			Primary cells utilize halogen-organic charge transfer complex JPL-926	B66-10682	02
Polymer film exhibits thermal and radiation stability LANGLEY-100	B66-10043	03	Photosensitive filler minimizes internal stresses in epoxy resins M-FS-1880	B67-10227	03
Polytetrafluoroethylene lubricates ball bearings in vacuum environment M-FS-379	B66-10081	03	Synthesis of pure aromatic glycidyl esters for use as adhesives M-FS-12705	B67-10647	03
Synthesis of various highly halogenated monomers and polymers M-FS-2143	B67-10100	03	New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118	03
A method for observing gas evolution during plastic laminate cure MSC-15592	B69-10530	03	Heparin insolubilized with crosslinking agent NFO-10834	B69-10299	03
Design of multilayer insulation systems ARC-10166	B69-10615	05	Development of improved potting and conformal coating compounds M-FS-20219	B69-10559	03
POLYISOBUTYLENE			Production of crystalline polymers via liquid crystal monomers HQ-10235	B69-10744	03
Film coating permits low-force scribing MSC-990	B66-10609	03	POLYMERS		
POLYISOPRENES			Variable-transparency wall regulates temperatures of structures LANGLEY-25	B63-10528	03
New class of thermosetting plastics has improved strength, thermal and chemical stability LEWIS-10108	B67-10197	03	Metals plated on fluorocarbon polymers JPL-544	B63-10612	03
POLYMERIC FILMS			Encapsulation process sterilizes and preserves surgical instruments JPL-484	B64-10066	05
Plastic films for reflective surfaces reproduced from masters GSFC-188	B64-10151	03	Machine tests crease durability of sheet materials JPL-604	B64-10178	05
Efficient thin film heating element takes minimum space GSFC-289	B65-10123	01	Apparatus measures swelling of membranes in electrochemical cells GSFC-280	B65-10087	01
Electronic modules easily separated from heat sink MSC-142	B65-10186	02	Low-cost seal compensates for surface irregularities NU-0016	B65-10160	05
Polymer film exhibits thermal and radiation stability LANGLEY-100	B66-10043	03	Polymer deformation gage measures thickness change in tensile tests JPL-745	B66-10147	01
Silazane polymers show promise for high- temperature application M-FS-466	B66-10194	03	Vapor diffusion electrode improves fuel cell operation LEWIS-187	B66-10281	03
Composite gaskets are compatible with liquid oxygen, resist compression set M-FS-455	B66-10395	03	Isostatic compression process converts polyaromatics into structural material JPL-892	B67-10168	03
Process produces accurate registry between circuit board prints LANGLEY-288	B66-10660	02			
Static electricity of polymers reduced by treatment with iodine NFO-10062	B67-10132	03			
Scribable coating for plastic films MSC-11194	B67-10409	03			

SUBJECT INDEX

POLYTETRAFLUOROETHYLENE

Adhesives for laminating polyimide insulated flat conductor cable M-FS-12066	B67-10429	03	specified element M-FS-12817	B67-10521	06
Concept for design of variable stiffness damper ARC-11225	B67-10483	05	Simultaneous message framing and error detection MSC-12001	B68-10330	01
Photovoltaic effect in organic polymer-iodine complex NPO-10373	B67-10634	03	Prediction of thermal radiation from a rocket's exhaust plume M-FS-20414	B69-10371	02
Improved fuel-cell-type hydrogen sensor M-FS-14656	B68-10263	01	Root-cubing and general root-powering methods for finding the zeros of polynomials ARG-10444	B69-10424	02
Temperature or pressure controller LEWIS-10297	B68-10337	01	Method reduces computer time for smoothing functions and derivatives through ninth order polynomials NUC-10334	B69-10524	06
Frangible electrochemical cell and sealing technique XGS-10010	B69-10056	01	POLYPHENYL ETHER Substituted silane-diol polymers have improved thermal stability M-FS-469	B66-10259	03
Refractory-metal compound impregnation of polytetrafluoroethylene LEWIS-10733	B69-10072	03	High-temperature bearing lubricants LEWIS-10408	B68-10249	05
New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118	03	POLYPHENYLS Surfactant for dye-penetrant inspection is insensitive to liquid oxygen M-FS-475	B66-10131	03
Helical recorder GSFC-10614	B69-10340	01	POLYPROPYLENE Folded stick module NPO-10854	B69-10498	01
Thermally conducting electron transfer polymers GSFC-10703	B69-10511	03	POLYSTYRENE Small foamed polystyrene shield protects low-frequency microphones from wind noise M-FS-123	B63-10579	01
Silphenylene elastomers have high thermal stability and tensile strength M-FS-20250	B69-10580	03	Cryogenic waveguide window is sealed with plastic foam JPL-559	B63-10613	01
Chromatographic detection and analysis of traces of hydrocarbons KSC-10388	B69-10716	02	Wide-aperture solar energy collector is light in weight JPL-SC-055	B65-10046	02
POLYMETHYL METHACRYLATE Mechanical properties of plastics predetermined by empirical method ABC-28	B64-10068	03	Argon purge gas cooled by chill box M-FS-560	B66-10153	02
Wide-aperture solar energy collector is light in weight JPL-SC-055	B65-10046	02	Method accurately measures mean particle diameters of monodisperse polystyrene latexes ARG-207	B67-10054	02
Spherical model provides visual aid for cubic crystal study LEWIS-108	B65-10065	03	Polystyrene cryostat facilitates testing tensile specimens under liquid nitrogen NUC-10522	B67-10613	02
Inert-gas welding and brazing enclosure fabricated from sheet plastic LEWIS-220	B65-10338	05	Test system accurately determines tensile properties of irradiated metals at cryogenic temperatures NUC-10521	B67-10617	02
Small, high-intensity flasher permits continuous close-in photography NU-0043	B66-10119	03	Fast-response cup anemometer features cosine response ARG-90193	B68-10202	01
Machining heavy plastic sections M-FS-12720	B67-10381	03	Low-loss C-band parasitic probe KSC-09348	B69-10251	01
POLYMORPHISM Review of research and development in fluid logic elements M-FS-420	B67-10438	01	POLYTETRAFLUOROETHYLENE Metals plated on fluorocarbon polymers JPL-544	B63-10612	03
POLYNOMIALS Polynomial manipulator AP-168 MSC-1231	B67-10103	01	Simple transducer measures low heat-transfer rates JPL-466	B64-10122	01
Computer program provides linear sampled-data analysis for high order systems M-FS-12821	B67-10287	06	PTFE-aluminum films serve as neutral density filters LANGLEY-189	B66-10017	02
Algebraic Monte Carlo procedure reduces statistical analysis time and cost factors M-FS-1887	B67-10434	01	Polytetrafluoroethylene lubricates ball bearings in vacuum environment M-FS-379	B66-10081	03
General frequency response program calculates frequency response of system, open at any					

POLYURETHANE FOAM

SUBJECT INDEX

Capacitive system detects and locates fluid leaks M-FS-478	B66-10099	01	M-FS-20566	B69-10780	03
Improved rolling element bearings provide low torque and small temperature rise in ultrahigh vacuum environment LEWIS-359	B66-10678	05	POLYURETHANE RESINS Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02
Feed-through connector couples RF power into vacuum chamber NU-0096	B67-10027	01	Critical parts are stored and shipped in environmentally controlled reusable container M-FS-703	B66-10258	05
Improved sample capsule for determination of oxygen in hemolyzed blood MSC-11017	B67-10408	04	Phonocardiograph microphone is rugged and moistureproof MSC-212	B66-10314	04
Dynamic valve seal is reliable at cryogenic temperatures M-FS-12987	B67-10526	05	Strippable grid facilitates removal of grid-surfaced conical workpiece from die M-FS-716	B66-10334	01
Bearings use dry self-lubricating cage materials LEWIS-10432	B68-10165	05	Nonwoven glass fiber mat reinforces polyurethane adhesive M-FS-2309	B67-10113	03
Teflon-packed flexible joint LEWIS-90252	B69-10049	03	Vibration damping composition has flush-away feature M-FS-597	B67-10432	03
Fractography can be used to analyze failure modes in polytetrafluoroethylene M-FS-20294	B69-10066	03	Solvent permits solid curing agents to be used at room temperatures M-FS-13434	B67-10593	03
Refractory-metal compound impregnation of polytetrafluoroethylene LEWIS-10733	B69-10072	03	Compressible sleeve provides automatic centering for grinding or turning of cylinders SAN-10021	B68-10318	05
Design and testing of liquid hydrogen-cooled, ultrahigh-speed ball bearings M-FS-18453	B69-10178	05	Improved primer for bonding polyurethane adhesives to metals M-FS-90591	B69-10540	03
Self-lubricating gear M-FS-14971	B69-10408	05	Synthesis of polyethers of hexafluorobenzene and hexafluoropentanediol M-FS-14962	B69-10636	03
Improved inorganic ion exchange membranes LEWIS-10737	B69-10451	03	POLYVINYL ALCOHOL Sea dye marker provides visibility for 20 hours MSC-714	B66-10313	03
POLYURETHANE FOAM Storage-stable foamable polyurethane is activated by heat LANGLEY-187	B66-10111	03	POLYVINYL CHLORIDE Emergency solar still desalts seawater MSC-135	B65-10214	03
Special tool kit aids heavily garmented workers MSC-163	B66-10403	05	Primary cells utilize halogen-organic charge transfer complex JPL-926	B66-10682	02
Process produces chlorinated aromatic isocyanate in high yield M-FS-1658	B66-10646	03	PONDS Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04
Synthesis of various highly halogenated monomers and polymers M-FS-2143	B67-10100	03	POPULATION INVERSION Rectangular-bore, high-gain laser plasma tube HQ-10234	B69-10193	02
Locating and sealing air leaks in multiroomed buildings NUC-10304	B68-10024	05	POPULATIONS Computer program reduces calculation time of normal response functions M-FS-1517	B67-10108	01
Fire retardant foams developed to suppress fuel fires ARC-10098	B68-10358	03	POROSITY Apparatus facilitates pressure-testing of metal tubing LEWIS-174	B65-10131	05
Fiber glass prevents cracking of polyurethane foam insulation on cryogenic vessels M-FS-20058	B68-10406	02	Organic reactants rapidly produce plastic foam LANGLEY-37	B65-10288	03
An improved method for electrical cable terminations NFO-10694	B69-10327	01	Reaction heat used in static water removal from fuel cells M-FS-532	B66-10013	01
Improved fire resistant radio frequency anechoic materials M-FS-16600	B69-10450	05	Vapor diffusion electrode improves fuel cell operation LEWIS-187	B66-10281	03
A new method for fabrication of flexible vacuum purge jackets M-FS-12646	B69-10564	03	Valve seat pores sealed with thermosetting		
Thermal conductivity probe					

SUBJECT INDEX

PORTABLE EQUIPMENT

monomer M-FS-900	B66-10322	03	Method for controlling density and permeability of sintered powdered metals LEWIS-10393	B68-10528	03
Effect of welding position on porosity formation in aluminum alloy welds M-FS-2318	B67-10177	05	Mass transport mechanism in porous fuel cell electrodes HQ-10343	B69-10135	01
Study made of anodized aluminum circuit boards M-FS-13580	B67-10425	01	POROUS PLATES Modular Porous Plate Sublimator /MPPS/ requires only water supply for coolant M-FS-1374	B66-10409	01
Welding of commercial base plates is investigated M-FS-13649	B68-10192	03	PORTABLE EQUIPMENT Portable flooring protects finished surfaces, is easily moved M-FS-15	B63-10387	05
Grain growth inhibitor for porous tungsten materials LEWIS-10535	B68-10527	03	Portable display paneling has wide use, easy take down and assembly ARC-17	B63-10435	05
Method for controlling density and permeability of sintered powdered metals LEWIS-10393	B68-10528	03	Device calibrates vibration transducer at amplitudes up to 20 g M-FS-86	B63-10572	01
Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456	B69-10192	03	Continuity tester screens out faulty socket connections JPL-596	B64-10065	01
Metallic diffusion measured by a modified Knudsen technique HQ-10145	B69-10309	03	Welding procedures improves quality of welds, offers other advantages M-FS-32	B64-10309	01
Conversion of continuous-direct-current TIG welder to pulse-arc operation M-FS-16411	B69-10393	05	Portable tool removes burrs from pipe and tubing MSC-237	B65-10360	05
Generation of sonic power during welding M-FS-20339	B69-10404	05	Portable tool cleans pipes and tubing MSC-238	B65-10375	05
New type pressure transducer for severe thermal environments M-FS-20208	B69-10652	01	Improved tool easily removes brazed tube connectors MSC-263	B66-10003	05
Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06	Portable self-powered device detects internal flaws in tubular structures NU-0019	B66-10028	01
POROUS BOUNDARY LAYER CONTROL Improved high-temperature silicide coatings LEWIS-10817	B69-10266	03	Seismometer designed for remote operation in random orientation JPL-320	B66-10085	01
POROUS MATERIALS Porous glass makes effective substrate for ozone-sensing reagent GSFC-388	B65-10364	03	Pipe cutting tool is useful in limited space MSC-36	B66-10102	05
Unique gear design provides self-lubrication JPL-SC-079	B65-10366	03	Mount makes liquid nitrogen-cooled gamma ray detector portable LEWIS-259	B66-10103	01
Electron beam seals outer surfaces of porous bodies M-FS-562	B66-10033	03	Chart case opens to form briefing easel MSC-349	B66-10135	05
Process reduces pore diameters to produce superior filters WOO-093	B66-10037	03	Portable power tool machines weld joints in field M-FS-258	B66-10145	05
Combustion chamber struts can be effectively transpiration cooled M-FS-1830	B66-10643	03	Extendable mast used in one shot soil penetrometer JPL-685	B66-10146	05
Composites of porous metal and solid lubricants increase bearing life LEWIS-307	B67-10007	03	Dispenser leak-tests and sterilizes rubber gloves MSC-285	B66-10166	03
Porous mandrels provide uniform deformation in hydrostatic powder metallurgy M-FS-1972	B67-10209	03	Ultrasonic recording scanner used for nondestructive weld inspection M-FS-284	B66-10220	01
Fuel cell life improved by metallic sinter activation after electrode assembly welding MSC-10965	B67-10436	03	Hand tool permits shrink sizing of assembled tubing MSC-504	B66-10239	05
Electron beam selectively seals porous metal filters LEWIS-10162	B68-10331	05	Portable sandblaster cleans small areas MSC-523	B66-10242	05
Hydrostatic testing of porous assemblies M-FS-18298	B68-10439	05	Ultrasonic hand tool allows convenient scanning of spot welds M-FS-539	B66-10289	02

PORTABLE LIFE SUPPORT SYSTEMS

SUBJECT INDEX

Portable lightweight cell provides controlled environment MSC-648	B66-10370	05	M-FS-752	B66-10255	05
Analog solar system model relates celestial bodies spatially JPL-195	B66-10413	01	Fluid logic control circuit operates nutator actuator motor LEWIS-294	B66-10593	05
Automatic cryogenic liquid level controller is safe for use near combustible substances LEWIS-195	B66-10482	01	Tool samples subsurface soil free of surface contaminants MSC-10988	B67-10473	05
Apparatus enables automatic microanalysis of body fluids JPL-962	B66-10515	04	POSITION (LOCATION) System locates randomly placed remote objects LANGLEY-209	B66-10315	01
Gage tests tube flares quickly and accurately KSC-66-19	B66-10537	05	Integrated mobility measurement and notation system MSC-726	B67-10114	04
Polaroid film helps locate objects in inaccessible areas quickly MSC-960	B67-10008	02	Electron beam deflected to determine focal point location M-FS-14107	B67-10649	01
Portable detector set discloses helium leak rates M-FS-1733	B67-10065	01	Electron beam standby absorber system M-FS-14108	B67-10650	01
Portable fixture facilitates pressure testing of instrumentation fittings M-FS-2032	B67-10121	03	Locating and sealing air leaks in multiroomed buildings NUC-10304	B68-10024	05
Tester automatically checks insulation of individual conductors in multiple-strand cables NUC-10068	B67-10260	01	Detection and location of metallic objects imbedded in nonmetallic structures M-FS-14790	B68-10183	01
Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi NUC-10067	B67-10263	01	Study of optimum discrete estimators in measurement analysis M-FS-14915	B68-10348	02
Portable machine welding head automatically controls arc M-FS-12763	B67-10272	05	Reidentifying hardware after loss of serial number M-FS-18133	B69-10059	05
Variable-speed, portable routing skate M-FS-13772	B67-10525	05	ABTRAJ on-site tracking prediction program NPO-10836	B69-10103	06
Radiant heat source, vacuum bag, provide portable bonding oven MSC-11342	B67-10570	03	Circuit board hole coordinate locator concept M-FS-14737	B69-10539	01
Surface irregularities detected by flare inspection instrument M-FS-20157	B69-10152	01	POSITION ERRORS Image position sensor M-FS-14101	B69-10783	02
A prototype high power portable lamp M-FS-20229	B69-10189	02	POSITION INDICATORS Solar-angle sensor has no moving parts JPL-418	B63-10260	02
J-beveling of pipe ends with a hand-held tool KSC-10356	B69-10229	05	Direction indicator system does not require complicated optics WOO-305	B66-10407	01
Magnetomotive forming for precision sizing and joining of large-diameter tubes M-FS-20481	B69-10422	05	Analog solar system model relates celestial bodies spatially JPL-195	B66-10413	01
Ion mass spectrometer for special uses HQ-10418	B69-10510	02	Shaft encoder presents digital output JPL-SC-191	B66-10436	01
Seismographic recording of large rocket engine operation M-FS-20545	B69-10756	01	POSITIONING Screw locking cups quickly and neatly crimped NU-0009	B65-10049	05
PORTABLE LIFE SUPPORT SYSTEMS Improved chlorate candle provides concentrated oxygen source MSC-1137	B67-10095	03	Magnets position X-ray film for weld inspection M-FS-253	B65-10110	05
PORTS (OPENINGS) Multiple port pressure scanner valve features greater accuracy, quicker data JPL-555	B64-10031	05	Simple circuit positions film frames in projector JPL-508	B65-10132	02
Threaded pilot insures cutting tool alignment M-FS-527	B66-10074	05	Ball and socket joints provide accurate biaxial gimbal JPL-658	B65-10205	05
Flow ring valve is simple, quick-acting			Three-position rocker switch actuator has positive centering MSC-261	B65-10376	01
			Versatile machine mills, saws light materials		

SUBJECT INDEX

POTASSIUM COMPOUNDS

M-FS-827	B66-10364	05	Positive and negative output circuits LEWIS-10715	B69-10151	01
Closed circuit TV system automatically guides welding arc M-FS-20084	B68-10357	01	Radiometric temperature reference MSC-13276	B69-10507	01
Device for diode tuning in a stripline varactor harmonic multiplier M-FS-20153	B69-10013	01	POSITRON ANNIHILATION The response of monoenergetic gamma rays in finite media are investigated ARG-10295	B69-10080	02
Helical tape forming device GSFC-10830	B69-10137	05	POSTAMPLIFIERS Transistor biased amplifier minimizes diode discriminator threshold attenuation ARG-163	B67-10311	01
Astronaut*s tool for withdrawing/replacing computer cards M-FS-20453	B69-10183	05	POSTFLIGHT ANALYSIS Fast Fourier Transform Spectral Analysis Program M-FS-15062	B69-10434	06
Camera mount for close-up stereo photographs LANGLEY-10442	B69-10226	02	POTABLE WATER Emergency solar still desalts seawater MSC-135	B65-10214	03
Semiautomatic inspection of microfilm records M-FS-20240	B69-10301	02	Trace levels of metallic corrosion in water determined by emission spectrography MSC-1193	B66-10701	03
Surface profilometer for examining grain-boundary grooves ARG-10290	B69-10345	05	Electronic circuitry used to automate paper chromatography JPL-840	B67-10201	01
Piezoelectric linear actuator MSC-13194	B69-10469	02	Analytical technique characterizes all trace contaminants in water MSC-11032	B67-10243	03
POSITIONING DEVICES (MACHINERY) Apparatus alters position of objects to facilitate demagnetization GSFC-234	B64-10277	05	POTASSIUM Potassium plasma cell facilitates thermionic energy conversion process ARG-10010	B67-10399	01
Jig and fixture aid fabrication of tungsten rivets LEWIS-185	B65-10101	05	Scribble coating for plastic films MSC-11194	B67-10409	03
Thermal motor positions magnetometer sensors ARC-51	B66-10078	05	Performance of low-pressure thermionic converters is evaluated ARG-10276	B69-10090	01
Adjustable cutting guide aligns and positions stacks of material MSC-321	B66-10210	05	Study of high temperature bearing materials LEWIS-10829	B69-10252	03
Device facilitates centering of workpieces in lathe chuck M-FS-685	B66-10277	05	POTASSIUM BROMIDES Multilayer infrared beamsplitter film system XGS-11036	B69-10260	02
Inflatable holding fixture permits X-rays to be taken of inner weld areas M-FS-856	B66-10327	03	POTASSIUM CHLORIDES Gelatin coated electrodes allow prolonged bioelectronic measurements MSC-153	B66-10088	01
Alignment tool facilitates pin placement on irregular horizontal surfaces LANGLEY-219	B66-10410	05	Grain-boundary migration in KCl bicrystals ARG-10181	B68-10455	03
Heavy duty precision leveling jacks expedite setup time on horizontal boring mill M-FS-1084	B66-10411	05	Zone purification of potassium chloride ARG-10377	B69-10241	03
Motion drive system is accurately controlled in the 1-micron range JPL-864	B66-10695	05	POTASSIUM CHROMATES A rapid stress-corrosion test for aluminum alloys M-FS-20175	B68-10536	03
Welding torch and wire feed manipulator M-FS-13102	B67-10385	05	POTASSIUM COMPOUNDS Crack detection method is safe in presence of liquid oxygen M-FS-236	B65-10107	03
X-ray film holder permits single continuous picture of tubing joint LEWIS-10382	B68-10343	05	Air-cured ceramic coating insulates against high heat fluxes M-FS-150	B65-10357	03
Remotely operated gripper provides vertical control rod movement ARG-10160	B68-10359	05	Submicron metal powders produced by ball milling with grinding aids LEWIS-188	B66-10221	03
High-torque precision stepping drive M-FS-14772	B68-10549	05	Separation technique provides rapid quantitative determination of cesium-137 in irradiated nuclear fuel		
Two-axis winch installer for heavy ducts in confined space M-FS-14254	B69-10062	05			
POSITIVE FEEDBACK Efficient dc to dc converter eliminates large stray magnetic fields GSFC-463	B66-10376	01			

POTASSIUM HYDROXIDES

SUBJECT INDEX

NUC-10047	B67-10194	03	supplies	B65-10105	01
Development of low temperature battery			GSFC-291		
LEWIS-10326	B67-10546	01	Simple circuit reduces transistor switching time		
A ceramic composite thermal insulation			GSFC-314	B65-10234	01
M-FS-13991	B67-10608	03	Electropneumatic rheostat regulates high current		
Study of actinide chemistry in saturated potassium fluoride solution			ARC-44	B65-10299	01
ARG-10204	B69-10004	03	Photosensors used to maintain welding electrode-to-joint alignment		
Self-discharge in bimetallic cells containing alkali metal			MSC-243	B65-10401	05
ARG-10347	B69-10631	01	Microminiature thermocouple monitors own installation		
POTASSIUM HYDROXIDES			M-FS-1111	B66-10463	05
Regenerative fuel cell combines high efficiency with low cost			Double emitter suppressed carrier modulator uses commercially available components		
WOO-090	B65-10363	01	M-FS-2494	B67-10101	01
New energy storage concept uses tapes			POTENTIOMETERS (INSTRUMENTS)		
LEWIS-239	B66-10098	02	Improved insertion-loss tester		
Device removes hydrogen gas from enclosed spaces			JPL-358	B64-10080	01
GSFC-495	B66-10340	03	Electronic device simulates respiration rate and depth		
Cobalt improves nickel hydroxide electrodes for batteries			MSC-89	B64-10255	01
LEWIS-10760	B69-10228	01	Zener diode function generator requires no external reference voltage		
POTASSIUM NITRATES			JPL-0031	B65-10013	01
Hydrated multivalent cations are new class of molten salt mixtures			Light-sensitive potentiometer measures product of two variables		
ARG-211	B67-10033	03	GSFC-240	B65-10076	01
POTASSIUM OXIDES			Inexpensive infrared source improvised from flashlight		
Glass formulation has high coefficient of thermal expansion			M-FS-494	B66-10096	02
NU-0084	B66-10705	03	Accuracy of laser measurements improved by pulse autocorrelator electronic system		
POTASSIUM SILICATES			MSC-10033	B67-10338	01
Inorganic paint is durable, fireproof, easy to apply			Stable ac phase and amplitude comparator		
GSFC-366	B65-10156	03	M-FS-13086	B67-10459	01
Pigmented coating resists thermal shock			Fixture facilitates soldering operations		
JPL-SC-083	B65-10354	03	M-FS-14456	B68-10573	05
Multilayer refractory nozzles produced by plasma-spray process			Digital computer technique for setup and checkout of an analog computer		
WOO-318	B66-10611	05	M-FS-13969	B68-10576	06
POTENTIAL ENERGY			Two devices for analysis of nystagmus		
Increased junction lead inductance ballasts high-frequency transistors			HQ-10273	B69-10224	01
GSFC-387	B65-10259	01	Instrumentation for potentiostatic corrosion studies with distilled water		
Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters			ARG-10409	B69-10413	03
M-FS-13594	B67-10527	03	Measurement technique for the determination of antenna directivity		
Storage of electric and magnetic energy in passive nonreciprocal networks			M-FS-12799	B69-10677	01
ARG-10360	B69-10630	01	POTENTIOMETERS (RESISTORS)		
POTENTIAL FLOW			Meter accurately measures flow of low-conductivity fluids		
Acoustic wave analysis			JPL-0021	B63-10280	01
M-FS-18076	B68-10265	02	Control system maintains selected liquid level		
POTENTIAL GRADIENTS			M-FS-470	B66-10039	01
Density trace made with computer printout			High voltage potential divider calibrated by simple device		
GSFC-322	B65-10200	01	ARG-83	B66-10497	01
POTENTIOMETERS			Variable-pulse switching circuit accurately controls solenoid-valve actuations		
Tension is servo controlled in film advance system			M-FS-1895	B67-10022	01
LANGLEY-54	B65-10075	05	Capacitance-coupled wiper increases potentiometer life		
System selects framing rate for spectrograph camera			ARC-10060	B68-10175	01
LANGLEY-55	B65-10086	01	Improved dc voltage regulator		
Simulator produces physiological waveforms					
MSC-94	B65-10091	01			
Variable load automatically tests dc power					

SUBJECT INDEX

POWDER METALLURGY

XKS-06467	B69-10369	01	cures at room temperature WOO-132	B66-10185	03
POTTING COMPOUNDS					
Connector for thermocouple leads saves costly wire, makes reliable connectors LANGLEY-26	B63-10529	01	Silazane polymers show promise for high-temperature application M-FS-466	B66-10194	03
Circuit reliability boosted by soldering pins of disconnect plugs to sockets JPL-447	B64-10002	01	Thin-film ferrites vapor deposited by one-step process in vacuum MSC-259	B66-10398	03
Use of tear ring permits repair of sealed module circuitry M-FS-210	B65-10014	05	Isostatic compression process converts polyaromatics into structural material JPL-892	B67-10168	03
Insulator-holder protects transistors in dense electronic assemblies MSC-214	B65-10389	01	Continuous internal channels formed in aluminum fusion welds M-FS-2399	B67-10183	05
Bismuth alloy potting seals aluminum connector in cryogenic application WOO-260	B66-10138	03	Apparatus for fabrication of americium-beryllium neutron sources prevents capsule contamination ARG-184	B67-10202	05
Low power heating element provides thermal control during swaging operations M-FS-457	B66-10206	05	Study made of Raney nickel technology M-FS-2054	B67-10208	03
Study made of destructive sectioning of complex structures for examination LEWIS-341	B66-10676	05	Self-balancing line-reversal pyrometer automatically measures gas temperatures LEWIS-348	B67-10268	01
Study made to control depth of potting compound for honeycomb sandwich fasteners LEWIS-370	B66-10677	05	Experiments to investigate particulate materials in reduced gravity fields M-FS-13308	B67-10394	02
Thermocouple-flexible cable connector insulator is highly reliable NU-0082	B66-10709	01	Preparing rock powder specimens of controlled size distribution NPO-10007	B68-10297	05
Method of disjoining adhesively bonded electronic cordwood modules MSC-12060	B68-10086	01	Thermal conductivity and dielectric constant of silicate materials M-FS-14856	B68-10351	03
Thermal resistances of solder-boss/potting compound combinations MSC-12074	B68-10157	01	Technique for abrasive cutting of thick-film conductors for hybrid circuits MSC-13242	B69-10235	03
Astronaut space suit communication antenna MSC-12101	B68-10238	01	High strength, superplastic superalloy LEWIS-108C5	B69-10293	03
Gage measures total radiation, including vacuum UV, from ionized high-temperature gases XNP-09802	B69-10028	02	Improved camera for better X-ray powder photographs HQ-10424	B69-10537	01
Precision mounting for instrument optical elements provided by polyimide bonding M-FS-20293	B69-10310	05	Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06
Development of improved potting and conformal coating compounds M-FS-20219	B69-10559	03	POWDER METALLURGY		
Improved cure method for single component silicone rubber MSC-12230	B69-10749	03	Fine-particle filter prevents damage to vacuum pumps LEWIS-106	B63-10489	05
POWDER (PARTICLES)			Process reduces pore diameters to produce superior filters WOO-093	B66-10037	03
Low-cost insulation system for cryostats eliminates need for a vacuum LEWIS-64	B63-10365	03	Intergranular metal phase increases thermal shock resistance of ceramic coating M-FS-1862	B66-10651	03
Fine-particle filter prevents damage to vacuum pumps LEWIS-106	B63-10489	05	Composites of porous metal and solid lubricants increase bearing life LEWIS-307	B67-10007	03
Lead oxide ceramic makes excellent high-temperature lubricant LEWIS-144	B64-10116	03	Porous mandrels provide uniform deformation in hydrostatic powder metallurgy M-FS-1972	B67-10209	03
Thin transparent films formed from powdered glass GSFC-352	B65-10217	03	Aluminum-titanium hydride-boron carbide composite provides lightweight neutron shield material NUC-10069	B67-10265	03
Specimen holder design improves accuracy of X-ray powder analysis JPL-SC-165	B66-10075	02	Practical new method of measuring thermal-neutron fluence NUC-10086	B67-10352	02
Improved adhesive for cryogenic applications			Grain growth inhibitor for porous tungsten		

POWER

SUBJECT INDEX

materials LEWIS-10535	B68-10527	03	GSFC-08259	B67-10646	01
Method for controlling density and permeability of sintered powdered metals LEWIS-10393	B68-10528	03	POWER GAIN		
POWER			Digitally controlled pulse-level discriminator operates over wide voltage range GSFC-324	B66-10129	01
General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions M-FS-13094	B67-10331	06	Omnidirectional antennas transmit and receive over large bandwidth GSFC-436	B66-10133	01
Gamma radiation characteristics of plutonium dioxide fuel NPO-11220	B69-10733	02	Diffusion technique stabilizes resistor values MSC-205	B66-10142	01
POWER AMPLIFIERS			Tester periodically registers dc amplifier characteristics MSC-190	B66-10148	01
Metal diaphragm used to calibrate miniature transducers M-FS-207	B65-10059	01	Transducer measures force in vacuum environment LEWIS-218	B66-10161	01
Apparatus presents visual display of semiconductor surface characteristics JPL-665	B66-10200	01	Simple circuit provides reliable multiple signal average and reject capability NU-0069	B66-10282	01
Feedback loop compensates for rectifier nonlinearity M-FS-384	B66-10382	01	Microphone multiplex system provides multiple outlets from single source GSFC-426	B66-10308	01
Electronic analog equalization for vibrational testing NPO-10544	B69-10472	01	Design concepts using ring lasers for frequency stabilization M-FS-2448	B67-10143	01
POWER CONDITIONING			Voltage regulator/amplifier is self-regulated MSC-1240	B67-10156	01
Full wave dc-to-dc converter using energy storage transformers LEWIS-10375	B69-10140	01	Electrometer amplifier operates over dynamic range of five orders of magnitude ARC-75	B67-10199	01
POWER EFFICIENCY			Nonreciprocal gain control for ring laser M-FS-14041	B67-10653	02
Dual-voltage power supply has increased efficiency LEWIS-107A	B66-10002	01	Power consumption in acoustic amplifiers under conditions of maximum stable gain GSFC-10067	B68-10327	01
Circuit exhibits power efficiency greater than 75 percent MSC-254	B66-10034	01	POWER LIMITERS		
Digitally controlled pulse-level discriminator operates over wide voltage range GSFC-324	B66-10129	01	Electropneumatic transducer automatically limits motor current LEWIS-253	B66-10160	01
Complementary monostable circuits achieve low power drain and high reliability GSFC-433	B66-10179	01	Magnetically operated limit switch has improved reliability, minimizes arcing MSC-422	B66-10270	01
Substituting transistor for diode improves rectifying means GSFC-474	B66-10295	01	Circuit protects regulated power supply against overload current GSFC-453	B66-10292	01
Efficient dc to dc converter eliminates large stray magnetic fields GSFC-463	B66-10376	01	POWER LINES		
Modular Porous Plate Sublimator /MPPS/ requires only water supply for coolant M-FS-1374	B66-10409	01	Auxiliary circuit enables automatic monitoring of EKG'S MSC-106	B65-10142	01
Control circuit maintains unity power factor of reactive load MSC-192	B66-10431	01	Tester automatically checks insulation of individual conductors in multiple-strand cables NUC-10068	B67-10260	01
Process reduces secondary resonant emission in electronic components JPL-934	B66-10685	01	Rock anchors restore broken swamp anchors economically WLP-10004	B67-10498	05
Voltage regulator/amplifier is self-regulated MSC-1240	B67-10156	01	Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area NUC-10007	B67-10538	01
Switching-type regulator circuit has increased efficiency MSC-1063	B67-10190	01	POWER PLANTS		
An efficient, temperature-compensated subcarrier oscillator JPL-SC-091	B67-10251	01	Universal bellows joint restraint permits angular and offset movement WOO-102	B65-10371	05
An improved magnetic tape recorder			POWER REACTORS		
			Practical new method of measuring		

SUBJECT INDEX

POWER SUPPLY CIRCUITS

thermal-neutron fluence NUC-10086	B67-10352	02	direct current source LANGLEY-267	B66-10441	01
Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons ARG-10220	B69-10211	02	Rectilinear accelerometer possesses self- calibration feature M-FS-1480	B66-10452	01
POWER SERIES			Preregulator feedback circuit utilizes Light Actuated Switch M-FS-1180	B66-10542	01
Root-cubing and general root-powering methods for finding the zeros of polynomials ARG-10444	B69-10424	02	Recharge unit provides for optimum recharging of battery cells GSFC-10688	B68-10273	01
POWER SPECTRA			High-torque power wrench, a concept M-FS-18194	B68-10299	05
A power-spectral-density computer program NPO-10126	B67-10160	01	Electrochemical cell has internal resistive heater element GSFC-10358	B68-10325	01
High-power microwave power divider concept NPO-11031	B69-10290	01	High-efficiency step-up regulator M-FS-20049	B68-10432	01
Fast Fourier Transform Spectral Analysis Program M-FS-15062	B69-10434	06	Field Effect Transistor /FET/ circuit for variable gain amplifiers GSFC-10116	B69-10322	01
Long range holographic contour mapping concept HQ-10350	B69-10700	02	Generation of sonic power during welding M-FS-20339	B69-10404	05
POWER SUPPLIES			Analysis of secondary cells with lithium anodes and immobilized fused-salt electrolytes ARG-10452	B69-10613	01
Circuit switches latching relay in response to signals of different polarity WOO-055	B63-10508	01	Cryogenic flux-concentrator ARG-10494	B69-10654	02
Comfortable, lightweight safety helmet holds radio transmitter, receiver MSC-53	B64-10015	05	POWER SUPPLY CIRCUITS		
Emission tester for high-power vacuum tubes JPL-628	B64-10158	01	Igniting system for mercury lamps protects transistorized sustaining supply JPL-421	B63-10262	01
PTC thermistor protects multiloaded power supplies GSFC-236	B64-10281	01	Modular thermoelectric cell is easily packaged in various arrays GSFC-339	B65-10199	01
Carbon arc ignition improved by simple auxiliary circuit MSC-103	B65-10018	01	Dual-voltage power supply has increased efficiency LEWIS-107A	B66-10002	01
Pulse height analyzer operates at high repetition rates, low power WOO-046	B65-10041	01	Circuit exhibits power efficiency greater than 75 percent MSC-254	B66-10034	01
Zener diode is starter for transistor regulated power supply NU-0015	B65-10052	01	Soldering iron temperature is automatically reduced ARC-57	B66-10203	01
Fiber glass parts cured during filament winding eliminates oven, saves time M-FS-14	B65-10088	03	Control circuit maintains unity power factor, of reactive load MSC-192	B66-10431	01
Variable voltage supply uses Zener diode as reference GSFC-262	B65-10097	01	Digital-to-analog converter operates from low level inputs JPL-907	B67-10357	01
Variable load automatically tests dc power supplies GSFC-291	B65-10105	01	Circuit detects voltage decrease in computer power supply KSC-67-12C	B68-10019	01
Dc to ac converter operates efficiently at low input voltages GSFC-130	B65-10178	01	Short circuit protection for a power distribution system M-FS-14993	B68-10443	01
Improved wire memory matrix uses very little power JPL-SC-167	B65-10359	01	Remotely-actuated biomedical switch ARC-10105	B69-10117	01
High-intensity flashing beacon powered by mercury cells LANGLEY-80	B65-10361	01	Bootstrap unloader XNP-09768	B69-10120	01
Photoelectric system continuously monitors liquid level M-FS-417	B65-10382	01	Positive and negative output circuits LEWIS-10715	B69-10151	01
Linear signal noise summer accurately determines and controls S/N ratio JPL-SC-152	B66-10433	01	Low-cost voltage-level detector LEWIS-10885	B69-10217	01
Standard arc welders provide high amperage					

POWER TRANSMISSION

SUBJECT INDEX

POWER TRANSMISSION

Laser beam transmits electric power
GSFC-293 B65-10158 01

Compact actuator converts rotary to linear
motion
JPL-786 B66-10265 05

Flexible drive allows blind machining and
welding in hard-to-reach areas
MSC-524 B66-10428 05

Feasibility study of wireless power
transmission systems
M-FS-14691 B68-10309 01

PREAMPLIFIERS

Auxiliary circuit enables automatic monitoring
of BKG*S
MSC-106 B65-10142 01

Boron trifluoride nuclear detector
preamplifier uses single-cable connection
LEWIS-178 B65-10255 01

Electrometer preamplifier has drift correction
feedback
JPL-SC-074 B65-10267 01

Phonocardiograph system monitors heart sounds
MSC-185 B66-10154 04

Microphone multiplex system provides multiple
outlets from single source
GSFC-426 B66-10308 01

Remote preamplifier circuit maintains
stability over wide temperature range
WOO-278 B66-10432 01

Point-source light sensor circuit is
insensitive to background light
JPL-778 B66-10502 01

Miniature electrometer preamplifier
effectively compensates for input
capacitance
ARC-69 B66-10549 01

Current pulse amplifier transmits detector
signals with minimum distortion and
attenuation
NUC-10055 B67-10347 01

Improved relay optical element for
spectroradiometer using cryogenically
cooled detector
MSC-11688 B68-10245 02

Laser-Doppler gas-velocity instrument
M-FS-20039 B68-10349 02

Low-cost, fast-response drive circuit for
electromagnetic torque motors
LEWIS-10143 B68-10386 01

High resolution Ge/Li/ spectrometer
reduces rate-dependent distortions at high
counting rates
ARG-10144 B68-10420 01

PRECIPITATION
Crack detection method is safe in presence of
liquid oxygen
M-FS-236 B65-10107 03

PRECIPITATION (CHEMISTRY)
Standards for electron probe microanalysis of
silicates prepared by convenient method
GSFC-469 B66-10234 03

Process for preparing dispersions of
alkali metals
JPL-734 B66-10639 03

Ion exchange determines iodine-131
concentration in aqueous samples
ARG-208 B67-10129 04

Static electricity of polymers reduced by
treatment with iodine
NPO-10062 B67-10132 03

PRECIPITATION HARDENING

Tantalum alloys resist creep deformation at
elevated temperatures
LEWIS-350 B66-10558 03

Treatment increases stress-corrosion
resistance of aluminum alloys
M-FS-1840 B66-10595 05

Weld microfissuring in Inconel 718
minimized by minor elements
M-FS-18185 B68-10251 03

Strain-age cracking in Rene 41 alloy
M-FS-18650 B69-10605 03

PRECISION

Instrument quickly transposes ground reference
target to eye level
MSC-275 B66-10061 05

Threaded pilot insures cutting tool
alignment
M-FS-527 B66-10074 05

Etching process mills PH 14-8 Mo alloy
steel to precise tolerances
MSC-270 B66-10110 03

Depth indicator and stop aid machining to
precise tolerances
M-FS-553 B66-10149 05

Mount enables precision adjustment of
optical-instrumentation mirror
MSC-184 B66-10199 02

Parallel line raster eliminates ambiguities in
reading timing of pulses less than 500
microseconds apart
JPL-805 B66-10386 01

Heavy duty precision leveling jacks expedite
setup time on horizontal boring mill
M-FS-1084 B66-10411 05

Braking mechanism is self actuating and
bidirectional
M-FS-1299 B66-10484 05

Motion drive system is accurately controlled
in the 1-micron range
JPL-864 B66-10695 05

Micromanipulation tool is easily adapted to
many uses
JPL-129 B67-10004 05

Hydrogen maser as a highly stable frequency
reference
M-FS-2437 B67-10146 01

Traveling wire electrode increases
productivity of Electrical Discharge
Machining /EDM/ equipment
ARG-136 B67-10238 05

Standard surface grinder for precision
machining of thin-wall tubing
ARG-10014 B67-10400 05

Precision metal molding
M-FS-13305 B67-10423 05

Automatic transducer switching provides
accurate wide range measurement of pressure
differential
NUC-10001 B67-10540 01

Precision trimmer aids in preparing
biomedical specimen blocks for ultrathin
sectioning
ARG-242 B67-10541 05

Modified sine bar device measures small

SUBJECT INDEX

PRESSURE

angles with high accuracy GSFC-438	B68-10322	02	KSC-09955	B68-10551	05
Rapid and precise analysis for calcium in blood serum ARG-10246	B69-10160	04	PREPOLYMERS Molded elastomer provides compact ferrite-core holder, simplifies assembly JPL-584	B64-10084	05
Tool simplifies machining of pipe ends for precision welding KSC-10361	B69-10231	05	Storage-stable foamable polyurethane is activated by heat LANGLEY-187	B66-10111	03
Precise gimballing mechanism NPO-11057	B69-10270	01	New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118	03
Precision mounting for instrument optical elements provided by polyimide bonding M-FS-20293	B69-10310	05	PRESERVING A technique for making animal restraints ARC-25	B63-10564	05
Magnetomotive forming for precision sizing and joining of large-diameter tubes M-FS-20481	B69-10422	05	Food products for space applications MSC-11697	B68-10324	04
Live-timer method of automatic dead-time correction for precision counting ARG-10478	B69-10612	01	PRESSES Rapid billet loader aids extrusion of refractory metals LEWIS-50	B63-10354	05
Laser interferometer micrometer system M-FS-14747	B69-10633	02	Opaque microfiche masthead permits easy reading HQ-7	B65-10306	01
PREDICTIONS Mathematical relation predicts achievable densities of compacted particles ARG-10082	B67-10592	03	Apparatus for fabrication of americium- beryllium neutron sources prevents capsule contamination ARG-184	B67-10202	05
Study of optimum discrete estimators in measurement analysis M-FS-14915	B68-10348	02	Tools for applying lead tape to flat conductor cabling for chemical stripping M-FS-20429	B69-10190	05
Variable-mesh method of solving differential equations NPO-10515	B69-10017	02	Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04
Numerical integration of ordinary differential equations of various orders ARG-10247	B69-10089	02	PRESSING (FORMING) Indexing device ensures proper mating of electrical connectors MSC-155	B65-10263	01
ABTRAJ on-site tracking prediction program NPO-10836	B69-10103	06	Heated die facilitates tungsten forming LEWIS-25A	B66-10047	05
Prediction of friction coefficients for gases LEWIS-10774	B69-10112	02	Porous mandrels provide uniform deformation in hydrostatic powder metallurgy M-FS-1972	B67-10209	03
Application of cryptanalytic techniques to the analysis of NiCd space batteries GSFC-10569	B69-10731	01	Improved molding process ensures plastic parts of higher tensile strength LANGLEY-10033	B68-10132	05
Surface-renewal models for heat-transfer between walls and fluidized beds ARG-10372	B69-10772	02	PRESSURE High-pressure regulating system prevents pressure surges JPL-231	B63-10170	05
Numerical solutions of differential equations M-FS-20537	B69-10779	02	Heavy-duty staple remover operated by hand JPL-IT-1004	B63-10292	05
Determination of permissible applied load stress in structural elements M-FS-16556	B69-10823	02	Electrically heated diaphragm eliminates use of pyrotechnics MSC-241	B65-10400	01
PREFLIGHT ANALYSIS Advanced mission analysis programs GSFC-10575	B69-10171	06	Predicting surface heating rates and pressures resulting from hot exhaust gases MSC-971	B66-10633	05
PREFLIGHT OPERATIONS Separation simulator KSC-67-15	B69-10315	01	Lightweight, all-metal hose assembly has high flexibility and strength over wide range of temperature and pressure M-FS-1831	B66-10635	05
PREFORMS Plastic preforms facilitate fabrication of welded cordwood electronic modules LEWIS-90339	B68-10063	01	Hand-held instrument should relieve hematoma pressure MSC-599	B67-10332	04
PRELAUNCH TESTS Programmed schedule holds for improving launch vehicle holds M-FS-14502	B69-10602	03	Insertion device for pressure testing MSC-15185	B69-10061	03
PREPARATION Weld preparation tool for pipes and tubing					

PRESSURE CHAMBERS

SUBJECT INDEX

Gage provides audible signal to facilitate checkout of connector pins KSC-10335	B69-10173	01	Study made of thin-walled pipe response to turbulent fluids M-FS-1321	B67-10518	05
Segmented SiGe-PbTe couples GSFC-10746	B69-10233	01	Distillation device supplies cesium vapor at constant pressure INP-08124	B68-10020	03
Leakage tester for flat conductor cable connector M-FS-20427	B69-10284	05	Computer program analyzes and designs supersonic wing-body combinations ARC-10141	B68-10335	06
TFE-fluorocarbon liners for flexible hoses M-FS-16480	B69-10288	05	Computer program TRACK performs transient and/or steady state thermal analysis with coupled fluid flow and heat conduction NUC-10189	B68-10450	06
Hermetically sealed pump LEWIS-10837	B69-10320	05	Mechanical properties of a lap joint under uniform clamping pressure M-FS-14538	B69-10141	05
Vibration dampener for Niles vertical boring mill ram MSC-15529	B69-10348	05	Computer programs for axial flow compressor design LEWIS-10765	B69-10174	06
Hydraulic calipers M-FS-18052	B69-10399	05	Quick-acting backup tool for welding ducts M-FS-18404	B69-10396	05
PRESSURE CHAMBERS			PRESSURE DROP		
Vented piston seal prevents fluid leakage between two chambers JPL-179	B63-10141	05	Universal bellows joint restraint permits angular and offset movement WOO-102	B65-10371	05
Integral coolant channels supply made by melt-out method M-FS-91	B63-10497	05	Rotating magnetic poles used to pump mercury LEWIS-276	B66-10434	05
Fluid-pressure meter can be calibrated without removal from flow line M-FS-98	B63-10502	05	Flowmeter measures flow rates of high temperature fluids LEWIS-328	B66-10521	01
Niobium thin films are superconductive in strong magnetic fields at low temperatures JPL-SC-174	B66-10122	02	Selective tube roughening increases heat transfer capability M-FS-599	B66-10610	05
Expandable rubber plug seals openings for pressure testing NU-0048	B66-10229	05	Cold solid propellant motor has stop-restart capability JPL-836	B66-10673	03
Portable lightweight cell provides controlled environment MSC-648	B66-10370	05	Study made of heat transfer and pressure drop through tubes with internal interrupted fins LEWIS-10280	B67-10555	05
Automatic cryogenic liquid level controller is safe for use near combustible substances LEWIS-195	B66-10482	01	Characteristics of fluidized-packed beds ARG-10049	B68-10278	03
Rugged switch responds to minute pressure differentials M-FS-12704	B67-10389	01	Prediction of performance of centrifugal pumps during starts under pressure LEWIS-10900	B69-10263	05
Improved method of dicing integrated circuit wafers into chips ERC-10138	B69-10441	01	Pressure-control purge panel for automatic butt welding M-FS-18465	B69-10403	05
PRESSURE DISTRIBUTION			PRESSURE EFFECTS		
Two-part valve acts as quick coupling JPL-478	B64-10223	05	Probe tests microweld strength WOO-118	B65-10111	05
Calibrated clamp facilitates pressure application MSC-298	B66-10059	05	Flow control valve is independent of pressure drop JPL-WOO-039	B65-10121	05
Post-stressed concrete foundation may reduce machinery vibration ARG-130	B67-10237	05	Pressure responsive seal handles static and dynamic loads GSFC-441	B65-10327	05
Computer program provides steady state analysis for liquid propellant propulsion systems MSC-10064	B67-10414	06	Flexible arms provide constant force for pressure switch calibration HQ-38	B66-10317	05
Computer program MCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid NUC-10042	B67-10456	06	Investigation of pressurized toroidal shells HQ-27	B67-10117	05
Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid NUC-10043	B67-10457	06	Computer program simplifies design of rotating components of turbomachinery NUC-10046	B67-10235	06
			Improved atomic resonance gas cell for use in frequency standards		

SUBJECT INDEX

PRESSURE MEASUREMENTS

MSC-11666	B68-10230	01	W00-247	B66-10022	05
Compressible sleeve provides automatic centering for grinding or turning of cylinders			Materials physically tested in variable-environment chamber		
SAN-10021	B68-10318	05	JPL-789	B66-10130	01
Computer program analyzes and designs supersonic wing-body combinations			Bellows design features low spring rate and long life		
ARC-10141	B68-10335	06	MSC-521	B66-10190	05
Hydrodynamics of a new concept of primary containment by energy absorption			Device without electrical connections in tank measures liquid level		
ARG-10242	B69-10046	05	W00-235	B66-10198	01
Protective clothing for workers with 5-kW and 20-kW short-arc lamps			Fixture tests bellows reliability through repetitive pressure/temperature cycling		
NPO-11155	B69-10218	01	MSC-1176	B67-10111	01
Quality-weld parameters for microwelding techniques and equipment			Rugged switch responds to minute pressure differentials		
M-FS-20484	B69-10303	05	M-FS-12704	B67-10389	01
A method for using surface tension to determine the size of holes in hardware			Automatic transducer switching provides accurate wide range measurement of pressure differential		
MSC-15194	B69-10595	03	NUC-10001	B67-10540	01
Self-sustained hydrodynamic oscillations in a natural-circulation two-phase-flow boiling loop			Prediction of friction coefficients for gases		
ARG-10461	B69-10620	02	LEWIS-10774	B69-10112	02
PRESSURE GAGES			Precision counting for instrument optical elements provided by polyimide bonding		
Fluid-pressure meter can be calibrated without removal from flow line			M-FS-20293	B69-10310	05
M-FS-98	B63-10502	05	Flared-tube fittings with replaceable seat inserts		
Rapid helium-air analyzer can measure other binary gas mixtures			MSC-15372	B69-10519	05
LANGLEY-16	B63-10557	03	Experimental design for research on shock-turbulence interaction		
Device induces lungs to maintain known constant pressure			M-FS-20031	B69-10604	02
MSC-50	B64-10108	04	PRESSURE MEASUREMENTS		
Pickup device reads pressures from ports in rotating mechanisms			Improved variable-reluctance transducer measures transient pressures		
LEWIS-158	B65-10021	05	LANGLEY-10	B63-10321	01
Fluid-pressure measurement apparatus uses short-length manometer tubes			Fluid-pressure meter can be calibrated without removal from flow line		
LEWIS-28	B65-10027	05	M-FS-98	B63-10502	05
Differential pressure gauge has fast response			Tiny sensor-transmitter can withstand extreme acceleration, gives digital output		
M-FS-358	B65-10285	05	ARC-22	B63-10561	01
Cryogenic fluid sampling device permits testing under hazardous conditions			Precision gage measures ultrahigh vacuum levels		
M-FS-1927	B66-10654	02	GSPC-114	B63-10597	01
Device enables calibration of microphones at high sound pressure levels			Pressure transducer 3/8-inch in size can be faired into surface		
M-FS-11980	B67-10336	01	W00-065	B64-10021	05
Ultrasonic wrench produces leaktight connections			Multiple port pressure scanner valve features greater accuracy, quicker data		
M-FS-12561	B67-10353	05	JPL-555	B64-10031	05
Vacuum gage system for radiation environment			Pickup device reads pressures from ports in rotating mechanisms		
LEWIS-10797	B69-10156	01	LEWIS-158	B65-10021	05
PRESSURE GRADIENTS			Fluid-pressure measurement apparatus uses short-length manometer tubes		
Elastic orifice automatically regulates gas bearings			LEWIS-28	B65-10027	05
JPL-135	B63-10123	05	Apparatus measures swelling of membranes in electrochemical cells		
Packless valve with all-metal seal handles wide temperature, pressure range			GSPC-280	B65-10087	01
JPL-361	B63-10228	05	Shock mount isolates pressure transducers from vibration		
Oil-smeared models aid wind tunnel measurements			JPL-631	B65-10113	05
LANGLEY-4	B63-10311	03	Averaging probe reduces static-pressure sensing errors		
Density trace made with computer printout			LANGLEY-36	B65-10114	05
GSPC-322	B65-10200	01	Apparatus facilitates pressure-testing of		
Ring valve responds to differential pressure changes					

PRESSURE OSCILLATIONS

SUBJECT INDEX

metal tubing LEWIS-174	B65-10131	05	parahydrogen LEWIS-10458	B68-10361	06
Vapor pressure measured with inflatable plastic bag GSFC-281	B65-10136	03	Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01
Differential pressure gauge has fast response M-FS-358	B65-10285	05	A mass flux probe for measurement in a supersonic stream LEWIS-10695	B68-10533	02
Remote rapidly varying pressures accurately measured FRC-28	B65-10301	01	Direct indication of particle size in fluidized beds ARG-10130	B69-10083	05
Special mount improves remote transducer accuracy LEWIS-269	B66-10021	01	Vacuum gage system for radiation environment LEWIS-10797	B69-10156	01
Cold cathode ionization gage has rigid metal housing GSFC-445	B66-10041	01	Effect of interparticle forces on the fluidization of fine particles ARG-10264	B69-10195	03
Transmission system isolates pressure transducer from severe environment WOO-239	B66-10064	01	Pneumatic analog-to-pulse frequency converter LEWIS-10345	B69-10276	02
Rod and dish cathode improves penning-type vacuum gage GSFC-447	B66-10082	01	Pressure transducer NPO-10853	B69-10364	01
Microorganisms detected by enzyme-catalyzed reaction JPL-782	B66-10117	04	Flow direction measurement with fixed probes LEWIS-11044	B69-10714	02
Colloidal suspension simulates linear dynamic pressure profile WOO-266	B66-10214	05	PRESSURE OSCILLATIONS		
Studies reveal effects of pipe bends on fluid flow cavitation M-FS-516	B66-10228	05	Pressure transducers dynamically tested with sinusoidal pressure generator LEWIS-268	B66-10031	01
Modified McLeod gage records automatically LEWIS-290	B66-10290	02	Pressure levels and pulsation frequencies can be varied on high pressure/frequency testing device LEWIS-10205	B67-10360	05
Acceleration-compensated pressure transducer has fast response LANGLEY-113	B66-10353	01	PRESSURE PULSES		
Modified McLeod pressure gage eliminates measurement errors ARC-62	B66-10481	01	Direct force-measuring transducer used in blood pressure research ARC-53	B65-10325	01
Volume-ratio calibration system for vacuum gages LEWIS-303	B66-10640	01	Computer program calculates sonic-boom pressure signatures LANGLEY-10096	B67-10489	06
A piezo-bar pressure probe LEWIS-393	B67-10259	01	Magnetic forming studies M-FS-14217	B68-10186	02
IR vidicon scanner monitors many test points M-FS-1937	B67-10277	01	Modified cryogenic storage tank subsystem KSC-10380	B69-10556	02
Automatic transducer switching provides accurate wide range measurement of pressure differential NUC-10001	B67-10540	01	PRESSURE RECORDERS		
Gas pressure in sealed electrochemical cells measured externally GSFC-10004	B67-10551	03	Pressure transducer system is force-balanced, has digital output M-FS-154	B65-10174	05
Quasi-static vapor pressure measurements on reactive systems in inert atmosphere box ARG-90142	B68-10236	01	Blood pressure reprogramming adapter assists signal recording MSC-265	B67-10475	01
Welder analyzer MSC-12068	B68-10242	01	PRESSURE RECOVERY		
Silicon strain sensors enable pressure measurement at cryogenic temperatures M-FS-14703	B68-10262	01	Venturi meter with separable diffuser LEWIS-10483	B68-10295	05
Conceptual dead weight device to provide pressure calibration M-FS-14672	B68-10264	01	PRESSURE REDUCTION		
Real fluid properties of normal and			Cryogenic trap valve has no moving parts M-FS-487	B66-10136	05
			Flexible fastener effects airtight material closure JPL-684	B66-10304	05
			Gas-injection valve operates at high speed HQ-49	B66-10381	05
			Inflatable C-ring seal would ease closing of hatch cover plate MSC-740	B66-10385	05
			Method for predicting frictional loss in metal bellows and flexible hose M-FS-883	B66-10662	05
			Improved compression molding process		

SUBJECT INDEX

PRESSURE SENSORS

LANGLEY-10027	B67-10302	03	protects test personnel	B67-10291	05
Dual rate pressure relief valve			HSC-11010		
MSC-11606	B68-10237	05	Air sampler collects and protects minute		
Design of fluid-duct bends with low			particles		
pressure loss			HQ-10037	B67-10661	01
M-FS-20176	B68-10395	05	Dynamically stable check valve concept for		
Two-step rocket engine bipropellant valve			wide flow range		
concept			M-FS-14579	B68-10247	05
MSC-10951	B69-10280	05	Temperature or pressure controller		
Miniature oxygen resuscitator			LEWIS-10297	B68-10337	01
KSC-10398	B69-10319	04	Fluidic transducer gives pressure output as		
PRESSURE REGULATORS			function of temperature		
High-pressure regulating system prevents			ERC-10093	B68-10537	05
pressure surges			Pneumatic flow comparator		
JPL-231	B63-10170	05	M-FS-18373	B69-10400	05
New package for Belleville spring permits			Pressure-control purge panel for automatic		
rate change, easy disassembly			butt welding		
JPL-392	B63-10247	05	M-FS-18465	B69-10403	05
Compressed gas system operates semitrailer			PRESSURE SENSORS		
brakes during winching operation			Welded pressure transducer made as small as		
JPL-0036	B64-10306	05	1/8th-inch in diameter		
Pressure transducer system is force-balanced,			ARC-11	B63-10429	03
has digital output			Fluid-pressure meter can be calibrated without		
M-FS-154	B65-10174	05	removal from flow line		
One-shot valve may be remotely actuated			M-FS-98	B63-10502	05
WOO-195	B65-10266	05	Pressure transducer 3/8-inch in size can be		
Ring valve responds to differential pressure			faired into surface		
changes			WOO-065	B64-10021	05
WOO-247	B66-10022	05	Metal diaphragm used to calibrate miniature		
Dual regulator controls two gases from a			transducers		
single reference			M-FS-207	B65-10059	01
MSC-227	B66-10167	05	Shock mount isolates pressure transducers from		
Control system maintains compartment at			vibration		
constant temperature			JPL-631	B65-10113	05
JPL-SC-145	B66-10188	05	Averaging probe reduces static-pressure		
Magnetic latches provide positive			sensing errors		
overpressure control			LANGLEY-36	B65-10114	05
MU-0057	B66-10279	05	System measures unidirectional forces,		
Modified hydraulic braking system limits			excludes extraneous forces		
angular deceleration to safe values			LEWIS-170	B65-10154	05
GSFC-476	B66-10310	05	Pressure transducer system is force-balanced,		
Gas diffuser facilitates withdrawal of			has digital output		
cryogenic liquids from tanks			M-FS-154	B65-10174	05
M-FS-915	B66-10342	05	Pressure sensor responds only to shock wave		
Pneumatic binary encoder replaces multiple			M-FS-238	B65-10184	01
solenoid system			Remote rapidly varying pressures accurately		
M-FS-665	B66-10374	01	measured		
Multidimensional Reaction Kinetic Ablation			FRC-28	B65-10301	01
Program /REKAP/			Direct force-measuring transducer used in		
MSC-143	B66-10495	05	blood pressure research		
Quick-response servo amplifies small			ARC-53	B65-10325	01
hydraulic pressure differences			Special mount improves remote transducer		
ARG-99	B66-10498	05	accuracy		
Check valve installation in pilot operated			LEWIS-269	B66-10021	01
relief valve prevents reverse pressurization			Transmission system isolates pressure		
M-FS-1925	B66-10655	05	transducer from severe environment		
High speed blowdown system provides rapid			WOO-239	B66-10064	01
pressure loss			Bismuth alloy potting seals aluminum connector		
LEWIS-375	B67-10043	05	in cryogenic application		
Portable fixture facilitates pressure			WOO-260	B66-10138	03
testing of instrumentation fittings			Improved system measures output energy of		
M-FS-2032	B67-10121	03	pyrotechnic devices		
High impact pressure regulator withstands			WOO-256	B66-10159	01
impacts of over 15,000 g			Acceleration-compensated pressure transducer		
NFO-10175	B67-10274	01	has fast response		
Remotely operated high pressure valve			LANGLEY-113	B66-10353	01

PRESSURE SWITCHES

SUBJECT INDEX

Plant respirometer enables high resolution of oxygen consumption rates HQ-47	B66-10406	04	Automatic calibration system for pressure transducers M-FS-20127	B68-10412	01
Indicator system provides complete data of engine cylinder pressure variation LEWIS-291	B66-10470	05	Combination probe for airflow measurements LEWIS-10281	B68-10558	01
Design concept for pressure switch calibrator HQ-36	B66-10598	01	Pressure-sensitive bonded junction transducers ERC-10087	B68-10563	01
Pressure probe compensates for dimensional tolerance variations LEWIS-302	B66-10599	01	Direct indication of particle size in fluidized beds ARG-10130	B69-10083	05
Miniature telemetry system accurately measures pressure ARC-74	B66-10624	01	Cryogenic pressure transducer M-FS-14909	B69-10601	01
Gas leak detector is simple and inexpensive M-FS-1206	B66-10669	01	New type pressure transducer for severe thermal environments M-FS-20208	B69-10652	01
Laser Doppler flowmeter measures gas velocity M-FS-1747	B66-10693	02	Miniature backward-diode pressure sensor features stability and low power consumption ERC-10229	B69-10690	01
System enables more complete calibrations of dynamic-pressure transducers M-FS-2063	B67-10099	01	PRESSURE SWITCHES		
A piezo-bar pressure probe LEWIS-393	B67-10259	01	Inflatable bladder provides accurate calibration of pressure switch M-FS-367	B65-10279	01
Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi NUC-10067	B67-10263	01	Indicator system provides complete data of engine cylinder pressure variation LEWIS-291	B66-10470	05
Pressure levels and pulsation frequencies can be varied on high pressure/frequency testing device LEWIS-10205	B67-10360	05	Calibratable solid-state pressure switch M-FS-20474	B69-10437	05
Pump simulator provides variable pressure-flow characteristics LEWIS-10122	B67-10453	05	PRESSURE VESSELS		
Design for high-temperature /1800 deg F/ liquid metal pressure transducer LEWIS-10144	B67-10458	01	Cryogenic filter method produces super-pure helium and helium isotopes JPL-374	B63-10235	03
Automatic transducer switching provides accurate wide range measurement of pressure differential NUC-10001	B67-10540	01	New method forms bond line free of voids LANGLEY-20	B63-10558	05
Instrumentation monitors transported material through variety of parameters M-FS-12938	B67-10545	01	Lightweight door seals cryogenic container against diaphragm type loading M-FS-476	B65-10402	05
Gas pressure in sealed electrochemical cells measured externally GSFC-10004	B67-10551	03	Bismuth alloy potting seals aluminum connector in cryogenic application WOO-260	B66-10138	03
Pneumatic pressure wave generator provides economical, simple testing of pressure transducers NUC-10024	B67-10664	05	Pressure seal ring may be effective over wide temperature range M-FS-486	B66-10211	05
Ultraminiature manometer-tipped cardiac catheter ARC-10054	B67-10669	01	Pressure vessels fabricated with high-strength wire and electroformed nickel M-FS-580	B66-10218	05
Dual rate pressure relief valve MSC-11606	B68-10237	05	Expandable rubber plug seals openings for pressure testing NU-0048	B66-10229	05
Miniature pressure transducer for stressed member application MSC-11869	B68-10246	01	Vapor diffusion electrode improves fuel cell operation LEWIS-187	B66-10281	03
Silicon strain sensors enable pressure measurement at cryogenic temperatures M-FS-14703	B68-10262	01	Fluid logic control circuit operates nutator actuator motor LEWIS-294	B66-10593	05
Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01	Preformed stiffeners used to fabricate structural components for pressurized tanks M-FS-1796	B66-10688	05
			Purification train produces ultrapure hydrogen gas M-FS-1913	B67-10078	03
			Ultrasonics permits brazing complex stainless steel assembly without flux NU-0115	B67-10094	05
			Crack growth measured on flat and curved surfaces at cryogenic temperatures		

SUBJECT INDEX

PRINTED CIRCUITS

LEWIS-389	B67-10384	01	pressurized gas bottles M-FS-14874	B68-10401	05
Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133	B67-10437	03	Sealed container sampling device GSFC-10690	B69-10682	03
Lead plated aluminum ring provides static high pressure seal for large diameter pressure vessel NUC-10008	B67-10539	05	PRESTRESSING Jacketed cryogenic piping is stress relieved M-FS-985	B67-10308	05
High-voltage pulse generator developed for wide-gap spark chambers ARG-10136	B68-10283	01	Beryllium fastener technology M-FS-20306	B69-10019	05
Analysis of filament reinforced metal-shell pressure vessels LEWIS-10352	B68-10405	06	PRETREATMENT Strain-age cracking in Rene 41 alloy M-FS-18650	B69-10605	03
Temperature controlled strain gaged extensometer LEWIS-10353	B68-10543	01	PREVENTION Inhibition of browning in foodstuffs HQ-10177	B69-10493	04
Welded repairs of punctured thin-walled aluminum pressure vessels M-FS-14836	B69-10051	05	PRIMARY BATTERIES Primary cells utilize halogen-organic charge transfer complex JPL-926	B66-10682	02
Adhesive for cryogenic temperature applications LEWIS-10264	B69-10074	03	Primary cell uses neither liquid nor fused electrolytes NPO-10001	B67-10275	01
Sealed container sampling device GSFC-10690	B69-10682	03	PRIMATES Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry NPO-10149	B67-10245	04
Effects of high-pressure hydrogen on storage vessel materials M-FS-18605	B69-10730	03	PRIMERS White primer permits a corrosion-resistant coating of minimum weight M-FS-304	B66-10207	03
PRESSURE WELDING Pressure-welded flange assembly provides leaktight seal at reduced bolt loads M-FS-640	B66-10247	05	PRIMERS (COATINGS) Inorganic paint is durable, fireproof, easy to apply GSFC-366	B65-10156	03
Differential expansion provides pressure for diffusion bonding of large diameter rings M-FS-588	B66-10269	05	Improved primer for bonding polyurethane adhesives to metals M-FS-90591	B69-10540	03
Rhodium-plated barrier against high-temperature fusion bonding M-FS-92155	B69-10544	05	PRINTED CIRCUITS Modular chassis simplifies packaging and interconnecting of circuit boards JPL-236A	B63-10174	01
PRESSURIZING Low-cost insulation system for cryostats eliminates need for a vacuum LEWIS-64	B63-10365	03	Front and back printed circuit layouts presented on single sheet GSFC-93	B63-10596	01
Combustion chamber inlet manifold separates vapor from liquid M-FS-531	B66-10052	05	Compact coaxial connector for printed circuit adds reliability MSC-57	B64-10016	01
Tensile-strength apparatus applies high strain-rate loading with minimum shock JPL-28	B66-10063	05	Use of photographs speeds inspection of printed-circuit boards MSC-72	B64-10118	01
Cryostat modified to aid rotating beam fatigue test M-FS-435	B66-10083	03	Hand tool bends component leads accurately M-FS-308	B65-10181	05
Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons LEWIS-263	B66-10104	03	Modified developer increases line resolution in photosensitive resist GSFC-386	B65-10278	01
Adapter assembly prevents damage to tubing during high pressure tests MSC-563	B66-10330	02	Assembly jig assures reliable solar cell modules GSFC-455	B66-10040	05
Investigation of pressurized toroidal shells HQ-27	B67-10117	05	New television camera eliminates vidicon tube M-FS-472	B66-10112	01
Propellant tank pressurization analysis program M-FS-1506	B67-10625	06	Tool forms right angles in component leads M-FS-722	B66-10346	05
Pneumatic pressure wave generator provides economical, simple testing of pressure transducers NUC-10024	B67-10664	05	Process produces accurate registry between circuit board prints LANGLEY-288	B66-10660	02
Compact monitoring and control console for					

PRINTERS

SUBJECT INDEX

Aluminum heat sink enables power transistors to be mounted integrally with printed circuit board M-FS-13663	B67-10426	01	M-FS-2061	B67-10087	01
Areas of irregular, discontinuous patterns rapidly and accurately measured GSFC-10184	B67-10674	01	Computer program calculates the effective temperature for a crystalline solid /DETS/ NUC-10161	B69-10036	06
Optical system facilitates inspection of printed circuit boards GSFC-07971	B68-10021	02	PRISMATIC BARS One-dimensional Coulomb-damped wave motion in prismatic bars M-FS-14815	B68-10548	02
Inspection criteria ensure quality control of parallel gap soldering M-FS-14530	B68-10257	05	PRISMS Liquid-level meter has no moving parts M-FS-3	B63-10378	03
Standards for compatibility of printed circuit and component lead materials M-FS-14531	B68-10310	01	Optical automatic gain channel M-FS-1550	B66-10596	02
Fixture facilitates soldering operations M-FS-14456	B68-10573	05	Special purpose reflectometer uses modified ulbricht sphere MSC-1135	B67-10109	02
Nondestructive evaluation of printed wiring boards by microhm resistance measurements SAN-10034	B69-10272	01	Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries M-FS-1910	B67-10329	06
Self-shielding printed circuit boards for high frequency amplifiers and transmitters HQ-10433	B69-10314	01	Device enables calibration of microphones at high sound pressure levels M-FS-11980	B67-10336	01
Folded stick module NPO-10854	B69-10498	01	Measuring coplanarity of surfaces MSC-12044	B67-10371	02
Design of printed circuit coils HQ-10431	B69-10665	01	Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01
Investigation of the development of cracks in solder joints M-FS-20444	B69-10807	01	Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02
PRINTERS One-count memory circuit prevents machine mode interaction ARG-90	B66-10559	01	Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01
PRINTERS (DATA PROCESSING) Density trace made with computer printout GSFC-322	B65-10200	01	PROBABILITY DENSITY FUNCTIONS Independent doubly truncated gamma variables M-FS-20143	B68-10345	02
Digital data averager improves conventional measurement system performance MSC-12078	B68-10018	01	On the bound of first excursion probability NPO-11158	B69-10334	06
Fully automatic telemetry data processor GSFC-10576	B68-10336	01	Automatic Gaussian random-noise limiter NPO-10169	B69-10349	01
Two devices for analysis of nystagmus HQ-10273	B69-10224	01	PROBABILITY DISTRIBUTION FUNCTIONS Hybrid computer technique yields random signal probability distributions ARC-34	B65-10208	01
PRINTING Modified procedure speeds camera copy layout for offset printing GSFC-424	B65-10373	02	X-Y plotter adapter developed for SDS-930 computer NPO-10220	B67-10654	06
Offset lenses add versatility to phototypesetting machine HQ-9	B66-10173	02	The X square statistic and goodness of fit test GSFC-10547	B68-10136	02
PRINTOUTS Uppercase and lowercase computer printout increases readability HQ-12	B65-10286	01	Computer program determines exact two-sided tolerance limits for normal distributions M-FS-18045	B68-10158	06
Expandable takeup reel facilitates paper tape removal WOO-271	B66-10399	05	Independent doubly truncated gamma variables M-FS-20143	B68-10345	02
Computer program performs statistical analysis for random processes M-FS-723	B66-10525	01	PROBABILITY THEORY Computer program reduces calculation time of normal response functions M-FS-1517	B67-10108	01
Computer/PERT technique monitors actual versus allocated costs LEWIS-260	B67-10025	01	Computer program calculates monotonic maximum likelihood estimates using method of reversals M-FS-1516	B67-10136	01
Translator program converts computer printout into braille language			FM carrier deviation measured by differential probability method M-FS-2166	B67-10213	01

SUBJECT INDEX

PROCUREMENT

Probabilistic approach to long range planning of manpower MSC-11524	B67-10510	06	A mass flux probe for measurement in a supersonic stream LEWIS-10695	B68-10533	02
Computerized Schedule Effectiveness Technique /SET/ determines present and future schedule position M-FS-13012	B67-10522	06	Propagation of density disturbances in air-water flow ARG-10260	B69-10043	02
Development of reliability prediction technique for semiconductor diodes GSFC-10231	B67-10651	06	Electronic visualization of gas bearing behavior LEWIS-10711	B69-10073	01
Study of optimum discrete estimators in measurement analysis M-FS-14915	B68-10348	02	Concept for a multifunctional oscilloscope probe M-FS-16390	B69-10129	01
Exact minimal-state system reliability analysis M-FS-16551	B69-10409	06	Flow direction measurement with fixed probes LEWIS-11044	B69-10714	02
A new method for the determination of particulate contamination levels for surface cleanliness of fluid systems KSC-10267	B69-10520	02	PROBLEM SOLVING New computer program solves wide variety of heat flow problems M-FS-421	B66-10404	01
Estimating reliability by application of matrix representation HQ-10246	B69-10793	02	Computational procedure for finite difference solution of one-dimensional heat conduction problems reduces computer time MSC-1120	B66-10566	01
Determination of permissible applied load stress in structural elements M-FS-16556	B69-10823	02	Problem of oscillating cone in supersonic flow is solved by small perturbation techniques M-FS-869	B66-10700	02
PROBES Cooling method prolongs life of hot-wire transducer LEWIS-41	B63-10344	02	Calculation of resonance neutron absorption in two-region problems /the GAROL code/ NUC-10045	B67-10223	06
Continuity tester screens out faulty socket connections JPL-596	B64-10065	01	Computer program for mass optional solutions of some endpoint trajectory problems M-FS-12976	B67-10310	06
Improved insertion-loss tester JPL-358	B64-10080	01	Application of distorted models in developing scaled structural models M-FS-2540	B67-10321	05
Spring loaded beaded cable makes efficient wire puller WOO-108	B65-10031	05	Chemical milling solution reveals stress corrosion cracks in titanium alloy LANGLEY-10077	B67-10322	03
Probe tests microweld strength WOO-118	B65-10111	05	Computer subroutine ISUDS accurately solves large system of simultaneous linear algebraic equations NUC-10051	B67-10344	06
Probe measures characteristics of hot gas stream M-FS-240	B65-10133	02	Computer program provides steady state analysis for liquid propellant propulsion systems MSC-10064	B67-10414	06
Novel probe simplifies electronic component testing GSFC-342	B65-10243	01	Program computes equilibrium normal shock and stagnation point solutions for arbitrary gas mixtures LANGLEY-10090	B67-10509	06
Probe samples components of rocket engine exhaust M-FS-485	B65-10384	03	Linear systems of equations solved using mathematical algorithms ARG-10146	B68-10292	06
Thermoelectric metal comparator determines composition of alloys and metals ARG-235	B67-10035	01	Product identification techniques used as training aids for analytical chemists SAN-10025	B68-10373	03
Portable detector set discloses helium leak rates M-FS-1733	B67-10065	01	Charts designate probable future oceanographic research fields M-FS-20202	B68-10397	01
Movable RF probe eliminates need for calibration in plasma accelerators LEWIS-10127	B67-10362	01	Variable-mesh method of solving differential equations NPO-10515	B69-10017	02
Resilient bearing supports are gas controlled LEWIS-10109	B67-10364	05	The compatible conversion system M-FS-15010	B69-10031	06
Vacuum probe sampler removes micron-sized particles from surfaces SAN-10003	B68-10231	04	Computer grading of examinations ARG-10269	B69-10159	06
Indium adhesion provides quantitative measure of surface cleanliness SAN-10024	B68-10342	01	PROCUREMENT Vis-A-Plan /visualize a plan/ management		

PRODUCT DEVELOPMENT

SUBJECT INDEX

technique provides performance-time scale KSC-10073	B67-10240	06	Materials data handbook, Inconel alloy 718 M-FS-2348	B67-10282	03
Materials data handbook, Inconel alloy 718 M-FS-2348	B67-10282	03	Neutron irradiation of Am-241 effectively produces curium ARG-10030	B67-10501	03
PRODUCT DEVELOPMENT			Test and inspection for process control of monolithic circuits M-FS-13084	B67-10507	01
Modified contour projector makes excellent contour densitometer LANGLEY-93	B65-10084	02	Automatic planning concept - An analysis of optimum scheduling M-FS-14198	B68-10127	06
Large seals fabricated from small segments reduce procurement lead time M-FS-1117	B66-10464	05	An economical method for the continuous production of iodine-123 LEWIS-10518	B68-10433	03
Developmental instrument supplies accurate attitude and attitude-rate data HQ-57	B66-10607	01	Materials data handbook, aluminum alloy 6061 M-FS-20381	B69-10065	03
Computerized parts list system coordinates engineering releases, parts control, and manufacturing planning NUC-10073	B67-10348	06	PROFILES		
Review of research and development in fluid logic elements M-FS-420	B67-10438	01	Computer simulation program is adaptable to industrial processes LEWIS-240	B66-10426	01
Development of lunar drill to take core samples to 100-foot depths M-FS-13015	B67-10529	05	Computer program reduces and provides profile plot of surface plate calibration data M-FS-13866	B67-10492	06
Development of helical seal for high temperature /2000 degrees F/ application M-FS-13304	B67-10655	05	PROFILOMETERS		
Projection transparencies from printed material M-FS-14608	B68-10112	01	Device measures curved surface finish on gear teeth WOO-112	B65-10064	05
Improved molding process ensures plastic parts of higher tensile strength LANGLEY-10033	B68-10132	05	Beam profiles measured with thermoluminescent dosimeters ARG-10229	B69-10024	02
Study of convective magnetohydrodynamic channel flow ARG-10102	B68-10181	02	Surface profilometer for examining grain-boundary grooves ARG-10290	B69-10345	05
Beryllium fastener technology M-FS-20306	B69-10019	05	Calibration standard for dynamic evaluation of a profile-plotter M-FS-16476	B69-10458	05
Production of metals and compounds by radiation chemistry LEWIS-10231	B69-10123	03	PROGRAMMERS		
Design and testing of liquid hydrogen-cooled, ultrahigh-speed ball bearings M-FS-18453	B69-10178	05	Numerical Control Machine Data Manual M-FS-14342	B68-10080	05
Handbook for design of containers of fluids and gases for spacecraft M-FS-20502	B69-10279	05	PROGRAMMING		
Hydrogen flash lamps studied ARG-10419	B69-10411	02	Blood pressure reprogramming adapter assists signal recording MSC-265	B67-10475	01
Microelectronic device data handbook ERC-10322	B69-10687	01	Development of Electronic Data Processing /EDP/ augmented management system M-FS-14715	B68-10287	06
Optimum structural design based on reliability and proof-load testing NPO-11228	B69-10723	31	Random access-random release relay switching matrix M-FS-12590	B68-10301	01
PRODUCTION ENGINEERING			PROJECT MANAGEMENT		
Bellows design features low spring rate and long life MSC-521	B66-10190	05	Logic system aids in evaluation of project readiness MSC-753	B66-10457	05
Hermetically sealed cells protected from internal gas pressure GSFC-555	B66-10692	01	GREMEX-A new management training concept GSFC-574	B67-10092	01
Effects of heat input rates on T-1 and T-1A steel welds M-FS-2475	B67-10163	03	Vis-A-Plan /visualize a plan/ management technique provides performance-time scale KSC-10073	B67-10240	06
Vis-A-Plan /visualize a plan/ management technique provides performance-time scale KSC-10073	B67-10240	06	KOPE /Kalendar Oriented Program Efforts/ provides data for management decisions M-FS-12331	B67-10478	06
			Graphic visualization of program performance aids management review NUC-10011	B67-10568	06
			Development of Electronic Data Processing		

SUBJECT INDEX

PROPELLANT TRANSFER

/EDP/ augmented management system M-FS-14715	B68-10287	06	PROPAGATION MODES	Novel horn antenna reduces side lobes, improves radiation pattern JPL-425	B63-10264	01
PROJECTILES				Study of yttrium iron garnet rods reveals new magnetostatic echo mode ERC-37	B67-10153	01
Tiny sensor-transmitter can withstand extreme acceleration, gives digital output ARC-22	B63-10561	01	PROPAGATION VELOCITY	Logic circuit exhibits optimum performance LANGLEY-129	B65-10193	01
PROJECTION				Improved circuit minimizes generation time of pseudonoise check bits JPL-698	B65-10275	01
Use of photographs speeds inspection of printed-circuit boards MSC-72	B64-10118	01	PROPANE	Improved inorganic ion exchange membranes LEWIS-10737	B69-10451	03
Disk calculator indicates legible lettering size for slide projection GSFC-409	B65-10339	05	PROPELLANT COMBUSTION	Explosive-train initiated through solid bulkhead by pressure cartridge MSC-11395	B67-10589	03
Single projector accommodates slides of different size and format GSFC-439	B66-10016	02		Two-step rocket engine bipropellant valve concept MSC-10951	B69-10280	05
Instrument transmits vanishing point to illustration point MSC-267A	B66-10324	01	PROPELLANT PROPERTIES	Computer program for mass optional solutions of some endpoint trajectory problems M-FS-12976	B67-10310	06
Stereo TV enhancement study M-FS-14805	B69-10497	01	PROPELLANT SPRAYS	Two-fluid, impinging-sheet injector NPO-10547	B68-10338	05
PROJECTORS			PROPELLANT TANKS	Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02
Setting of angles on machine tools speeded by magnetic protractor ARC-5	B63-10006	01		Glass bead shot peening retards stress corrosion failure of titanium tanks LANGLEY-319	B67-10198	05
Modified contour projector makes excellent contour densitometer LANGLEY-93	B65-10084	02		Computer program provides steady state analysis for liquid propellant propulsion systems MSC-10064	B67-10414	06
Simple circuit positions film frames in projector JPL-508	B65-10132	02		Propellant tank pressurization analysis program M-FS-1506	B67-10625	06
Optical projectors simulate human eyes to establish operator's field of view WOO-250	B66-10010	02		Study of cryogenic container thermodynamics during propellant transfer M-FS-14310	B68-10108	02
Single projector accommodates slides of different size and format GSFC-439	B66-10016	02		Propellant tank pressurization analysis program M-FS-12623	B69-10007	06
Improved carbon electrode reduces arc sputtering MSC-219	B66-10026	01		Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems M-FS-14447	B69-10158	06
Optical monitor panel provides flexible test panel configurations KSC-66-18	B66-10494	01		A biaxial weld strength prediction method M-FS-20019	B69-10471	05
Water cooled anode increases life of high temperature arc lamp NPO-10180	B67-10247	02	PROPELLANT TESTS	Cryogenic fluid sampling device permits testing under hazardous conditions M-FS-1927	B66-10654	02
Aerial-image enables diagrams and animation to be inserted in motion pictures ARG-165	B67-10398	02	PROPELLANT TRANSFER	Gas diffuser facilitates withdrawal of cryogenic liquids from tanks M-FS-915	B66-10342	05
PROJECTS				Fuel transfer system permits rapid coupling M-FS-91326	B68-10039	05
Probabilistic approach to long range planning of manpower MSC-11524	B67-10510	06		Study of cryogenic container thermodynamics during propellant transfer		
PROLONGATION						
Multiple test chamber exposes materials to various environments MSC-179	B65-10268	01				
PROPAGATION						
Optical superheterodyne receiver uses laser for local oscillator M-FS-1605	B66-10584	01				
Movable RF probe eliminates need for calibration in plasma accelerators LEWIS-10127	B67-10362	01				
Propagation of density disturbances in air-water flow ARG-10260	B69-10043	02				

PROPELLANTS

SUBJECT INDEX

M-FS-14310	B68-10108	02	M-FS-561	B66-10018	05
PROPELLANTS			Tool permits damage-free removal of solar cell	B66-10219	05
Gas chromatographic column enables analysis of propellant hydrazines			GSFC-467		
MSC-1161	B66-10586	03	Seal surfaces protected during assembly	B66-10266	05
Device measures reaction engine thrust vector deviations			NU-0067		
JPL-SC-163	B66-10642	05	Shock-operated valve would automatically protect fluid systems	B66-10335	03
Axisymmetric two-phase perfect gas performance program			M-FS-801		
MSC-11774	B68-10374	06	Impact and puncture resistant material protects parts from damage	B66-10375	05
Axisymmetric reacting gas nonequilibrium performance program			MSC-747		
MSC-11781	B68-10377	06	Metal Oxide Silicon /MOS/ transistors protected from destructive damage by wire	B66-10419	01
PROPORTIONAL CONTROL			ARC-65		
Heater control circuit provides both fast and proportional control			In-tank shutoff valve is provided with maximum blast protection	B66-10514	05
M-FS-906	B67-10097	01	M-FS-1529		
PROPORTIONAL COUNTERS			Hermetically sealed cells protected from internal gas pressure	B66-10692	01
A fast-neutron spectrometer of advanced design			GSFC-555		
M-FS-1664	B66-10555	01	Remotely operated high pressure valve protects test personnel	B67-10291	05
Nondispersive X-ray emission analysis for geochemical exploration			MSC-11010		
GSFC-10568	B69-10011	02	Training course for radiation safety technicians	B67-10477	02
A simple electrometer for measuring small photoelectric currents			ARG-216		
GSFC-10603	B69-10734	01	Connector shorting cap provides pin alignment, inspection, and stray voltage protection	B67-10635	01
PROPULSION			M-FS-13111		
Analysis of secondary cells with lithium anodes and immobilized fused-salt electrolytes			Mechanical shielding reduces weld surface cracking in 6061 T6 aluminum	B68-10022	05
ARG-10452	B69-10613	01	MSC-11494		
PROPULSION SYSTEM PERFORMANCE			Panelized high performance multilayer insulation	B68-10031	03
Computer program provides steady state analysis for liquid propellant propulsion systems			M-FS-14023		
MSC-10064	B67-10414	06	Cover protects critical electrical connectors against damage during handling	B69-10526	01
Rocket engine analog simulation			MSC-15662		
M-FS-14511	B68-10511	01	Glass fabric fire barrier for silicone rubber parts	B69-10629	03
PROPYLENE			MSC-15555		
Special tool seals conductors with combination of plastic sleeves			An electrical connector pin protector	B69-10742	01
M-FS-579	B66-10209	05	MSC-15660		
PROSTHETIC DEVICES			PROTECTIVE CLOTHING		
Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics			Comfortable, lightweight safety helmet holds radio transmitter, receiver	B64-10015	05
LEWIS-320	B66-10373	03	MSC-53		
Human transfer functions used to predict system performance parameters			Double gloves reduce contamination of dry box atmosphere	B65-10117	03
LANGLEY-203	B66-10379	01	LEWIS-211		
Carbon offers advantages as implant material in human body			Self-contained clothing system provides protection against hazardous environments	B66-10201	05
M-FS-18207	B69-10087	04	M-FS-536		
PROTECTION			Flexible fastener effects airtight material closure	B66-10304	05
Portable flooring protects finished surfaces, is easily moved			JPL-684		
M-FS-15	B63-10387	05	Special tool kit aids heavily garmented workers	B66-10403	05
PTC thermistor protects multiloaded power supplies			MSC-163		
GSFC-236	B64-10281	01	Concept to comfort-condition subjects wearing restrictive clothing	B68-10178	02
Shock absorber protects motive components against overloads			MSC-10964		
WOO-092	B65-10008	05	Thermal protective visor for entering high temperature areas	B68-10277	05
Mouthpiece adapter for pipettes protects mouth from harmful liquids			MSC-10285		
LANGLEY-47	B65-10043	03			
Compact retractor protects cabling loops					

SUBJECT INDEX

PROTONS

Biological isolation garment MSC-12206	B68-10500	04	Coating protects magnesium-lithium alloys against corrosion M-FS-2446	B67-10149	03
Protective clothing for workers with 5-kW and 20-kW short-arc lamps NPO-11155	B69-10218	01	New class of thermosetting plastics has improved strength, thermal and chemical stability LEWIS-10108	B67-10197	03
PROTECTIVE COATINGS			Metal flame spray coating protects electrical cables in extreme environment MUC-10077	B67-10351	03
New cobalt alloys have high-temperature strength and long life in vacuum environments LEWIS-47	B63-10351	03	Encapsulation technique eliminates thermal stresses in welded electronic modules M-FS-14581	B68-10307	01
Galvanic corrosion reduced in aluminum fabrications M-FS-272	B65-10140	03	Miniature paint-spray gun for recessed areas MSC-13060	B68-10387	05
Aluminum alloys protected against stress- corrosion cracking M-FS-235	B65-10172	03	Structural thermal-control coatings NPO-10785	B68-10553	03
Thin transparent films formed from powdered glass GSFC-352	B65-10217	03	Corrosion protection of aluminum alloys in contact with other metals M-FS-18526	B69-10098	03
Burnishing technique improves lubrication of threaded fasteners LEWIS-217	B65-10302	03	Renewal of corrosion protection of coated aluminum after welding M-FS-20361	B69-10150	05
Air-cured ceramic coating insulates against high heat fluxes M-FS-150	B65-10357	03	Improved high-temperature silicide coatings LEWIS-10817	B69-10266	03
Fluoride coatings make effective lubricants in molten sodium environment LEWIS-229	B66-10005	03	Nondestructive evaluation of printed wiring boards by microhm resistance measurements SAN-10034	B69-10272	01
Flexible protective coatings made from silicon-nitrogen materials M-FS-528	B66-10027	03	Improved fire resistant radio frequency anchoic materials M-FS-16600	B69-10450	05
Epoxy blanket protects milled part during explosive forming M-FS-307	B66-10029	03	PROTEINS		
Protective coating withstands high temperature in oxidizing atmosphere M-FS-529	B66-10044	03	Large volume continuous counterflow dialyzer has high efficiency HQ-10055	B67-10395	04
Run-in with chemical additive protects gear surface M-FS-548	B66-10069	05	Effect of preparation procedures on intensity of radioautographic labeling is studied ARG-10032	B67-10500	04
Refractory coating protects intricate graphite elements from high-temperature hydrogen MU-0027	B66-10084	01	Study of behavior of sterols at interfaces ARG-10085	B68-10281	03
Vapor grown silicon dioxide improves transistor base-collector junctions GSFC-389	B66-10091	01	Rate constants measured for hydrated electron reactions with peptides and proteins ARG-10195	B68-10424	04
Epoxy-coated containers easily opened by wire band M-FS-592	B66-10174	05	Neutron therapy of cancer ARG-10310	B69-10203	04
Coating permits use of strain gage in water and liquid hydrogen M-FS-594	B66-10192	01	Purification and characterization of two fully deuterated enzymes ARG-10314	B69-10207	04
White primer permits a corrosion-resistant coating of minimum weight M-FS-304	B66-10207	03	Inhibition of browning in foodstuffs HQ-10177	B69-10493	04
Substituted silane-diol polymers have improved thermal stability M-FS-469	B66-10259	03	PROTON BEAMS		
Electroless nickel plating on stainless steels and aluminum GSFC-533	B66-10479	03	Beam profiles measured with thermoluminescent dosimeters ARG-10229	B69-10024	02
Intergranular metal phase increases thermal shock resistance of ceramic coating M-FS-1862	B66-10651	03	PROTON IRRADIATION		
Study to minimize hydrogen embrittlement of ultrahigh-strength steels M-FS-2455	B67-10141	03	Semiconductor forms biomedical radiation probe MSC-320	B66-10252	04
			PROTONS		
			Status of ultrachemical analysis for semiconductors M-FS-2254	B67-10138	03
			Four pi-recoil proportional counter used as neutron spectrometer ARG-10101	B68-10326	02

PROTOTYPES

Rate constants measured for hydrated electron reactions with peptides and proteins
ARG-10195 B68-10424 04

Handbook explaining the fundamentals of nuclear and atomic physics
NUC-10330 B69-10705 02

PROTOTYPES
Application of distorted models in developing scaled structural models
M-FS-2540 B67-10321 05

Precision bolometer bridge
MSC-11473 B68-10156 01

Refractory oxide insulated thermocouple designed and analyzed for high temperature applications
ARG-10202 B69-10053 03

A prototype high power portable lamp
M-FS-20229 B69-10189 02

Precise gimballing mechanism
NPO-11057 B69-10270 01

PROTOZOA
Cytology is advanced by studying effects of deuterium environment
ARG-205 B67-10304 04

PROTRACTORS
Setting of angles on machine tools speeded by magnetic protractor
ARC-5 B63-10006 01

Spherical model provides visual aid for cubic crystal study
LEWIS-108 B65-10065 03

Spiral heater coils hand-formed with fixture
LEWIS-208 B65-10192 05

PROTUBERANCES
Experimental program to investigate transonic flow around protuberances
M-FS-20027 B69-10609 05

PROXIMITY
Remote control thermal actuator
LEWIS-10873 B69-10307 01

PSEUDONOISE
Improved circuit minimizes generation time of pseudonoise check bits
JPL-698 B65-10275 01

PN acquisition demodulator achieves automatic synchronization of a telemetry channel
JPL-612 B66-10271 01

Interference effects eliminated in random oriented space station antenna system
MSC-11004 B67-10435 01

Acquisition of pseudonoise signals by sequential estimation
M-FS-13898 B68-10258 01

Communication system features dual mode range acquisition plus time delay measurement
M-FS-14323 B68-10306 01

Combination ranging system and mapping radar
NPO-11001 B69-10325 01

PSYCHOPHYSIOLOGY
Improved electrode paste provides reliable measurement of galvanic skin response
MSC-146 B66-10049 04

PSYCHROMETERS
Tool for reading psychrometric charts
KSC-10358 B69-10527 05

SUBJECT INDEX

PULLEYS
Chain friction system gives positive, reversible drive
ARC-8 B63-10009 05

Rapid billet loader aids extrusion of refractory metals
LEWIS-50 B63-10354 05

Quick-acting clutch disengages idle drive motor
GSFC-143 B64-10028 05

Apparatus alters position of objects to facilitate demagnetization
GSFC-234 B64-10277 05

Mechanism continuously measures static and dynamic cable loads
MSC-217 B66-10107 05

Carriage system remotely moves drawer over extended distance
NU-0092 B66-10711 05

Space-saving hoist for tank manholes
M-FS-16508 B69-10180 05

Automatic leveling and equalizing hoist device
M-FS-16549 B69-10514 05

PULLING
Spring loaded beaded cable makes efficient wire puller
WOO-108 B65-10031 05

Fastener provides for bolt misalignment and quick release of flange
NU-0074 B66-10275 05

Indium adhesion provides quantitative measure of surface cleanliness
SAN-10024 B68-10342 01

PULSE AMPLITUDE
Pulse height analyzer operates at high repetition rates, low power
WOO-046 B65-10041 01

Simple device produces accelerometer calibration pulse
M-FS-363 B65-10269 01

Threshold detector produces narrow pulses at high repetition rates
GSFC-383 B65-10310 01

Instrument performs nondestructive chemical analysis, data can be telemetered
JPL-SC-078 B65-10317 01

Circuit provides accurate four-quadrant multiplication
WOO-272 B66-10331 02

Single channel pulse-height analyzer operates in subnanosecond range
LEWIS-267 B66-10377 01

Simple, one transistor circuit boosts pulse amplitude
GSFC-501 B66-10480 01

Pulse stretcher has improved dynamic range and linearity
ARG-82 B66-10509 01

Correlation established between heat transfer and ultrasonic transmission properties of copper braze bonds
ARG-247 B67-10037 02

Solid-state time-to-pulse-height converter developed
ARG-170 B67-10053 01

Modified univibrator compensates for output timing errors

SUBJECT INDEX

PULSE DURATION

ARG-85	B67-10130	01	Multiplexer uses insulated gate-field effect transistors	B67-10396	01
Alpha particle backscattering measurements used for chemical analysis of surfaces			M-FS-13096		
ARG-116	B67-10186	03	Analog voicing detector responds to pitch	B67-10571	01
Vibration analysis utilizing Mossbauer effect			GSFC-10085		
M-FS-11974	B67-10339	01	PULSE CODE MODULATION		
Numerical least-square method for resolving complex pulse height spectra			Frequency-shift-keyer circuit improves PCM conversion for radio transmission	B63-10511	01
GSFC-10142	B67-10480	06	GSFC-80		
Logic circuit detects both present and missing negative pulses in superimposed wave trains			PCM magnetic tape system efficiently records and reproduces data	B65-10311	01
M-FS-12518	B67-10565	01	GSFC-375		
Epoxy resins produce improved plastic scintillators			Variable word length encoder reduces TV bandwidth requirements	B65-10345	01
ARG-241	B67-10596	03	LANLEY-87		
Versatile analog pulse height computer performs real-time arithmetic operations			PN acquisition demodulator achieves automatic synchronization of a telemetry channel	B66-10271	01
ARG-10052	B67-10626	06	JPL-612		
One-shot pulse shaper circuit			Digital system detects binary code patterns containing errors	B66-10516	01
XGS-11379	B68-10012	01	GSFC-541		
Nondestructive test determines overload destruction characteristics of current limiter fuses			Miniature telemetry system accurately measures pressure	B66-10624	01
XGS-08566	B68-10364	01	ARC-74		
Nondispersive X-ray emission analysis for geochemical exploration			Analog voicing detector responds to pitch	B67-10571	01
GSFC-10568	B69-10011	02	GSFC-10085		
Mossbauer-effect data-collection system			Portable Pulse Code Modulation /PCM/	B68-10106	01
ARG-10282	B69-10027	01	MSC-11369		
Thick transducers used for generating short-duration stress pulses in thin specimens			Simple demodulator for telemetry phase-shift keyed subcarriers	B69-10095	01
ARG-10232	B69-10045	01	NPO-11000		
On-line computer system for use with low-energy nuclear physics experiments is reported			PCM bit detection with correction for intersymbol interference	B69-10153	01
ARG-10257	B69-10094	01	GSFC-10155		
Quality-weld parameters for microwelding techniques and equipment			PCM synchronization by word stuffing	B69-10695	01
M-FS-20484	B69-10303	05	NPO-10688		
Improved pulse shape discriminator for fast neutron-gamma ray detection system			Pulse-code-modulation baseline correction for low signal-to-noise ratios	B69-10750	01
HQ-10151	B69-10481	01	MSC-13268		
Direct determination of lead-210 by liquid-scintillation counting			PULSE COMMUNICATION		
ARG-10462	B69-10611	03	PN acquisition demodulator achieves automatic synchronization of a telemetry channel	B66-10271	01
Highly stable high-rate discriminator for nuclear counting			JPL-612		
ARG-10483	B69-10614	01	Numerical data frame readout system used in testing telemetry systems	B67-10175	01
Pulse-height analyzer with digital readout			GSFC-551		
ARG-10503	B69-10640	01	PULSE DURATION		
Conditioning of pulses from aerosol-particle detectors			Feedback oscillator functions as low-level pulse stretcher	B65-10069	01
ERC-10250	B69-10691	01	GSFC-261		
Pulse-height defect due to electron interaction in dead layers of Ge/Li/gamma-ray detectors			Simple circuit produces high-speed, fixed duration pulses	B65-10228	01
ARG-10362	B69-10767	02	GSFC-285		
PULSE AMPLITUDE MODULATION			Threshold detector produces narrow pulses at high repetition rates	B65-10310	01
Thermocouples electrically checked while connected to data system			GSFC-383		
LANGLEY-182	B66-10623	01	Hybrid circuit achieves pulse regeneration with low power drain	B65-10314	01
Study of yttrium iron garnet rods reveals new magnetostatic echo mode			GSFC-382		
ERC-37	B67-10153	01	Circuit provides accurate four-quadrant multiplication	B66-10331	02
			WOO-272		
			Variable-pulse switching circuit accurately controls solenoid-valve actuations	B67-10022	01
			M-FS-1895		
			Instrument sequentially samples ac signals from several accelerometers		

PULSE DURATION MODULATION

SUBJECT INDEX

JPL-884	B67-10029	01	PULSE FREQUENCY MODULATION		
Recording and time expansion technique for high-speed, single-shot transient video signal			Simple circuit functions as frequency discriminator for PFM signals		
ARC-10003	B67-10139	01	GSFC-267	B65-10102	01
A calibration means for spectrum analyzers			Frequency correction device uses digital circuitry		
MSC-10987	B67-10254	01	GSFC-268	B65-10307	01
Multichannel pulse height analyzer is inexpensive, features low power requirements			Circuit exhibits power efficiency greater than 75 percent		
HQN-10020	B67-10258	01	MSC-254	B66-10034	01
A piezo-bar pressure probe			Study of yttrium iron garnet rods reveals new magnetostatic echo mode		
LEWIS-393	B67-10259	01	ERC-37	B67-10153	01
Transient sensor development			Fast-response frequency-to-analog converter		
M-FS-13370	B67-10471	01	M-FS-709	B67-10257	01
Shock and vibration response of multistage structure			Pneumatic analog-to-pulse frequency converter		
M-FS-14972	B68-10353	05	LEWIS-10345	B69-10276	02
Nondestructive test determines overload destruction characteristics of current limiter fuses			PULSE GENERATORS		
XGS-08566	B68-10364	01	Voltage generator sweeps oscillator frequency linearly with time		
Improved liquid-level sensor for cryogenics			M-FS-219	B64-10320	01
ARG-10162	B69-10210	02	Inexpensive, stable circuit measures heart rate		
Compensation of pulse-rebalanced inertial instruments			MSC-95	B65-10010	01
MSC-13098	B69-10216	01	Pulse generator permits nondestructive testing of component breakdown voltage		
An unconventional magnetically-coupled multivibrator			MSC-122	B65-10054	01
HQ-10226	B69-10480	01	Synchronized pulse generator needs no external power		
Phase-locked-loop phase modulator with high modulation index, low distortion			GSFC-274	B65-10072	01
MSC-12247	B69-10487	01	Simulator produces physiological waveforms		
Analysis of problems related to slingshot shock machine high-velocity shock testing			MSC-94	B65-10091	01
NPO-11193	B69-10506	05	Analog-to-digital converter has increased reliability and reduced power consumption		
Load current sensor for a pulse width modulator power regulator			GSFC-246	B65-10194	01
GSFC-10656	B69-10578	01	Simple circuit produces high-speed, fixed duration pulses		
Cryogenic flux-concentrator			GSFC-285	B65-10228	01
ARG-10494	B69-10654	02	Solid-state laser transmitter is amplitude modulated		
PULSE DURATION MODULATION			MSC-121	B65-10238	01
Novel circuit combines pulse stretcher with NOR gate			Inductor flyback characteristic gives voltage regulator fast response		
GSFC-187	B64-10150	01	GSFC-361	B65-10257	01
Circuit exhibits power efficiency greater than 75 percent			Electromechanical flowmeter accurately monitors fluid flow		
MSC-254	B66-10034	01	GSFC-357	B65-10273	01
Thermocouples electrically checked while connected to data system			Hybrid circuit achieves pulse regeneration with low power drain		
LANGLEY-182	B66-10623	01	GSFC-382	B65-10314	01
Circuit multiplies pulse width modulation, exhibits linear transfer function			Remote control electrical switching system has 1000-output capability		
HQ-56	B67-10055	01	M-FS-380	B65-10318	01
Laboratory pulse modulator uses minority carrier storage diodes			Compact SCR trigger circuit for ignitron switch operates efficiently		
M-FS-2442	B67-10226	01	M-FS-371	B65-10347	01
High power dc/dc and dc/ac electrical power conversion techniques developed			Multiphase clock-pulse generator uses simplified circuitry		
M-FS-13227	B67-10390	01	M-FS-297	B65-10353	01
Analysis and design of a class-D amplifier			Pulse generator using transistors and silicon controlled rectifiers produces high current pulses with fast rise and fall times		
M-FS-14803	B68-10313	01	MSC-405	B66-10456	01
Constant-frequency, variable-duty-cycle multivibrator			Digital system provides superregulation of nanosecond amplifier-discriminator circuit		
XGS-10033	B69-10512	01	ARG-61	B66-10500	01
			Nixie tube display unit employs time-shared		

SUBJECT INDEX

PULSED LASERS

logic ARG-117	B66-10512	01	PULSE POSITION MODULATION Four pi-recoil proportional counter used as neutron spectrometer ARG-10101	B68-10326	02
One-count memory circuit prevents machine mode interaction ARG-90	B66-10559	01	PULSE RATE Ball bearing used in design of rugged flowmeter LEWIS-159	B64-10170	05
Run numbering system for use with data recorders M-FS-2557	B67-10215	01	Phase detector circuit synthesizes own reference signal M-FS-247	B65-10080	01
Glow discharge density sensor probe life is extended M-FS-1707	B67-10229	01	Electronic ampere-hour integrator is accurate to one percent GSFC-203	B65-10308	01
Current steering commutator offers versatility JPL-812	B67-10410	01	Threshold detector produces narrow pulses at high repetition rates GSFC-383	B65-10310	01
Damages in rolling element bearings may be detected early HQ-10031	B67-10658	01	Parallel line raster eliminates ambiguities in reading timing of pulses less than 500 microseconds apart JPL-805	B66-10386	01
One-shot pulse shaper circuit XGS-11379	B68-10012	01	Instrument sequentially samples ac signals from several accelerometers JPL-884	B67-10029	01
High-voltage pulse generator developed for wide-gap spark chambers ARG-10136	B68-10283	01	Laboratory pulse modulator uses minority carrier storage diodes M-FS-2442	B67-10226	01
Solid state high-voltage pulser operates with low supply voltage M-FS-14034	B68-10308	01	Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time ARG-10110	B68-10328	01
Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time ARG-10110	B68-10328	01	Multichannel analyzers at high rates of input ARG-10355	B69-10214	02
Thick transducers used for generating short-duration stress pulses in thin specimens ARG-10232	B69-10045	01	Circuit counts pulses and indicates time of occurrence of slow pulses XNP-06234	B69-10313	01
Remotely-actuated biomedical switch ARC-10105	B69-10117	01	Tracer of electrical conduit or pipes MSC-15223	B69-10347	01
Design for a rapid automatic sync acquisition system NFO-10214	B69-10538	01	Conversion of continuous-direct-current TIG welder to pulse-arc operation M-FS-16411	B69-10393	05
High voltage pulse generator MSC-12178	B69-10548	01	PULSE TIME MODULATION Large capacitor performs as a distributed parameter pulse line LEWIS-176	B66-10291	01
PULSE MODULATION Efficient circuit triggers high-current, high-voltage pulses MSC-14	B64-10024	01	Modified univibrator compensates for output timing errors ARG-85	B67-10130	01
Frequency divider is free of spurious outputs GSFC-308	B65-10334	05	Magnetic forming of resistive materials M-FS-20417	B69-10397	03
Digitally controlled pulse-level discriminator operates over wide voltage range GSFC-324	B66-10129	01	PULSE WIDTH AMPLITUDE CONVERTERS Multichannel pulse height analyzer is inexpensive, features low power requirements HQN-10020	B67-10258	01
Electronic filter discriminates between true and false reflections HQ-55	B67-10071	02	Linear analog dc voltage-to-pulse-width converter GSFC-556	B68-10003	01
Means for improving apparent resolution of television ERC-65	B67-10152	01	PULSED LASERS Laser system used for dynamic balancing of gyros M-FS-12218	B68-10225	05
Acquisition of pseudonoise signals by sequential estimation M-FS-13898	B68-10258	01	Repetitively pulsed, wavelength-selective carbon dioxide laser ERC-10178	B68-10564	02
Analysis of magnetically-controlled processes in pulse-modulation systems GSFC-10241	B69-10070	01	Laser microprobe facility used in the elemental analysis of small feature of a sample		
Magnetically coupled emission regulator GSFC-10056	B69-10213	01			
An electronic circuit for sensing malfunctions in test instrumentation KSC-10209	B69-10392	01			

PULSED RADIATION

SUBJECT INDEX

ARG-10359 B69-10165 02

PULSED RADIATION

Single channel pulse-height analyzer operates in subnanosecond range LEWIS-267 B66-10377 01

Primary radical yields in pulse irradiated alkaline aqueous solution ARG-10322 B69-10167 02

Dual-mode operation of a neutron source, a concept HQ-10106 B69-10248 02

PULSES

Auxiliary circuit enables automatic monitoring of EKG's MSC-106 B65-10142 01

Digital-output cardiograph measures rapid changes in heartbeat rate MSC-133 B65-10143 01

Boron trifluoride nuclear detector preamplifier uses single-cable connection LEWIS-178 B65-10255 01

Simple pulse counting circuit computes sum of squares GSFC-391 B65-10260 01

Binary counter uses fluid logic elements M-FS-323 B65-10377 01

Polarimeter provides transient response in nanosecond range JPL-890 B67-10021 02

Current pulse amplifier transmits detector signals with minimum distortion and attenuation NUC-10055 B67-10347 01

Ultrasonic temperature measuring device LEWIS-10446 B68-10319 01

Thick transducers used for generating short-duration stress pulses in thin specimens ARG-10232 B69-10045 01

Positive and negative output circuits LEWIS-10715 B69-10151 01

Hydrogen flash lamps studied ARG-10419 B69-10411 02

PUNICE

Thermal conductivity and dielectric constant of silicate materials M-FS-14856 B68-10351 03

PUMP IMPELLERS

Thin plastic sheet eliminates need for expensive plating M-FS-1896 B66-10681 03

Prediction of performance of centrifugal pumps during starts under pressure LEWIS-10900 B69-10263 05

Method for predicting pump cavitation performance LEWIS-10916 B69-10446 02

PUMP SEALS

Visco seal design offers zero-leakage and wear-free characteristics WSO-329 B67-10047 05

Hermetically sealed pump LEWIS-10837 B69-10320 05

PUMPING

Rocket sonde measurements of ozone in the upper atmosphere GSFC-10580 B69-10077 02

PUMPS

Vented piston seal prevents fluid leakage between two chambers JPL-179 B63-10141 05

Level of super-cold liquids automatically maintained by levelometer JPL-397 B63-10250 01

Air brake-dynamometer accurately measures torque LEWIS-163 B65-10312 05

Flexible plastic ring assembly makes durable shaft seal WOO-227 B65-10367 05

Rotating magnetic poles used to pump mercury LEWIS-276 B66-10434 05

Quick-response servo amplifies small hydraulic pressure differences ARG-99 B66-10498 05

Simple pump maintains liquid helium level in cryostat M-FS-1763 B67-10039 05

Concept for cryogenic liquid reclamation system NPO-10322 B67-10420 02

Pump simulator provides variable pressure-flow characteristics LEWIS-10122 B67-10453 05

A laboratory method for precisely determining the micro-volume-magnitudes of liquid efflux ARC-10052 B69-10295 05

Repair of weld defects in thin-walled stainless steel tubes M-FS-16293 B69-10305 05

PUNCHED CARDS

Computer program performs statistical analysis for random processes M-FS-723 B66-10525 01

Improved computer program for elastic analysis of highly redundant structural configurations M-FS-13087 B67-10330 06

Computer program conducts facilities utilization and occupancy survey NPO-10326 B67-10476 06

Fully automatic telemetry data processor GSFC-10576 B68-10336 01

Nondispersive X-ray emission analysis for geochemical exploration GSFC-10568 B69-10011 02

SPAN C - Terminal sterilization process analysis program NPO-10805 B69-10039 06

On-line computer system for use with low-energy nuclear physics experiments is reported ARG-10257 B69-10094 01

Astronaut's tool for withdrawing/replacing computer cards M-FS-20453 B69-10183 05

Visual task analysis /VISTA/ M-FS-14716 B69-10394 06

GAMBIT program NUC-10243 B69-10433 06

PUNCHED TAPES

Compact cartridge drives coded tape at constant readout speed JPL-472 B64-10222 01

SUBJECT INDEX

PYRAMIDS

Expandable takeup reel facilitates paper tape removal WOO-271	B66-10399	05	method LEWIS-225	B65-10270	03
Tester automatically checks paper tape punch and reader after maintenance ARC-66	B67-10267	01	Purification train produces ultrapure hydrogen gas M-FS-1913	B67-10078	03
Pocket-size manual tape reader device aids computer tape checking KSC-10058	B67-10361	01	Steel test panel helps control additives in pyrophosphate copper plating LEWIS-10101	B67-10358	05
Saturn S-2 Automatic Software System /SASS/ M-FS-1741	B67-10405	06	Two systems developed for purifying inert atmospheres ARG-10234	B69-10026	03
Computer program FPIP-REV calculates fission product inventory for U-235 fission NUC-10089	B67-10450	06	Transplutonium elements processed from rock debris of underground detonations ARG-10222	B69-10054	03
Punch-magnet delay eliminated by modification of circuit ARG-10333	B69-10416	01	Separation of traces of metal ions from sodium matrices ARG-10341	B69-10168	03
Battery charge-discharge controller MSC-11836	B69-10747	01	Zone purification of potassium chloride ARG-10377	B69-10241	03
PUNCHES			PURITY		
Die and telescoping punch form convolutions in thin diaphragm JPL-SC-135	B65-10393	05	Niobium thin films are superconductive in strong magnetic fields at low temperatures JPL-SC-174	B66-10122	02
Forming tool improves quality of tubing flares WOO-231	B66-10001	05	Xenon fluorides show potential as fluorinating agents ARG-113	B67-10185	03
Versatile impact hand tool M-FS-20140	B68-10371	05	Experiments shed new light on nickel-fluorine reactions ARG-10008	B67-10397	03
PUPILS			Tool samples subsurface soil free of surface contaminants MSC-10988	B67-10473	05
Oculometer for remote tracking of eye movement ERC-10114	B69-10444	02	Preparation of high purity copper fluoride by fluorinating copper hydroxyfluoride LEWIS-10794	B69-10136	03
PURGING			Apparatus automatically measures soluble residue content of volatile solvents SAN-10032	B69-10292	03
Tool provides constant purge during tube welding M-FS-547	B66-10093	05	PUSH-PULL AMPLIFIERS		
Brazing retort manifold design concept may minimize air contamination and enhance uniform gas flow M-FS-707	B66-10371	05	Phase inverter provides variable reference push-pull output HQ-23	B66-10344	01
Plastic tubing protects flexible copper hose M-FS-772	B66-10588	05	Circuit provides overcurrent protection to push-pull amplifier MSC-12033	B67-10300	01
Irradiated gases transferred without contamination or dilution LEWIS-278	B67-10044	03	Adaptive control circuit prevents amplifier saturation ERC-10026	B67-10648	02
Liquid oxygen dicting cleaned by falling film method M-FS-11816	B67-10299	03	Low-cost, fast-response drive circuit for electromagnetic torque motors LEWIS-10143	B68-10386	01
Protected, high-temperature connecting cable LEWIS-10149	B67-10461	01	Fluidic analog amplifier ERC-10102	B68-10538	05
Between-bearing shaft seal, a concept M-FS-18179	B68-10286	05	PUSHING		
Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456	B69-10192	03	Transmission system isolates pressure transducer from severe environment WOO-239	B66-10064	01
Pressure-control purge panel for automatic butt welding M-FS-18465	B69-10403	05	PYRAMIDAL BODIES		
A new method for fabrication of flexible vacuum purge jackets M-FS-12646	B69-10564	03	Image position sensor M-FS-14101	B69-10783	02
PURIFICATION			PYRAMIDS		
Cryogenic filter method produces super-pure helium and helium isotopes JPL-374	B63-10235	03	Test device prevents molecular bounce-back GSPC-82	B63-10546	03
Ceramic materials purified by experimental			Antenna configurations provide polarization diversity GSPC-74	B66-10066	01

PYRIDINES

SUBJECT INDEX

PYRIDINES

Separation of traces of metal ions from sodium matrices
ARG-10341 B69-10168 03

PYRITES

Colloidal suspension simulates linear dynamic pressure profile
WOO-266 B66-10214 05

PYROHYDROLYSIS

Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels
ARG-232 B67-10032 03

PYROLYSIS

Nitrogen dioxide produced by self-sustained pyrolysis of nitrous oxide
LANGLEY-32 B65-10074 05

Impurity diffusion process for silicon semiconductors is fast and precise
GSFC-397 B65-10300 01

Welding, bonding, and sealing of refractory metals by vapor deposition
LEWIS-123 B67-10232 03

Analytical technique characterizes all trace contaminants in water
MSC-11032 B67-10243 03

Fire retardant foams developed to suppress fuel fires
ARC-10098 B68-10358 03

Basal-plane metallography of deformed pyrolytic carbon
NPO-11196 B69-10488 03

PYROMETERS

Nulling pyrometer uses Kerr cell shutter for fast responses
NU-0010 B65-10050 01

Internal cooling increases range of immersion-type temperature probe
LEWIS-171 B65-10157 02

A radiometer-pyrometer
LEWIS-284 B66-10606 01

Self-balancing line-reversal pyrometer automatically measures gas temperatures
LEWIS-348 B67-10268 01

Detection of effect of deposits on optical windows of pyrometer measurements
LEWIS-10366 B68-10367 01

PYROPHORIC MATERIALS

Study made of Raney nickel technology
M-PS-2054 B67-10208 03

Steel test panel helps control additives in pyrophosphate copper plating
LEWIS-10101 B67-10358 05

Isothermal drop calorimeter provides measurements for alpha active, pyrophoric materials
ARG-10186 B69-10002 02

PYROTECHNICS

Electrically heated diaphragm eliminates use of pyrotechnics
MSC-241 B65-10400 01

Improved system measures output energy of pyrotechnic devices
WOO-256 B66-10159 01

High speed blowdown system provides rapid pressure loss
LEWIS-375 B67-10043 05

Explosive-train initiated through solid bulkhead by pressure cartridge

MSC-11395 B67-10589 03

Pyrotechnic device provides one-shot heat source
LEWIS-10131 B68-10062 03

Pyrotechnic-actuated cable release
INP-10849 B68-10535 05

Q

Q FACTORS

RF inductor has high Q, is stable at higher temperatures
JPL-1019 B67-10106 01

System precisely controls oscillation of vibrating mass
M-PS-1875 B67-10276 01

Apparatus makes klystron operating frequency adjustable from remote point
NPO-09831 B67-10514 01

Active rc networks of low sensitivity for integrated circuit transfer function
ARC-10146 B68-10210 01

RF noise suppression using the photodiode effect in semiconductors
MSC-12259 B69-10225 01

Automatic tuning of hydrogen masers
GSFC-10127 B69-10452 01

Q SWITCHED LASERS

Fluorescent photography of spray droplets using a laser light source
LEWIS-10777 B69-10122 02

Laser microprobe facility used in the elemental analysis of small feature of a sample
ARG-10359 B69-10165 02

Q VALUES

Composite filter steepens rejection slopes in microwave application
GSFC-480 B66-10393 01

Dielectrometer design permits measurement in vacuum under irradiation
M-PS-359 B66-10401 01

QUADRATIC EQUATIONS

A theoretical model for determining turbine flowmeter sensitivity
M-PS-1172 B67-10179 01

Determination of quadric equation coefficients describing three-dimensional surfaces, their constraint and skewed planes, and view point areas
M-PS-15043 B69-10435 06

QUADRATURES

Light-controlled resistors provide quadrature signal rejection for high-gain servo systems
WSO-340 B67-10552 01

Combination ranging system and mapping radar
NPO-11001 B69-10325 01

QUADRUPOLES

Ion mass spectrometer for special uses
HQ-10418 B69-10510 02

QUALITATIVE ANALYSIS

Apparatus enables accurate determination of alkali oxides in alkali metals
LEWIS-256 B66-10296 03

Simple, nondestructive test identifies metals
MSC-525 B66-10305 03

Study made of application of stereoscopic display system to analog computer simulation

SUBJECT INDEX

QUALITY CONTROL

M-FS-1263	B66-10590	01	Study made of destructive sectioning of complex structures for examination	LEWIS-341	B66-10676	05	
Trace levels of metallic corrosion in water determined by emission spectrography	MSC-1193	B66-10701	03	Monitor assures availability and quality of communication channels	KSC-66-38	B67-10028	01
Electronic circuitry used to automate paper chromatography	JPL-840	B67-10201	01	Fixture tests bellows reliability through repetitive pressure/temperature cycling	MSC-1176	B67-10111	01
Trace hydrazines in aqueous solutions accurately determined by gas chromatography	MSC-11222	B67-10290	03	Glass bead shot peening retards stress corrosion failure of titanium tanks	LANGLEY-319	B67-10198	05
Compilation of detection sensitivities in thermal-neutron activation	ARG-10068	B67-10641	03	Analytical technique permits comparison of reliability of alternate mechanical designs	NUC-10065	B67-10261	06
Vibration testing and dynamic studies of relays	M-FS-14542	B68-10268	01	Computerized parts list system coordinates engineering releases, parts control, and manufacturing planning	NUC-10073	B67-10348	06
Nondispersive X-ray emission analysis for geochemical exploration	GSFC-10568	B69-10011	02	Test and inspection for process control of monolithic circuits	M-FS-13084	B67-10507	01
QUALITY				Computer magnetic tape rehabilitation study	GSFC-10283	B68-10035	05
Split glass tube assures quality in electron beam brazing	M-FS-564	B66-10151	05	Inspection criteria ensure quality control of parallel gap soldering	M-FS-14530	B68-10257	05
Weld procedure produces quality welds for thick sections of Hastelloy-X	NUC-10048	B67-10195	05	Standards for compatibility of printed circuit and component lead materials	M-FS-14531	B68-10310	01
Workmanship standards for fusion welding	NUC-10050	B67-10200	05	Automatic, nondestructive test monitors in-process weld quality	M-FS-14996	B68-10333	01
Electron beam welder X-rays its own welds	LEWIS-10111	B67-10216	02	Nondestructive test determines overload destruction characteristics of current limiter fuses	XGS-08566	B68-10364	01
Portable machine welding head automatically controls arc	M-FS-12763	B67-10272	05	Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/	ARG-10148	B68-10368	03
Video synchronization processor overcomes poor signal-to-noise ratio	KSC-10002	B67-10515	01	Training manuals for nondestructive testing using magnetic particles	M-FS-20187	B68-10391	03
QUALITY CONTROL				Nondestructive testing of brazed rocket engine components	M-FS-18191	B68-10394	03
Increased performance reliability obtained with dual /redundant/ oscillator system	GSFC-36	B63-10027	01	Environmental test planning, selection and standardization aids available	SAN-10028	B68-10445	06
Composite, vacuum-jacketed tubing replaces bellows in cryogenic systems	LEWIS-67	B63-10368	05	Electronic component reliability analysis by data reduction system	NPO-10243	B68-10507	05
New sintering process adjusts magnetic value of ferrite cores	GSFC-129	B63-10606	01	Failure rates for accelerated acceptance testing of silicon transistors	ERC-10198	B68-10541	01
Welding procedures improves quality of welds, offers other advantages	M-FS-32	B64-10309	01	Weight Control System	M-FS-15028	B69-10041	06
Economical fabrication process produces high quality junction transistors	JPL-SC-065	B64-10330	01	Handbooks for nondestructive testing using ultrasonics	M-FS-20409	B69-10108	03
Force controlled solenoid drives microweld tester	W00-125	B65-10182	01	Camera mount for close-up stereo photographs	LANGLEY-10442	B69-10226	02
Sensor detects hydrocarbon oil contaminants in fluid lines	M-FS-522	B66-10068	01	Electrochemical sintering process for producing electrodes from cadmium felt and a nickel or silver grid	GSFC-10764	B69-10227	05
Design reliability goal developed from small sample	M-FS-403	B66-10405	05	Instruction manuals for liquid penetrant			
Quality control criteria for acceptance testing of cross-wire welds	MSC-627	B66-10587	05				
Fuel and oxidizer valve assembly employs single solenoid actuator	MSC-1046	B66-10648	05				

QUANTITATIVE ANALYSIS

SUBJECT INDEX

nondestructive testing M-FS-14010	B69-10278	05	High-speed furnace uses infrared radiation for controlled brazing NU-0047	B66-10268	02
Semiautomatic inspection of microfilm records M-FS-20240	B69-10301	02	Special treatment reduces helium permeation of glass in vacuum systems HQ-25	B66-10372	02
Precision mounting for instrument optical elements provided by polyimide bonding M-FS-20293	B69-10310	05	Radon gas, useful for medical purposes, safely fixed in quartz ARG-2	B66-10468	04
Electronic analog equalization for vibrational testing NPO-10544	B69-10472	01	Crystal microbalance measures condensable molecular fluxes JPL-845	B67-10012	03
QUANTITATIVE ANALYSIS			A piezo-bar pressure probe LEWIS-393	B67-10259	01
Process for preparing dispersions of alkali metals JPL-734	B66-10639	03	Precision capacitor has improved temperature and operational stability ARG-189	B67-10313	01
Crystal microbalance measures condensable molecular fluxes JPL-845	B67-10012	03	Movable RF probe eliminates need for calibration in plasma accelerators LEWIS-10127	B67-10362	01
Ion exchange determines iodine-131 concentration in aqueous samples ARG-208	B67-10129	04	Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01
Separation technique provides rapid quantitative determination of cesium-137 in irradiated nuclear fuel NUC-10047	B67-10194	03	Nonreciprocal gain control for ring laser M-FS-14041	B67-10653	02
Uranium isotopes quantitatively determined by modified method of atomic absorption spectrophotometry ARG-210	B67-10236	03	Technique developed for measuring transmittance of optical birefringent networks M-FS-14267	B68-10260	02
Prediction of radiation damage effects in transistors GSFC-10021	B67-10606	01	Preparation of silver-activated zinc sulfide thin films GSFC-10687	B68-10271	03
Microprobe investigation of brittle segregates in aluminum MIG and TIG welds M-FS-14720	B68-10334	03	Superconductive thin film makes convenient liquid helium level sensor LANGLEY-10289	B68-10341	01
Indium adhesion provides quantitative measure of surface cleanliness SAN-10024	B68-10342	01	Thermal conductivity and dielectric constant of silicate materials M-FS-14856	B68-10351	03
Nondispersive X-ray emission analysis for geochemical exploration GSFC-10568	B69-10011	02	Protective clothing for workers with 5-kW and 20-kW short-arc lamps NPO-11155	B69-10218	01
Diffusion of trace gases for leak detection - A study M-FS-20254	B69-10067	03	Zone purification of potassium chloride ARG-10377	B69-10241	03
Quantitive determination of flavin nucleotide using the bacterial bioluminescent reaction GSFC-10565	B69-10715	04	Proposed accusto-optic filter HQ-10440	B69-10466	02
QUANTUM COUNTERS			Deposition monitor and control NPO-10706	B69-10722	01
The Quantasyn, an improved quantum detector ERC-10148	B69-10443	01	A simple electrometer for measuring small photoelectric currents GSFC-10603	B69-10734	01
QUANTUM MECHANICS			QUARTZ LAMPS		
Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters M-FS-13594	B67-10527	03	Infrared shield facilitates optical pyrometer measurements LANGLEY-133	B65-10272	02
QUARTZ			Microminiature thermocouple monitors own installation M-FS-1111	B66-10463	05
Lathe converted for grinding aspheric surfaces GSFC-115	B63-10556	05	QUARTZ TRANSDUCERS		
Thermoelectric elements diffusion-bonded to tungsten electrodes GSFC-346	B65-10309	01	Quartz crystals detect gas contaminants during vacuum chamber evacuation NPO-10144	B67-10205	01
Miniature servo accelerometer is force- balanced JPL-155	B65-10340	01	QUASI-STEADY STATES		
Plastic scintillator converts standard photomultiplier to ultraviolet range ERC-9	B66-10108	02	Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes ARG-10274	B69-10047	02

SUBJECT INDEX

RADIANT FLUX DENSITY

Aerodynamic forces of fluttering cylindrical and/or planar structures
M-FS-20497 B69-10781 02

QUATERNARY ALLOYS
Braze alloy holds bonding strength over wide temperature range
LEWIS-337 B66-10519 03

QUENCHING
Recent development in organic scintillators
ARG-10344 B69-10198 03

Measurements of thermoelectric power in annealed and quenched gold-platinum alloys
ARG-10303 B69-10206 03

QUENCHING (COOLING)
New sintering process adjusts magnetic value of ferrite cores
GSFC-129 B63-10606 01

Heat treatment study of aluminum casting alloy M45
M-FS-2397 B67-10159 03

Development of technology for hot-drape forming of large torus sections
M-FS-12141 B67-10341 05

Magnesium-lithium alloys developed for low temperature use
M-FS-1541 B67-10365 03

Levitation-melting technique for metals and alloys
ARG-10240 B69-10006 03

Direct measurement of carbon-14 in carbon dioxide by liquid scintillation counting
ARG-10237 B69-10092 03

QUEUEING THEORY
Queueing register uses fluid logic elements
M-FS-317 B66-10100 05

R

RACKS (FRAMES)
Modular chassis simplifies packaging and interconnecting of circuit boards
JPL-236A B63-10174 01

Electronic assembly rack panels snap on and off
GSFC-59 B64-10121 05

Floating device aligns blind connections
MSC-256 B66-10007 05

RACKS (GEARS)
Special pliers connect hose containing liquid under pressure
JPL-IT-1003 B63-10291 05

RADAR ANTENNAS
Structural thermal-control coatings
NPO-10785 B68-10553 03

RADAR APPROACH CONTROL
FM/CW system measures aircraft attitude
M-FS-276 B65-10290 01

RADAR EQUIPMENT
Circuit converts AM signals to FM for magnetic recording
GSFC-227 B65-10001 01

RADAR MAPS
Combination ranging system and mapping radar
NPO-11001 B69-10325 01

RADAR MEASUREMENT
Study made of application of stereoscopic display system to analog computer simulation
M-FS-1263 B66-10590 01

RADAR TRACKING
Shock absorber protects motive components against overloads
WOO-092 B65-10008 05

Thermal conductivity and dielectric constant of silicate materials
M-FS-14856 B68-10351 03

RADAR TRANSMITTERS
FM/CW system measures aircraft attitude
M-FS-276 B65-10290 01

RADIAL DISTRIBUTION
Radial coolant channels fabricated by simplified method
NU-0070 B66-10267 05

Radial furnace shows promise for growing straight boron carbide whiskers
HQ-50 B67-10070 03

A method of determining combustion gas flow
M-FS-13757 B67-10455 03

Computer programs for axial flow compressor design
LEWIS-10765 B69-10174 06

RADIAL FLOW
Modified gas bearing is adjustable to optimum stiffness ratio
M-FS-145 B64-10050 05

Segmented, arch-bound carbon seal is pressure loaded
M-FS-12777 B67-10325 05

Resilient bearing supports are gas controlled
LEWIS-10109 B67-10364 05

Dynamics of moving bubbles in single and binary component systems
M-FS-14845 B68-10339 02

Radial inflow turbine design charts
LEWIS-10720 B68-10567 05

Geometry and design point performance of axial flow turbines
LEWIS-10471 B69-10111 06

Computer programs for axial flow compressor design
LEWIS-10765 B69-10174 06

Computer program for off-design performance of radial inflow turbines
LEWIS-10764 B69-10267 06

RADIANT COOLING
Graphite cloth facilitates vacuum evaporation of silicon monoxide
M-FS-14764 B68-10256 03

RADIANT FLUX DENSITY
Ion chambers simplify absolute intensity measurements in the vacuum ultraviolet
ERC-10 B66-10439 01

Fast-acting calorimeter measures heat output of plasma gun accelerator
LEWIS-388 B67-10192 01

Foil radiometer accessory improves measurements
M-FS-12684 B67-10448 01

Improved cavity-type absolute total-radiation radiometer
JPL-807 B67-10557 01

Automatic solar lamp intensity control system
XGS-10017 B68-10399 01

Plume radiation program

RADIANT HEATING

SUBJECT INDEX

M-FS-13202 B68-10447 06
 Gage measures total radiation, including vacuum UV, from ionized high-temperature gases
 INP-09802 B69-10028 02

RADIANT HEATING
 Radiant heater for vacuum furnaces offers high structural rigidity, low heat loss
 LEWIS-39 B63-10342 01

Graphite element serves as radiant heat source
 M-FS-105 B65-10218 01

Circular, explosion-proof lamp provides uniform illumination
 MSC-382 B66-10156 02

Improved system measures output energy of pyrotechnic devices
 WOO-256 B66-10159 01

Self-supported aluminum thin films produced by vacuum deposition process
 ARC-58 B66-10387 03

Computer program simplifies transient and steady-state temperature prediction for complex body shapes
 MSC-989 B66-10619 01

Fast-acting calorimeter measures heat output of plasma gun accelerator
 LEWIS-388 B67-10192 01

Radiant heat source, vacuum bag, provide portable bonding oven
 MSC-11342 B67-10570 03

Thermal Network Analyzer Program
 NUC-10540 B69-10239 06

Thermal radiation shields for piping in vacuum environments
 LEWIS-10899 B69-10262 03

Technique for predicting temperature distribution in gases
 LEWIS-10918 B69-10329 01

RADIATION
 Indium foil with beryllia washer improves transistor heat dissipation
 GSFC-42 B63-10033 01

Wide-angle sensor measures radiant heat energy in corrosive atmospheres
 M-FS-228 B65-10019 05

Improved atomic resonance gas cell for use in frequency standards
 MSC-11666 B68-10230 01

Analysis of annular combustors
 LEWIS-10399 B68-10356 06

The response of monoenergetic gamma rays in finite media are investigated
 ARG-10295 B69-10080 02

Silicon carbide diode for increased light output
 M-FS-20063 B69-10096 01

Optically induced free carrier light modulator
 GSFC-10216 B69-10114 01

Production of metals and compounds by radiation chemistry
 LEWIS-10231 B69-10123 03

A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voight line profile
 ARC-10221 B69-10232 06

Deposition monitor and control
 NPO-10706 B69-10722 01

RADIATION ABSORPTION
 Reference black body is compact, convenient to use
 ARC-3 B63-10004 03

Flange on microwave antenna subreflector cuts ground noise
 JPL-362 B63-10229 01

Variable-transparency wall regulates temperatures of structures
 LANGLEY-25 B63-10528 03

Lamp enables measurement of oxygen concentration in presence of water vapor
 MSC-10043 B67-10387 01

Coolants with selective optical filtering characteristics for ruby laser applications
 M-FS-20188 B68-10508 02

A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voight line profile
 ARC-10221 B69-10232 06

RADIATION BELTS
 Radiation tolerant silicon nitride insulated gate field effect transistors
 GSFC-10581 B69-10253 01

RADIATION COUNTERS
 Multiaxial analyzer detects low-energy electrons
 GSFC-329 B65-10213 01

Boron trifluoride nuclear detector preamplifier uses single-cable connection
 LEWIS-178 B65-10255 01

Aluminized thin-window proportional-counter tube is stronger, more responsive in long wavelength region
 JPL-689 B67-10015 01

Ion exchange determines iodine-131 concentration in aqueous samples
 ARG-208 B67-10129 04

Radiation counting technique allows density measurement of metals in high-pressure/high-temperature environment
 ARG-124 B67-10316 02

Compilation of detection sensitivities in thermal-neutron activation
 ARG-10068 B67-10641 03

Four pi-reccl proportional counter used as neutron spectrometer
 ARG-10101 B68-10326 02

Fast framing cameras provide high-speed multi-channel data recording
 ARG-10252 B69-10102 02

Ion mass spectrometer for special uses
 HQ-10418 B69-10510 02

Conditioning of pulses from aerosol-particle detectors
 ERC-10250 B69-10691 01

RADIATION DAMAGE
 Aluminum doping improves silicon solar cells
 LEWIS-206 B66-10181 02

Simplified method introduces drift fields into cells
 GSFC-572 B67-10102 03

RADIATION DETECTORS
 Radiation-detector optical-imaging device is of simplified construction
 GSFC-251 B64-10299 01

SUBJECT INDEX

RADIATION EFFECTS

Instrument accurately measures extremely low air densities M-FS-193	B65-10221	01	Computer programs for antenna feed system design and analysis NPO-10359	B67-10504	06
Instrument performs nondestructive chemical analysis, data can be telemetered JPL-SC-078	B65-10317	01	Noise study of single stage compressor rotor-stator interaction LANGLEY-137	B67-10516	02
Calorimeter accurately measures thermal radiation energy LANGLEY-173	B66-10058	02	High-temperature, gas-filled ceramic rectifiers, thyratrons, and voltage-reference tubes LEWIS-90271	B69-10376	01
Mount makes liquid nitrogen-cooled gamma ray detector portable LEWIS-259	B66-10103	01	Long range holographic contour mapping concept HQ-10350	B69-10700	02
Plastic scintillator converts standard photomultiplier to ultraviolet range ERC-9	B66-10108	02	RADIATION DOSAGE Variable-transparency wall regulates temperatures of structures LANGLEY-25	B63-10528	03
Improved system measures output energy of pyrotechnic devices WOO-256	B66-10159	01	N-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program NUC-10126	B67-10536	06
Semiconductor forms biomedical radiation probe MSC-320	B66-10252	04	SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield NUC-10142	B67-10537	06
Hydrogen fire detection system features sharp discrimination M-FS-643	B66-10368	01	Prediction of radiation damage effects in transistors GSFC-10021	B67-10606	01
Detector measures power in 50 to 30,000 GHz radiation band ERC-26	B66-10581	01	Beam profiles measured with thermoluminescent dosimeters ARG-10229	B69-10024	02
A radiometer-pyrometer LEWIS-284	B66-10606	01	RADIATION EFFECTS Irradiation improves properties of an aromatic polyester LANGLEY-115	B65-10164	03
Alpha particle backscattering measurements used for chemical analysis of surfaces ARG-116	B67-10186	03	Dielectrometer design permits measurement in vacuum under irradiation M-FS-359	B66-10401	01
Infrared radiometer M-FS-13373	B67-10422	01	Test system accurately determines tensile properties of irradiated metals at cryogenic temperatures NUC-10521	B67-10617	02
Compilation of detection sensitivities in thermal-neutron activation ARG-10068	B67-10641	03	Deep gamma ray penetration in thick shields M-FS-14388	B68-10143	02
Improved relay optical element for spectroradiometer using cryogenically cooled detector MSC-11688	B68-10245	02	Deflection circuit monitors force on object under water NUC-10147	B68-10147	01
Automatic solar lamp intensity control system XGS-10017	B68-10399	01	Radiation effects on bacterial cells ARG-10064	B68-10169	04
Readout system for radiation detector MSC-90180	B68-10501	01	Susceptibility of irradiated steels to hydrogen embrittlement ARG-10115	B68-10194	03
The response of monoenergetic gamma rays in finite media are investigated ARG-10295	B69-10080	02	Study of radiation effects on mammalian cells in vitro ARG-10191	B68-10294	02
The Quantasyn, an improved quantum detector ERC-10148	B69-10443	01	Effects of surface preparation on quality of aluminum alloy weldments M-FS-13152	B68-10302	03
Manganese-56 coincidence-counting facility precisely measures neutron-source strength ARG-90261	B69-10621	01	Experimental study and evaluation of radioprotective drugs ARG-10196	B68-10320	04
Pulse-height defect due to electron interaction in dead layers of Ge/Li/gamma-ray detectors ARG-10362	B69-10767	02	CIRCUS--A digital computer program for transient analysis of electronic circuits M-FS-15002	B68-10416	06
RADIATION DISTRIBUTION Novel horn antenna reduces side lobes, improves radiation pattern JPL-425	B63-10264	01	Rate constants measured for hydrated electron reactions with peptides and proteins ARG-10195	B68-10424	04
Fluid pressure used to test turbopump bearings NU-0001	B65-10024	03	Plume radiation program		
Electron beam parallel X-ray generator MSC-11022	B67-10372	02			

RADIATION HAZARDS

SUBJECT INDEX

M-FS-13202	B68-10447	06	Refractory metal shielding /insulation/ increases operating range of induction furnace LEWIS-202	B65-10188	02
Hydrogen peroxide etching proves useful for germanium ARG-10170	B68-10454	03	Infrared shield facilitates optical pyrometer measurements LANGLEY-133	B65-10272	02
Diffusion bond method of joining steel and a TFE-bronze composite M-FS-20482	B69-10237	03	Aluminized fiber glass insulation conforms to curved surfaces M-FS-477	B66-10024	03
Gamma radiation characteristics of plutonium dioxide fuel NPO-11220	B69-10733	02	Densitometer system for liquid hydrogen has high accuracy, fast response M-FS-909	B66-10438	01
RADIATION HAZARDS Spherical electrode eliminates high-voltage breakdown LEWIS-155	B65-10139	01	Carriage system remotely moves drawer over extended distance NU-0092	B66-10711	05
Training course for radiation safety technicians ARG-216	B67-10477	02	Simple motor drive system operates heavy hinged door NU-0093	B66-10712	05
RADIATION MEASUREMENT Ion chambers simplify absolute intensity measurements in the vacuum ultraviolet ERC-10	B66-10439	01	Swing-out rail system separates overhead crane rails NU-0094	B66-10713	05
Gage measures total radiation, including vacuum UV, from ionized high-temperature gases XNP-09802	B69-10028	02	Mechanisms of superconductivity investigated by nuclear radiation M-FS-1944	B67-10057	02
RADIATION MEASURING INSTRUMENTS Mechanical device accurately measures rf phase differences in vhf or uhf ranges M-FS-1738	B66-10694	05	Apparatus for fabrication of americium- beryllium neutron sources prevents capsule contamination ARG-184	B67-10202	05
General computer program for calculation of radiation from inhomogeneous, nonisobaric, nonisothermal rocket exhaust plume M-FS-14314	B68-10044	06	Aluminum-titanium hydride-boron carbide composite provides lightweight neutron shield material NUC-10069	B67-10265	03
Gage measures total radiation, including vacuum UV, from ionized high-temperature gases XNP-09802	B69-10028	02	N-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program NUC-10126	B67-10536	06
Measurement technique for the determination of antenna directivity M-FS-12799	B69-10677	01	SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield NUC-10142	B67-10537	06
RADIATION PROTECTION Simple control device senses solar position JPL-638	B65-10061	01	Graphite cloth facilitates vacuum evaporation of silicon monoxide M-FS-14764	B68-10256	03
One-piece transparent shell improves design of helmet assembly MSC-187	B66-10390	05	Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide ARG-10154	B68-10293	02
Method prevents secondary radiation in radiographic inspection M-FS-13383	B67-10391	02	Miniaturized King furnace permits absorption spectroscopy of small samples ARG-10177	B68-10418	02
Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area NUC-10007	B67-10538	01	Mossbauer vibration calibration systems evaluated M-FS-20014	B69-10125	01
Contamination control handbook M-FS-20185	B68-10392	03	Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems M-FS-14447	B69-10158	06
RADIATION PYROMETERS Graphite element serves as radiant heat source M-FS-105	B65-10218	01	Thermal radiation shields for piping in vacuum environments LEWIS-10899	B69-10262	03
Ultraviolet photographic pyrometer used in rocket exhaust analysis M-FS-499	B66-10095	02	New shield for gamma-ray spectrometry ARG-10388	B69-10344	02
RADIATION SHIELDING Apparatus facilitates high-temperature tensile testing in vacuum LEWIS-42	B63-10345	03	RADIATION SOURCES New sintering process adjusts magnetic value of ferrite cores GSFC-129	B63-10606	01
Simple control device senses solar position JPL-638	B65-10061	01	Multiple element soft X-ray source produces wide range of radiation GSFC-286	B65-10082	02
			Radon gas, useful for medical purposes,		

SUBJECT INDEX

RADIO FREQUENCIES

safely fixed in quartz ARG-2	B66-10468	04	High-emittance coatings on metal substrates LEWIS-10325	B68-10381	03
High intensity radiation heat source is capable of sustained operation ARC-61	B66-10547	02	Monte Carlo direct view factor and generalized radiative heat transfer programs M-FS-15051	B69-10038	06
A continuously operating source of vacuum ultraviolet below 500 angstrom GSFC-545	B66-10576	01	Molecular radiation - Its application in physical measurements and analyses M-FS-14816	B69-10562	02
Modified blackbody device emits high-density radiation M-FS-12744	B67-10388	02	RADIATORS Heat flux sensor design reduces extraneous source effects MSC-400	B66-10531	01
Computer program FPIP-REV calculates fission product inventory for U-235 fission NUC-10089	B67-10450	06	RADII Gimbal angle sensor GSFC-10305	B68-10315	01
Silicon surface barrier detectors used for liquid hydrogen density measurement M-FS-14115	B68-10166	01	MAGNTY - Program for calculating velocities in magnified region of turbomachines LEWIS-10789	B69-10132	06
RADIATION THERAPY Uranyl phthalocyanines show promise in the treatment of brain tumors ARG-100	B67-10188	04	RADIO ANTENNAS Seismometer designed for remote operation in random orientation JPL-320	B66-10085	01
Experimental study and evaluation of radioprotective drugs ARG-10196	B68-10320	04	Omnidirectional antennas transmit and receive over large bandwidth GSFC-436	B66-10133	01
Neutron therapy of cancer ARG-10310	B69-10203	04	Single degree of freedom antenna pointing program /ANTENA/ WFO-10756	B68-10449	06
RADIATION TOLERANCE Aluminum doping improves silicon solar cells LEWIS-206	B66-10181	02	RADIO ASTRONOMY Parametric up-converter increases flexibility of maser KSC-67-98	B67-10104	01
Simplified method introduces drift fields into cells GSFC-572	B67-10102	03	Thermal conductivity and dielectric constant of silicate materials M-FS-14856	B68-10351	03
Butterfly valve with metal seals controls flow of hydrogen from cryogenic through high temperatures NUC-10034	B67-10567	05	RADIO ATTENUATION Automatic gain control circuit handles wide input range MSC-166	B66-10089	01
Improved radiographic image amplifier panel M-FS-14522	B68-10363	02	RADIO COMMUNICATION Comfortable, lightweight safety helmet holds radio transmitter, receiver MSC-53	B64-10015	05
Stratification of centrifuged amoeba nuclei investigated by electron microscopy ARG-10161	B68-10366	04	Literal readout of identification signals in Morse code LANGLEY-10222	B69-10479	01
Abrasion and resistant discharge valve developed ARG-10219	B69-10044	05	RADIO DIRECTION FINDERS Improved VHF direction finding system M-FS-20439	B69-10378	01
Radiation tolerant silicon nitride insulated gate field effect transistors GSFC-10581	B69-10253	01	RADIO EQUIPMENT Concept for a multifunctional oscilloscope probe M-FS-16390	B69-10129	01
Improved retort for cleaning metal powders with hydrogen LEWIS-10718	B69-10468	03	Flexible rivet-set M-FS-20317	B69-10459	05
Development of improved potting and conformal coating compounds M-FS-20219	B69-10559	03	RADIO FILTERS Helical coaxial-resonator makes excellent RF filter GSFC-243	B65-10012	01
Balloon batteries, charged and heated by solar energy GSFC-10769	B69-10585	01	Improved S/N meter MSC-11656	B68-10151	01
RADIATIVE HEAT TRANSFER Inexpensive insulation is effective for cryogenic transfer lines MSC-618	B66-10348	02	RADIO FREQUENCIES Tiny sensor-transmitter can withstand extreme acceleration, gives digital output ARC-22	B63-10561	01
Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries M-FS-1910	B67-10329	06	Modified RF coaxial connector ends vacuum chamber wiring problem GSFC-150	B64-10010	01
Thermal conductivity and dielectric constant of silicate materials M-FS-14856	B68-10351	03			

RADIO FREQUENCY DISCHARGE

SUBJECT INDEX

Improved insertion-loss tester JPL-358	B64-10080	01	LANGLEY-62	B65-10045	01
High-pass RF coaxial filter rejects dc and low frequency signals GSFC-73	B64-10173	01	Auxiliary coil controls temperature of RF induction heater GSFC-428	B66-10067	01
Helical coaxial-resonator makes excellent RF filter GSFC-243	B65-10012	01	RADIO FREQUENCY IMPEDANCE PROBES Movable RF probe eliminates need for calibration in plasma accelerators LEWIS-10127	B67-10362	01
Solid-state laser transmitter is amplitude modulated MSC-121	B65-10238	01	RADIO FREQUENCY INTERFERENCE Wire mesh isolator protects sensitive electronic components GSFC-347	B65-10216	05
Automatic gain control circuit handles wide input range MSC-166	B66-10089	01	Phonocardiograph system monitors heart sounds MSC-185	B66-10154	04
Process reduces secondary resonant emission in electronic components JPL-934	B66-10685	01	Low input voltage converter/regulator minimizes external disturbances GSFC-527	B66-10689	01
Feed-through connector couples RF power into vacuum chamber NU-0096	B67-10027	01	Personal communication system combines high performance with miniaturization MSC-720	B67-10119	01
RF inductor has high Q, is stable at higher temperatures JPL-1019	B67-10106	01	Low speed, long term tracking electric drive system has zero backlash NPO-10173	B67-10220	01
Efficient millimeter wave 1140 GHz/ diode for harmonic power generation HQ-61	B67-10166	01	Broadband choke suppresses spurious currents in antenna structure MSC-10013	B67-10675	01
Laser system generates single-frequency light M-FS-2556	B67-10288	02	Improved S/N meter MSC-11656	B68-10151	01
X-Y plotter adapter developed for SDS-930 computer NPO-10220	B67-10654	06	Survey of man-made electrical noise affecting radio broadcasting HQ-10290	B69-10308	01
MM-wave power meter mount NPO-10348	B68-10152	01	Sprayed shielding of plastic-encapsulated electronic modules M-FS-13570	B69-10607	01
Electrocardiograph transmitted by RF and telephone links in emergency situations FRC-10031	B68-10233	01	RADIO FREQUENCY SHIELDING Shrinkable sleeve eliminates shielding gap in RF cable WOO-207	B65-10387	01
System converts optical phase changes to RF phase changes M-FS-20091	B68-10430	01	RADIO PROBING Glow discharge density sensor probe life is extended M-FS-1707	B67-10229	01
RF noise suppression using the photodielectric effect in semiconductors MSC-12259	B69-10225	01	RADIO RECEIVERS Added diodes increase output of balanced mixer circuit GSFC-354	B65-10276	01
New passive telemetry system HQ-10214	B69-10312	01	Automatic gain control circuit handles wide input range MSC-166	B66-10089	01
Optimum FM pre-emphasis KSC-10151	B69-10359	01	RADIO SIGNALS Detector circuit compensates for vidicon beam current variations GSFC-310	B65-10212	01
Phase multiplying electronic scanning array NPO-10302	B69-10381	01	RADIO TRANSMISSION Frequency-shift-keyer circuit improves PCM conversion for radio transmission GSFC-80	B63-10511	01
Improved fire resistant radio frequency anechoic materials M-FS-16600	B69-10450	05	Omnidirectional antennas transmit and receive over large bandwidth GSFC-436	B66-10133	01
Rotary antenna attenuator NPO-10648	B69-10502	01	RADIO TRANSMITTERS Tiny sensor-transmitter can withstand extreme acceleration, gives digital output ARC-22	B63-10561	01
Pulsed high-voltage dc RF sputtering LEWIS-10920	B69-10699	01	Circuit reduces distortion of FM modulator GSFC-257	B65-10152	01
RADIO FREQUENCY DISCHARGE Ferroelectric bolometer measures RF absolute power at submillimeter wavelengths GSFC-422	B66-10051	01	Added diodes increase output of balanced mixer circuit		
Potassium plasma cell facilitates thermionic energy conversion process ARG-10010	B67-10399	01			
RADIO FREQUENCY HEATING Thermistor connector assembly increases accuracy of measurements					

SUBJECT INDEX

RADIOBIOLOGY

GSFC-354	B65-10276	01	for geochemical exploration GSFC-10568	B69-10011	02
Miniature bioelectric device accurately measures and telemeters temperature ARC-52	B66-10057	01	Recent development in organic scintillators ARG-10344	B69-10198	03
Seismometer designed for remote operation in random orientation JPL-320	B66-10085	01	Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna ARG-10345	B69-10258	02
Automatic patient respiration failure detection system with wireless transmission ARC-10174	B68-10365	01	Automatic bird watcher ARG-10342	B69-10286	02
RADIO WAVES			New shield for gamma-ray spectrometry ARG-10388	B69-10344	02
Mechanical device accurately measures RF phase differences in VHF or UHF ranges M-FS-1738	B66-10694	05	RADIOACTIVE MATERIALS		
RADIOACTIVE CONTAMINANTS			Double gloves reduce contamination of dry box atmosphere LEWIS-211	B65-10117	03
Apparatus for fabrication of americium- beryllium neutron sources prevents capsule contamination ARG-184	B67-10202	05	Radioactive tracer system detects oil contaminants in fluid lines M-FS-512	B66-10090	03
RADIOACTIVE DECAY			Semiconductor forms biomedical radiation probe MSC-320	B66-10252	04
Neutron irradiation of Am-241 effectively produces curium ARG-10030	B67-10501	03	Radioactive method enables determination of surface areas rapidly and accurately NU-0088	B66-10710	03
Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes NUC-10143	B67-10665	06	Practical new method of measuring thermal-neutron fluence NUC-10086	B67-10352	02
Daughter growth in freshly separated Ra-226, Ac-227 and U-232 ARG-10226	B69-10003	02	Improved electromechanical master-slave manipulator ARG-10027	B68-10372	05
Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna ARG-10345	B69-10258	02	Fuse protects circuit from voltage and current overloads MSC-12135	B69-10490	01
Live-timer method of automatic dead-time correction for precision counting ARG-10478	B69-10612	01	RADIOACTIVE WASTES		
Highly stable high-rate discriminator for nuclear counting ARG-10483	B69-10614	01	Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels ARG-232	B67-10032	03
Manganese-56 coincidence-counting facility precisely measures neutron-source strength ARG-90261	B69-10621	01	RADIOACTIVITY		
Synthesis of perbromates ARG-10459	B69-10647	03	Tritiated alumina serves as reagent for self-labeling analysis ARG-209	B67-10315	03
RADIOACTIVE ISOTOPES			Experiments shed new light on nickel-fluorine reactions ARG-10008	B67-10397	03
Single channel pulse-height analyzer operates in subnanosecond range LEWIS-267	B66-10377	01	Direct indication of particle size in fluidized beds ARG-10130	B69-10083	05
Low-energy gamma ray inspection of brazed aluminum joints MSC-1189	B67-10337	02	Recent development in organic scintillators ARG-10344	B69-10198	03
N-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program NUC-10126	B67-10536	06	Remote balance weighs accurately amid high radiation ARG-10387	B69-10242	05
Review of physics, instrumentation and dosimetry of radioactive isotopes ARG-10037	B67-10640	02	Handbook explaining the fundamentals of nuclear and atomic physics NUC-10330	B69-10705	02
Detection sensitivities in 3-8 MeV neutron activation ARG-10210	B68-10298	02	RADIOBIOLOGY		
An economical method for the continuous production of iodine-123 LEWIS-10518	B68-10433	03	Semiconductor forms biomedical radiation probe MSC-320	B66-10252	04
Daughter growth in freshly separated Ra-226, Ac-227 and U-232 ARG-10226	B69-10003	02	Ceric and ferrous dosimeters show precision for 50-5000 rad range ARG-10173	B68-10426	02
Nondispersive X-ray emission analysis			An economical method for the continuous production of iodine-123 LEWIS-10518	B68-10433	03
			Neutron therapy of cancer ARG-10310	B69-10203	04

RADIOCHEMISTRY

SUBJECT INDEX

RADIOCHEMISTRY

Effect of preparation procedures on
intensity of radioautographic labeling is
studied
ARG-10032 B67-10500 04

Compilation of detection sensitivities in
thermal-neutron activation
ARG-10068 B67-10641 03

RADIOGRAPHY

Magnets position X-ray film for weld
inspection
M-FS-253 B65-10110 05

Radioactive tracer system detects oil
contaminants in fluid lines
M-FS-512 B66-10090 03

Commercial film produces positive X-ray photo
in ten seconds
M-FS-521 B66-10307 02

Inflatable holding fixture permits X-rays to
be taken of inner weld areas
M-FS-856 B66-10327 03

Digital computer processing of X-ray photos
JPL-792 B67-10005 04

Polaroid film helps locate objects in
inaccessible areas quickly
MSC-960 B67-10008 02

Detection of entrapped moisture in
honeycomb sandwich structures
MSC-1103 B67-10116 01

Improved television signal processing system
NPO-10140 B67-10246 01

Thermal neutron image intensifier tube
provides brightly visible radiographic
pattern
ARG-120 B67-10296 02

Method prevents secondary radiation in
radiographic inspection
M-FS-13383 B67-10391 02

Effect of preparation procedures on
intensity of radioautographic labeling is
studied
ARG-10032 B67-10500 04

Mechanized X-ray inspection system for
large tanks
M-FS-12867 B67-10564 02

Evaluation of methods for nondestructive
testing of brazed joints
ARG-90175 B68-10191 03

X-ray film holder permits single
continuous picture of tubing joint
LEWIS-10382 B68-10343 05

Improved radiographic image amplifier panel
M-FS-14522 B68-10363 02

Nondestructive testing of brazed rocket
engine components
M-FS-18191 B68-10394 03

Shortened processing time technique for
color industrial radiography
ARG-10235 B69-10001 02

Radiographic threshold detection levels of
aluminum weld defects
M-FS-20487 B69-10418 01

Use of medical and dental X-ray equipment
for nondestructive testing
MSC-13389 B69-10553 01

Direct determination of lead-210 by
liquid-scintillation counting
ARG-10462 B69-10611 03

Effects of high-pressure hydrogen on
storage vessel materials
M-FS-18605 B69-10730 03

RADIOLOGY

Radon gas, useful for medical purposes,
safely fixed in quartz
ARG-2 B66-10468 04

N-SAP and G-SAP neutron and gamma ray
albedo model scatter shield analysis program
NUC-10126 B67-10536 06

Live-timer method of automatic dead-time
correction for precision counting
ARG-10478 B69-10612 01

Electron interaction in matter
M-FS-14886 B69-10674 02

RADIOLYSIS

Polymer film exhibits thermal and radiation
stability
LANGLEY-100 B66-10043 03

Reduction by monovalent zinc, cadmium, and
nickel cations
ARG-10328 B69-10170 03

Production of solvated electrons
ARG-10416 B69-10430 03

RADIOMETERS

Hydrogen fire detection system features sharp
discrimination
M-FS-643 B66-10368 01

A radiometer-pyrometer
LEWIS-284 B66-10606 01

Blackbody cavity radiometer has rapid
response
JPL-521 B66-10679 01

Modified blackbody device emits high-density
radiation
M-FS-12744 B67-10388 02

Infrared radiometer
M-FS-13373 B67-10422 01

Foil radiometer accessory improves
measurements
M-FS-12684 B67-10448 01

Improved cavity-type absolute
total-radiation radiometer
JPL-807 B67-10557 01

Gimbaled-mirror scanning system capable
of spiral pattern
GSFC-10176 B67-10609 02

Properties of optics at high temperature and
their measurement, a study
M-FS-14696 B68-10240 02

Use of both linear and logarithmic
transfer functions to increase dynamic
range of visual channel
GSFC-10675 B69-10037 01

Dewpoint temperature inversions analyzed
ARG-10316 B69-10057 02

Separation of traces of metal ions from
sodium matrices
ARG-10341 B69-10168 03

A computer program for a line-by-line
calculation of spectra from diatomic
molecules and atoms assuming a Voigt
line profile
ARC-10221 B69-10232 06

Multilayer infrared beamsplitter film
system
XGS-11036 B69-10260 02

SUBJECT INDEX

RANDOM VIBRATION

Thermal calibration target XGS-11144	B69-10419	01	JPL-789	B66-10130	01
Radiometric temperature reference MSC-13276	B69-10507	01	Vibration dampener for Niles vertical boring mill ram MSC-15529	B69-10348	05
RADIUM			RANDOM ACCESS MEMORY		
Detection of entrapped moisture in honeycomb sandwich structures MSC-1103	B67-10116	01	Development of Curie point switching for thin film, random access, memory device NPO-10402	B67-10633	02
Direct determination of lead-210 by liquid-scintillation counting ARG-10462	B69-10611	03	The compatible conversion system M-FS-15010	B69-10031	06
RADIUM ISOTOPES			RANDOM ERRORS		
Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna ARG-10345	B69-10258	02	Study of optimum discrete estimators in measurement analysis M-FS-14915	B68-10348	02
RADIUM 226			RANDOM NOISE		
Daughter growth in freshly separated Ra-226, Ac-227 and U-232 ARG-10226	B69-10003	02	Instrument sequentially samples ac signals from several accelerometers JPL-884	B67-10029	01
RADON			A power-spectral-density computer program NPO-10126	B67-10160	01
Radon gas, useful for medical purposes, safely fixed in quartz ARG-2	B66-10468	04	Study of random process theory aids digital data processing M-FS-1475	B67-10309	06
RAFTS			Accuracy of laser measurements improved by pulse autocorrelator electronic system MSC-10033	B67-10338	01
Buoyant stokes litter assembly used for sea rescue operations MSC-131	B66-10019	05	PCM bit detection with correction for intersymbol interference GSFC-10155	B69-10153	01
Pneumatic raft automatically reforms after rupture of buoyant member MSC-11562	B68-10011	05	RF noise suppression using the photodielectric effect in semiconductors MSC-12259	B69-10225	01
RAIL TRANSPORTATION			On the bound of first excursion probability NPO-11158	B69-10334	06
Economical and maintenance-free gas system operates railroad switches NU-0045	B66-10124	05	Automatic Gaussian random-noise limiter NPO-10169	B69-10349	01
RAILS			RANDOM PROCESSES		
Carriage system remotely moves drawer over extended distance NU-0092	B66-10711	05	Computer program performs statistical analysis for random processes M-FS-723	B66-10525	01
Swing-out rail system separates overhead crane rails NU-0094	B66-10713	05	Study of random process theory aids digital data processing M-FS-1475	B67-10309	06
RAMJET ENGINES			New technique for determination of cross-power spectral density with damped oscillators M-FS-14022	B67-10602	02
Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons LEWIS-263	B66-10104	03	Random access-random release relay switching matrix M-FS-12590	B68-10301	01
RAMP FUNCTIONS			Study of optimum discrete estimators in measurement analysis M-FS-14915	B68-10348	02
Transistorized circuit clamps voltage with 0.1 percent error GSFC-196	B65-10118	01	RANDOM SIGNALS		
Parallel line raster eliminates ambiguities in reading timing of pulses less than 500 microseconds apart JPL-805	B66-10386	01	Hybrid computer technique yields random signal probability distributions ARC-34	B65-10208	01
Computer program provides linear sampled- data analysis for high order systems M-FS-12821	B67-10287	06	RANDOM VARIABLES		
Simple first order data compression processor concept NPO-10338	B67-10553	01	Independent doubly truncated gamma variables M-FS-20143	B68-10345	02
Compensation of pulse-rebalanced inertial instruments MSC-13098	B69-10216	01	RANDOM VIBRATION		
RAMPS (STRUCTURES)			A power-spectral-density computer program NPO-10126	B67-10160	01
Selective tube roughening increases heat transfer capability M-FS-599	B66-10610	05	Study made of thin-walled pipe response to turbulent fluids M-FS-1321	B67-10518	05
RAMS (PRESSES)					
Materials physically tested in variable- environment chamber					

RANGE (EXTREMES)

SUBJECT INDEX

RANGE (EXTREMES)

T-handle wrench has torque-limiting action
MSC-280 B66-10065 05

Hand drill adapter limits holes to desired
depth
MSC-346 B66-10123 05

Depth indicator and stop aid machining to
precise tolerances
M-FS-553 B66-10149 05

SiC/Si diode trigger circuit provides
automatic range switching for log amplifier
M-FS-1879 B67-10314 01

Method for reducing snap in magnetic
amplifiers
LEWIS-10388 B68-10388 01

Health hazards of ultrafine metal and metal
oxide powders
LEWIS-10878 B69-10268 04

Determination of permissible applied load
stress in structural elements
M-FS-16556 B69-10823 02

RANGEFINDING

Communication system features dual mode
range acquisition plus time delay
measurement
M-FS-14323 B68-10306 01

Combination ranging system and mapping
radar
NPO-11001 B69-10325 01

RANGER PROJECT

Solid state detectors monitor relay contacts
JPL-785 B66-10396 01

RANKINE CYCLE

Pump simulator provides variable
pressure-flow characteristics
LEWIS-10122 B67-10453 05

Magnetohydrodynamic generators using
two-phase liquid-metal flows
ARG-10168 B69-10162 01

Channel-wall limitations in the
magnetohydrodynamic induction generator
ARG-10128 B69-10255 02

RARE EARTH ALLOYS

Traveling wire electrode increases
productivity of Electrical Discharge
Machining /EDM/ equipment
ARG-136 B67-10238 05

RARE EARTH COMPOUNDS

Improved carbon electrode reduces arc
sputtering
MSC-219 B66-10026 01

RARE EARTH ELEMENTS

Crystal structure analysis of intermetallic
compounds
ARG-10092 B68-10198 03

Transplutonium elements processed from
rock debris of underground detonations
ARG-10222 B69-10054 03

Optically exciting a magnetic memory - A
feasibility study
M-FS-14854 B69-10060 02

Separation of traces of metal ions from
sodium matrices
ARG-10341 B69-10168 03

Separation of the rare earths by
anion-exchange in the presence of lactic
acid
ARG-10436 B69-10377 03

Dielectric materials for use in thin-film

capacitors
M-FS-20471 B69-10387 02

RARE GASES

Novel clamps align large rocket cases,
eliminate back-up bars
M-FS-1 B63-10376 05

Hot-air soldering technique prevents
overheating of electrical components
GSFC-91 B63-10536 01

Welding procedures improves quality of welds,
offers other advantages
M-FS-32 B64-10309 01

Inert gas spraying device aids in repair of
hazardous systems
LEWIS-8B B65-10115 05

Double gloves reduce contamination of dry box
atmosphere
LEWIS-211 B65-10117 03

Thermoelectric elements diffusion-bonded to
tungsten electrodes
GSFC-346 B65-10309 01

Refractory metals welded or brazed with
tungsten inert gas equipment
LEWIS-219 B65-10319 05

Improved tool easily removes brazed tube
connectors
MSC-263 B66-10003 05

Protective coating withstands high temperature
in oxidizing atmosphere
M-FS-529 B66-10044 03

Hydrogen-atmosphere induction furnace has
increased temperature range
LEWIS-153 B66-10055 05

Cryostat modified to aid rotating beam fatigue
test
M-FS-435 B66-10083 03

Solid-film lubricant is effective at high
temperatures in vacuum
LEWIS-228 B66-10087 03

Tool provides constant purge during tube
welding
M-FS-547 B66-10093 05

Highly sensitive solids mass spectrometer
uses inert-gas ion source
ERC-11 B66-10114 02

Aluminum oxide filler prevents obstructions
in tubing during welding
MSC-222 B66-10125 05

Simple device facilitates inert-gas welding
of tubes
M-FS-558 B66-10155 05

Brazing process using Al-Si filler alloy
reliably bonds aluminum parts
MSC-448 B66-10241 05

Differential expansion provides pressure for
diffusion bonding of large diameter rings
M-FS-588 B66-10269 05

Ion chambers simplify absolute intensity
measurements in the vacuum ultraviolet
ERC-10 B66-10439 01

Xenon forms stable compound with fluorine
ARG-4 B66-10467 03

Complex surfaces plated by thin-film
deposition in one operation
LEWIS-292 B67-10006 05

Portable spectrometer monitors inert gas
shield in welding process

SUBJECT INDEX

RC CIRCUITS

M-FS-12144	B67-10326	02	ARG-10232	B69-10045	01
Two systems developed for purifying inert atmospheres			Wind tower influence study		
ARG-10234	B69-10026	03	M-FS-20239	B69-10653	01
Mixing weld gases offers advantages			RAY TRACING		
M-FS-16413	B69-10145	05	Computer programs simplify optical system analysis		
Protective clothing for workers with 5-kW and 20-kW short-arc lamps			GSFC-306	B65-10093	01
NFO-11155	B69-10218	01	Computer program for optical systems ray tracing		
Zone purification of potassium chloride			FRC-10017	B67-10549	06
ARG-10377	B69-10241	03	Automatic design of optical systems by digital computer		
High strength, superplastic superalloy			NFO-10265	B67-10632	06
LEWIS-10805	B69-10293	03	FORTTRAN optical lens design program		
High-temperature, gas-filled ceramic rectifiers, thyratrons, and voltage-reference tubes			NFO-10603	B68-10354	06
LEWIS-90271	B69-10376	01	Selective vignetting of Type 1 X-ray telescopes		
Conversion of continuous-direct-current TIG welder to pulse-arc operation			GSFC-10682	B69-10075	02
M-FS-16411	B69-10393	05	Improved method of optical design		
Improved retort for cleaning metal powders with hydrogen			GSFC-10743	B69-10405	02
LEWIS-10718	B69-10468	03	RAYLEIGH-RITZ METHOD		
RAREFIED GASES			Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles		
Fluorocarbon seal replaces metal piston ring in low density gas environment			LANGLEY-10093	B67-10531	06
LEWIS-10277	B67-10591	05	RAYLEIGH SCATTERING		
RATES (PER TIME)			Improvement in recording and reading holograms		
Computer circuit calculates cardiac output			ERC-10151	B68-10347	02
MSC-274	B66-10006	01	The response of monoenergetic gamma rays in finite media are investigated		
Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters			ARG-10295	B69-10080	02
M-FS-13594	B67-10527	03	RAZOR BLADES		
Scan rate converter for tape recording and playback of TV pictures			Reference black body is compact, convenient to use		
NFO-10166	B67-10676	01	ARC-3	B63-10004	03
Liquid-metal heat transfer in a cocurrent-flow, double-pipe heat exchanger is investigated			RC CIRCUITS		
ARG-10261	B69-10091	02	Low-power transistorized circuit provides staircase waveform		
Device for obtaining separation of oxygen			GSFC-48	B64-10007	01
LANGLEY-11007	B69-10477	01	Stepping motor drive circuit designed for low power drain		
System converts slow-scan to standard fast-scan TV signals			GSFC-198	B65-10026	01
MSC-90534	B69-10748	01	Simulator produces physiological waveforms		
RATIMETERS			MSC-94	B65-10091	01
Rapid helium-air analyzer can measure other binary gas mixtures			Thin-film resistors used in functional electronic blocks		
LANGLEY-16	B63-10557	03	GSFC-380	B65-10305	01
Digital-output cardiometer measures rapid changes in heartbeat rate			High-performance RC bandpass filter is adapted to miniaturized construction		
MSC-133	B65-10143	01	ARC-60	B66-10309	01
RATIOS			Solid-state switch increases switching speed		
High frequency wide-band transformer uses coax to achieve high turn ratio and flat response			WOO-298	B66-10430	01
ARG-107	B66-10600	01	Subminiature deflection circuit operates integrated sweep circuits in TV camera		
Eddy current probe measures size of cracks in nonmetallic materials			MSC-1263	B67-10155	01
M-FS-14059	B67-10645	03	Multiple meter monitoring circuits served by single alarm		
Ratio matching of half-bridge weldable strain gages, computer program			MSC-10984	B67-10369	01
FRC-10032	B69-10040	06	Blood pressure reprogramming adapter assists signal recording		
Thick transducers used for generating short-duration stress pulses in thin specimens			MSC-265	B67-10475	01
			Active rc networks of low sensitivity for integrated circuit transfer function		
			ARC-10146	B68-10210	01
			Active rc filter permits easy trade-off of amplifier gain and sensitivity to gain		

REACTANCE

SUBJECT INDEX

ARC-10042	B68-10539	01	niobate capacitors		
Multichannel analyzers at high rates of input			MSC-11231	B68-10163	01
ARG-10355	B69-10214	02	Reduction by monovalent zinc, cadmium, and nickel cations		
Wide-band doubler and sine wave quadrature generator			ARG-10328	B69-10170	03
NPO-11133	B69-10383	01	REACTOR CORES		
REACTANCE			Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes		
Control circuit maintains unity power factor of reactive load			ARG-10274	B69-10047	02
MSC-192	B66-10431	01	Fuel element concept for long life high power nuclear reactors		
Improved circuit for measuring capacitive and inductive reactances			LEWIS-10309	B69-10154	03
M-FS-13083	B67-10513	01	Identification and evaluation of linear damping models in beam vibrations		
Moebius resistor is noninductive and nonreactive			ARG-10275	B69-10196	03
SAN-10020	B68-10267	01	REACTOR DESIGN		
Microelectronic oscillator, 2			SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield		
GSFC-10387	B69-10063	01	NUC-10142	B67-10537	06
Microelectronic oscillator			Computer program calculates the effective temperature for a crystalline solid /DETS/		
GSFC-10375	B69-10064	01	NUC-10161	B69-10036	06
REACTION CONTROL			REACTOR MATERIALS		
Fuel and oxidizer valve assembly employs single solenoid actuator			Deflection circuit monitors force on object under water		
MSC-1046	B66-10648	05	NUC-10147	B68-10147	01
Piezoelectric linear actuator			REACTOR PHYSICS		
MSC-13194	B69-10469	02	Fast framing cameras provide high-speed multi-channel data recording		
Elimination of dissolved gases in hypergolic engine propellants			ARG-10252	B69-10102	02
M-FS-16179	B69-10692	03	Handbook explaining the fundamentals of nuclear and atomic physics		
REACTION KINETICS			NUC-10330	B69-10705	02
Improved system measures output energy of pyrotechnic devices			REACTOR TECHNOLOGY		
WOO-256	B66-10159	01	Hydrodynamics of a new concept of primary containment by energy absorption		
Computer simulation program is adaptable to industrial processes			ARG-10242	B69-10046	05
LEWIS-240	B66-10426	01	Studies of cycles for liquid-metal magnetohydrodynamic generation of power		
Axisymmetric reacting gas nonequilibrium performance program			ARG-10250	B69-10194	02
MSC-11781	B68-10377	06	READERS		
Titanium-nitrogen reaction investigated for application to gettering systems			Tester automatically checks paper tape punch and reader after maintenance		
ARG-10208	B68-10414	03	ARC-66	B67-10267	01
Rate constants measured for hydrated electron reactions with peptides and proteins			Pocket-size manual tape reader device aids computer tape checking		
ARG-10195	B68-10424	04	KSC-10058	B67-10361	01
REACTION TIME			Long-term data storage and retrieval system, a concept		
Reaction rates of graphite with ozone measured by etch decoration			M-FS-14789	B68-10505	01
ARG-10086	B68-10101	03	READING		
Cryogenic liquid level measuring probe			Simple scale interpolator facilitates reading of graphs		
ARG-10138	B68-10291	01	LEWIS-92	B66-10302	05
System measures response time of photomultiplier tubes			Legibility of electroluminescent instrument panels investigated		
LEWIS-10437	B68-10382	01	MSC-494	B66-10316	02
Method for making small pointed thermocouples			Tool for reading psychrometric charts		
SAN-10014	B68-10389	01	KSC-10358	B69-10527	05
Gamma radiation characteristics of plutonium dioxide fuel			READOUT		
NPO-11220	B69-10733	02	Optics used to measure torque at high rotational speeds		
REACTION WHEELS			LEWIS-13	B63-10338	01
Gimbal angle sensor			Fluid-pressure meter can be calibrated without removal from flow line		
GSFC-10305	B68-10315	01	M-FS-98	B63-10502	05
REACTIVITY					
Improved process for making thin-film sodium					

SUBJECT INDEX

RECEIVERS

Low-cost tape system measures velocity of acceleration GSFC-85	B63-10512	01	Readout system for radiation detector MSC-90180	B68-10501	01
Compact cartridge drives coded tape at constant readout speed JPL-472	B64-10222	01	Flow angle sensor and readout system LEWIS-90298	B69-10050	01
Radiation-detector optical-imaging device is of simplified construction GSFC-251	B64-10299	01	Direct indication of particle size in fluidized beds ARG-10130	B69-10083	05
Transistor voltage comparator performs own sensing GSFC-228	B65-10028	01	Ring laser angle encoder MSC-13099	B69-10115	01
Library of documents compressed into lap-held display kit MSC-125	B65-10030	01	Report on a cryogenic gyroscope NPO-11200	B69-10504	02
System measures angular displacement without contact LANGLEY-46	B65-10073	01	Pulse-height analyzer with digital readout ARG-10503	B69-10640	01
Modified contour projector makes excellent contour densitometer LANGLEY-93	B65-10084	02	Versatile telemonitoring system ARG-10339	B69-10655	01
Simple pulse counting circuit computes sum of squares GSFC-391	B65-10260	01	REAL GASES		
Electrometer preamplifier has drift correction feedback JPL-SC-074	B65-10267	01	Computer program for high pressure real gas effects LEWIS-10820	B69-10222	06
Nonlinear feedback reduces analog-to-digital converter error ARC-46	B65-10277	01	High pressure real gas effects for helium and nitrogen LEWIS-10819	B69-10669	06
Three-dimensional wire-mesh capacitor system measures fluid density WOO-194	B65-10379	01	REAL TIME OPERATION		
Solid state thermostat has integral probe and circuitry M-FS-434	B66-10193	01	New computer system simplifies programming of mathematical equations M-FS-441	B66-10361	01
Digital frequency counter permits readout without disturbing counting process JPL-906	B66-10658	01	System automatically provides dynamic launch decision criteria M-FS-13063	B67-10363	01
Design concept for improved photo-scan tube JPL-818	B67-10157	01	Automatic telemetry checkout system M-FS-12580	B67-10402	01
Numerical data frame readout system used in testing telemetry systems GSFC-551	B67-10175	01	Versatile analog pulse height computer performs real-time arithmetic operations ARG-10052	B67-10626	06
Technique for strip chart recorder time notation GSFC-473	B67-10196	01	X-Y plotter adapter developed for SDS-930 computer NPO-10220	B67-10654	06
System enables dimensional inspection of very large structures M-FS-2477	B67-10214	05	Oculometer for remote tracking of eye movement ERC-10114	B69-10444	02
Portable spectrometer monitors inert gas shield in welding process M-FS-12144	B67-10326	02	Electronic analog equalization for vibrational testing NPO-10544	B69-10472	01
Digital servo readout system increases recording accuracy of servo-balance scales NUC-10125	B67-10496	01	RECEIVERS		
Development of Curie point switching for thin film, random access, memory device NPO-10402	B67-10633	02	Tunnel-diode circuit features zero-level clipping GSFC-241	B65-10002	01
Amplitude and frequency readout overlay GSFC-10183	B68-10054	01	Helical coaxial-resonator makes excellent RF filter GSFC-243	B65-10012	01
Random access-random release relay switching matrix M-FS-12590	B68-10301	01	Device measures fluid drag on test vehicles LANGLEY-34	B65-10195	01
Improvement in recording and reading holograms ERC-10151	B68-10347	02	System locates randomly placed remote objects LANGLEY-209	B66-10315	01
			Transient sensor development M-FS-13370	B67-10471	01
			Apparatus makes klystron operating frequency adjustable from remote point NPO-09831	B67-10514	01
			Concept for automatic Doppler compensation in two-way communication systems GSFC-10213	B67-10643	01
			Reflectometer for receiver input system NPO-10843	B67-10657	01
			Improved phase locked loop receiver		

RECIPROCATATION

SUBJECT INDEX

GSFC-09561 B68-10008 01
Diversity RF receiving system with improved phase-lock characteristics XGS-01222 B68-10068 01
Two-way digital driver/receiver uses one set of lines ERC-10055 B68-10437 01
Low-loss C-band parasitic probe KSC-09348 B69-10251 01
Survey of man-made electrical noise affecting radio broadcasting HQ-10290 B69-10308 01
PCM synchronization by word stuffing NPO-10688 B69-10695 01
Pocket-sized tone-modulated FM transmitter NPO-11180 B69-10725 01
RECIPROCATATION
Storage of electric and magnetic energy in passive nonreciprocal networks ARG-10360 B69-10630 01
Liquid-metal-piston MHD generator ARG-10500 B69-10771 02
RECLAMATION
Concept for cryogenic liquid reclamation system NPO-10322 B67-10420 02
RECOIL PROTONS
Four pi-recoil proportional counter used as neutron spectrometer ARG-10101 B68-10326 02
RECOMBINATION REACTIONS
Axisymmetric reacting gas nonequilibrium performance program MSC-11781 B68-10377 06
RECONSTRUCTION
Two-color holography HQ-10349 B69-10662 02
RECORDERS
Photoelectric system continuously monitors liquid level M-FS-417 B65-10382 01
RECORDING
Improvement in recording and reading holograms ERC-10151 B68-10347 02
Computer grading of examinations ARG-10269 B69-10159 06
RECORDING HEADS
Small digital recording head has parallel bit channels, minimizes cross talk JPL-0029 B63-10284 01
RECORDING INSTRUMENTS
Device calibrates vibration transducer at amplitudes up to 20 g M-FS-86 B63-10572 01
Pressure transducer 3/8-inch in size can be faired into surface WOO-065 B64-10021 05
Manual-feed adapter permits microfilming of continuous oscillograph output NU-0029 B65-10249 01
Tester periodically registers dc amplifier characteristics MSC-190 B66-10148 01
Ultrasonic recording scanner used for nondestructive weld inspection M-FS-284 B66-10220 01

Modified McLeod gage records automatically LEWIS-290 B66-10290 02
Apparatus enables automatic microanalysis of body fluids JPL-962 B66-10515 04
Film coating permits low-force scribing MSC-990 B66-10609 03
Technique for strip chart recorder time notation GSFC-473 B67-10196 01
Machine tests slow-speed sliding friction in high vacuum M-FS-12341 B67-10379 05
Instrumentation monitors transported material through variety of parameters M-FS-12938 B67-10545 01
Recharge unit provides for optimum recharging of battery cells GSFC-10688 B68-10273 01
Direct reading of electrocardiograms and respiration rates KSC-10233 B69-10188 04
Integrated sequence display device KSC-10381 B69-10316 01
Design of a strain-gage probe ARG-10338 B69-10343 05
Experimental design for research on shock-turbulence interaction M-FS-20031 B69-10604 02
RECORDS
Reidentifying hardware after loss of serial number M-FS-18133 B69-10059 05
RECOVERABILITY
Reidentifying hardware after loss of serial number M-FS-18133 B69-10059 05
RECOVERY
Threading hook facilitates safe recovery of heavy loads MSC-46 B64-10185 05
Compact assembly generates plastic foam, inflates flotation bag LANGLEY-96 B65-10090 05
Scoop attachment makes helicopter recoveries easier and safer MSC-130 B65-10229 05
Organic reactants rapidly produce plastic foam LANGLEY-37 B65-10288 03
Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys ARG-199 B66-10594 03
Silver-palladium braze alloy recovered from masking materials M-FS-1845 B66-10631 03
Long time constant timer requires no recovery time GSFC-10091 B67-10487 01
RECOVERY ZONES
Sea dye marker provides visibility for 20 hours MSC-714 B66-10313 03
RECTANGLES
Computer program performs rectangular fitting stress analysis M-FS-13010 B67-10520 06
Rectangular-bore, high-gain laser plasma

SUBJECT INDEX

REDUCTION (CHEMISTRY)

tube HQ-10234	B69-10193	02	KSC-10209	B69-10392	01
RECTANGULAR BEAMS Application of distorted models in developing scaled structural models M-FS-2540	B67-10321	05	RECURSIVE FUNCTIONS New technique for optimal smoothing of data MSC-11354	B68-10060	02
RECTANGULAR PANELS Apparatus measures thermal conductivity of honeycomb-core panels LANGLEY-202	B66-10127	01	Study of optimum discrete estimators in measurement analysis M-FS-14915	B68-10348	02
RECTIFICATION Substituting transistor for diode improves rectifying means GSFC-474	B66-10295	01	System for computing operational probability equations M-FS-16410	B69-10566	06
RECTIFIERS Transistorized trigger circuit is frequency- controllable GSFC-111	B63-10553	01	Automatic computation of data-set definitions ARG-10475	B69-10608	06
Simple circuit continuously monitors thermocouple sensor M-FS-61	B63-10567	01	COGENT programming manual ARG-10463	B69-10656	06
Ring counter may be advanced or retarded by command signal GSFC-101	B64-10144	01	RED SHIFT Hydrogen maser as a highly stable frequency reference M-FS-2437	B67-10146	01
Emission tester for high-power vacuum tubes JPL-628	B64-10158	01	REDUCED GRAVITY Magnetic fluid readily controlled in zero gravity environment LEWIS-126	B65-10335	03
Rotor position sensor switches currents in brushless dc motors GSFC-315	B65-10151	01	Simulator effects partial gravity conditions MSC-152	B66-10339	05
Circuit reduces distortion of FM modulator GSFC-257	B65-10152	01	REDUCTION Metal tube reducer is inexpensive and simple to operate ARG-49	B67-10401	05
Electrometer has automatic zero bias control GSFC-350	B65-10242	01	Advances in aluminum anodizing M-FS-14600	B69-10144	05
Noncontacting vibration transducer has constant sensitivity LANGLEY-99	B65-10392	01	REDUCTION (CHEMISTRY) Process reduces pore diameters to produce superior filters WOO-093	B66-10037	03
Dual-voltage power supply has increased efficiency LEWIS-107A	B66-10002	01	High temperature thermocouple operates in reduction atmosphere NU-0046	B66-10134	01
Thin-film semiconductor rectifier has improved properties MSC-207	B66-10012	01	Apparatus enables accurate determination of alkali oxides in alkali metals LEWIS-256	B66-10296	03
Feedback loop compensates for rectifier nonlinearity M-FS-384	B66-10382	01	Electroless nickel plating on stainless steels and aluminum GSFC-533	B66-10479	03
Electronic test instrument generates extremely small current signals ARG-276	B67-10318	01	Ion exchange determines iodine-131 concentration in aqueous samples ARG-208	B67-10129	04
High power dc/dc and dc/ac electrical power conversion techniques developed M-FS-13227	B67-10390	01	Static electricity of polymers reduced by treatment with iodine WFO-10062	B67-10132	03
Control apparatus for spectral energy source LEWIS-391	B67-10404	01	Oxide film on metal substrate reduced to form metal-oxide-metal layer structure ARG-48	B67-10187	03
Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01	Study made of Raney nickel technology M-FS-2054	B67-10208	03
Remotely-actuated biomedical switch ABC-10105	B69-10117	01	Welding, bonding, and sealing of refractory metals by vapor deposition LEWIS-123	B67-10232	03
Automatic Gaussian random-noise limiter WFO-10169	B69-10349	01	Magnesium-zinc reduction is effective in preparation of metals ARG-10050	B67-10579	03
High-temperature, gas-filled ceramic rectifiers, thyratrons, and voltage-reference tubes LEWIS-90271	B69-10376	01	Metabolic and toxicological effects of water-soluble xenon compounds are studied ARG-90239	B68-10076	04
An electronic circuit for sensing malfunctions in test instrumentation			Improved fuel-cell-type hydrogen sensor M-FS-14656	B68-10263	01

REDUNDANCY

SUBJECT INDEX

Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide ARG-10154	B68-10293	02	An improved magnetic tape recorder GSFC-08259	B67-10646	01
Study of actinide chemistry in saturated potassium fluoride solution ARG-10204	B69-10004	03	Improved control system power unit for large parachutes MSC-12052	B67-10677	05
Preparation of thorium magnesium-zinc reduction ARG-10245	B69-10079	03	REENTRY EFFECTS Accurate depth control provided for thermocouple junction locations LANGLEY-289	B66-10632	01
Production of metals and compounds by radiation chemistry LEWIS-10231	B69-10123	03	REENTRY PHYSICS Colloidal suspension simulates linear dynamic pressure profile WOO-266	B66-10214	05
Primary radical yields in pulse irradiated alkaline aqueous solution ARG-10322	B69-10167	02	REENTRY SHIELDING Fire retardant foams developed to suppress fuel fires ARC-10098	B68-10358	03
Reduction by monovalent zinc, cadmium, and nickel cations ARG-10328	B69-10170	03	REENTRY VEHICLES Sensors measure surface ablation rate of reentry vehicle heat shield LANGLEY-287	B66-10592	01
REDUNDANCY Logic redundancy improves digital system reliability JPL-SC-069	B65-10025	01	High-strength tungsten alloy with improved ductility LEWIS-10257	B67-10340	03
Conceptual nonorthogonal gyro configuration for guidance and navigation MSC-11363	B67-10433	01	REFERENCE SYSTEMS Instrument quickly transposes ground reference target to eye level MSC-275	B66-10061	05
Synchronizing redundant power oscillators XGS-09377	B69-10546	01	Multiple temperatures sampled using only one reference junction GSFC-485	B66-10260	01
System for computing operational probability equations M-FS-16410	B69-10566	06	Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates ARG-151	B66-10601	05
Control jet placement on spacecraft MSC-13365	B69-10671	01	REFLECTANCE Air-cured ceramic coating insulates against high heat fluxes M-FS-150	B65-10357	03
Microelectronic device data handbook ERC-10322	B69-10687	01	Aluminized fiber glass insulation conforms to curved surfaces M-FS-477	B66-10024	03
REDUNDANCY ENCODING Automatic computation of data-set definitions ARG-10475	B69-10608	06	Beam splitter used in dual filming technique M-FS-501	B66-10072	02
REDUNDANT COMPONENTS Triple Modular Redundancy /TMR/ computer operation improved MSC-831	B67-10085	01	Speciman holder design improves accuracy of X-ray powder analysis JPL-SC-165	B66-10075	02
Automatic channel switching device MSC-832	B67-10086	01	Uniform reflective films deposited on large surfaces GSFC-507	B66-10483	02
Improved computer program for elastic analysis of highly redundant structural configurations M-FS-13087	B67-10330	06	Special purpose reflectometer uses modified ulbricht sphere MSC-1135	B67-10109	02
Logic realization of simple majority voting connectives JPL-727	B67-10511	06	Optical integrating sphere operates at visible and infrared wavelengths M-FS-14248	B68-10126	02
SEAL /Subnetwork Enumeration And Listing/ ERC-10116	B68-10227	06	Improved relay optical element for spectroradiometer using cryogenically cooled detector MSC-11688	B68-10245	02
Design and sparing techniques to meet specified performance life HQ-10200	B69-10528	02	Detection of effect of deposits on optical windows of pyrometer measurements LEWIS-10366	B68-10367	01
REELS Dispensing system eliminates torsion in deployed hoses MSC-80	B65-10185	05	Structural thermal-control coatings NPO-10785	B68-10553	03
Automatic reel controls filler wire in welding machines MSC-416	B66-10236	05	Correction for losses in optical birefringent networks, a concept M-FS-20088	B68-10571	02
Expandable takeup reel facilitates paper tape removal WOO-271	B66-10399	05			

SUBJECT INDEX

REFLECTORS

Advances in aluminum anodizing M-FS-14600	B69-10144	05	M-FS-14854	B69-10060	02
Multilayer infrared beamsplitter film system XGS-11036	B69-10260	02	An ultrasonic method for studying elastic moduli as a function of temperature ARG-10187	B69-10082	02
Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01	Surface irregularities detected by flare inspection instrument M-FS-20157	B69-10152	01
REFLECTED WAVES			REFLECTOMETERS		
Concept for using laser beams to measure electron density in plasmas M-FS-965	B66-10645	01	Special purpose reflectometer uses modified ulbricht sphere MSC-1135	B67-10109	02
Fatigue zones in metals identified by polarized light photography WOO-286	B67-10082	02	Ellipsoidal-mirror reflectometer accurately measures infrared reflectance of materials GSFC-566	B67-10444	01
REFLECTING TELESCOPES			Reflectometer for receiver input system NFO-10843	B67-10657	01
Glancing incidence telescope for far ultraviolet and soft X-rays GSFC-10052	B67-10508	02	REFLECTORS		
Telescope mount with azimuth-only primary WFO-10468	B67-10671	02	Flange on microwave antenna subreflector cuts ground noise JPL-362	B63-10229	01
Improved electro-optical tracking system M-FS-14791	B68-10311	01	Optics used to measure torque at high rotational speeds LEWIS-13	B63-10338	01
Image position sensor M-FS-14101	B69-10783	02	Test device prevents molecular bounce-back GSFC-82	B63-10546	03
REFLECTION			Ellipsoidal optical reflectors reproduced by electroforming GSFC-92	B63-10547	05
Liquid-level meter has no moving parts M-FS-3	B63-10378	03	Plastic films for reflective surfaces reproduced from masters GSFC-188	B64-10151	03
Variable-transparency wall regulates temperatures of structures LANGLEY-25	B63-10528	03	Optical arrangement increases useful light output of semiconductor diodes JPL-SC-064	B65-10020	05
Attachment converts microscope to point source autocollimator JPL-499	B64-10124	05	Sensitive level sensor made with spirit level, gives electrical output LANGLEY-49	B65-10067	01
System measures angular displacement without contact LANGLEY-46	B65-10073	01	Oil-damped mercury pool makes precise optical alignment tool GSFC-353	B65-10253	02
Light-sensitive potentiometer measures product of two variables GSFC-240	B65-10076	01	Infrared shield facilitates optical pyrometer measurements LANGLEY-133	B65-10272	02
Pulse technique provides more accurate checkout of exploding bridge wire device HQ-62	B66-10561	01	Nickel solution prepared for precision electroforming WOO-070	B65-10303	03
Optical automatic gain channel M-FS-1550	B66-10596	02	Communication system uses modulated laser beam GSFC-377	B65-10333	01
Electronic filter discriminates between true and false reflections HQ-55	B67-10071	02	Reflective insulator layers separated by bonded silica beads MSC-215	B66-10070	03
Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01	Optical device enables small detector to see large field of view WOO-253	B66-10263	02
Camera lens adapter magnifies image M-FS-11955	B67-10431	02	High-speed furnace uses infrared radiation for controlled brazing NU-0047	B66-10268	02
Fluidic-thermochromic display device ERC-10031	B68-10350	01	Optical monitor panel provides flexible test panel configurations KSC-66-18	B66-10494	01
Automatic system nondestructively monitors and records fatigue crack growth LANGLEY-10091	B68-10379	01	Process sequence produces strong, lightweight reflectors of excellent quality LEWIS-331	B67-10010	05
Thick transducers used for generating short-duration stress pulses in thin specimens ARG-10232	B69-10045	01	Scanning means for Cassegrainian antenna JPL-946	B67-10174	05
Flow angle sensor and readout system LEWIS-90298	B69-10050	01	Cone and column solar energy concentrator		
Optically exciting a magnetic memory - A feasibility study					

REFRACTED WAVES

SUBJECT INDEX

LANGLEY-210	B67-10517	01	M-FS-735	B66-10288	03
Telescope mount with azimuth-only primary NFO-10468	B67-10671	02	Crucible cast from beryllium oxide and refractory cement is impervious to flux and molten metal	ARG-22	B66-10527 03
Resonant microwave dichroic surface GSFC-10658	B69-10274	01	Multilayer refractory nozzles produced by plasma-spray process	WOO-318	B66-10611 05
A new method for producing optical mirrors HQ-10227	B69-10529	02	Decomposition vessel GSFC-10343		B68-10104 03
Multichannel spectroscopy guide HQ-10441	B69-10550	01	Refractory oxide insulated thermocouple designed and analyzed for high temperature applications	ARG-10202	B69-10053 03
Design of multilayer insulation systems ARC-10166	B69-10615	05	Study of high temperature bearing materials LEWIS-10829		B69-10252 03
Image position sensor M-FS-14101	B69-10783	02	Mass-spectrometric study of the rhenium-oxygen system	ARG-10421	B69-10645 02
REFRACTED WAVES			REFRACTORY METAL ALLOYS		
Fatigue zones in metals identified by polarized light photography	WOO-286	02	New cobalt alloys have high-temperature strength and long life in vacuum environments	LEWIS-47	B63-10351 03
REFRACTION			Copper-acrylic enamel serves as lubricant for cold drawing of refractory metals	ARG-54	B66-10471 05
Liquid-level meter has no moving parts M-FS-3	B63-10378	03	New tungsten alloy has high strength at elevated temperatures	LEWIS-336	B66-10551 03
Aerial-image enables diagrams and animation to be inserted in motion pictures	ARG-165	02	Tantalum alloys resist creep deformation at elevated temperatures	LEWIS-350	B66-10558 03
FORTTRAN optical lens design program NPO-10603	B68-10354	06	Welding, bonding, and sealing of refractory metals by vapor deposition	LEWIS-123	B67-10232 03
REFRACTIVITY			Design for high-temperature /1800 deg F/ liquid metal pressure transducer	LEWIS-10144	B67-10458 01
Star/horizon simulator used to test space guidance system	MSC-407	02	Cold machining of high density tungsten and other materials	ARG-10289	B69-10110 05
Accuracy of laser measurements improved by pulse autocorrelator electronic system	MSC-10033	01	Improved high-temperature silicide coatings LEWIS-10817		B69-10266 03
Computer program for optical systems ray tracing	FRC-10017	06	REFRACTORY METALS		
Method of making conical fiber optical components	XNP-09745	02	Radiant heater for vacuum furnaces offers high structural rigidity, low heat loss	LEWIS-39	B63-10342 01
REFRACTOMETERS			Wire winding increases lifetime of oxide coated cathodes	LEWIS-154	B65-10032 03
Motion drive system is accurately controlled in the 1-micron range	JPL-864	05	Pulsed plasma accelerator operates repetitively without complex controls	LANGLEY-48	B65-10062 01
REFRACTORIES			Ceramic-coated boat is chemically inert, provides good heat transfer	LANGLEY-90	B65-10063 05
Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02	Apparatus facilitates pressure-testing of metal tubing	LEWIS-174	B65-10131 05
REFRACTORY MATERIALS			Refractory metal shielding /insulation/ increases operating range of induction furnace	LEWIS-202	B65-10188 02
Apparatus facilitates high-temperature tensile testing in vacuum	LEWIS-42	03	Refractory metals welded or brazed with tungsten inert gas equipment	LEWIS-219	B65-10319 05
Refractory ceramic has wide usage, low fabrication cost	M-FS-67	03	Brazing method produces solid-solution bond		
Refractory thermal insulation for smooth metal surfaces	M-FS-160	03			
Refractory oxides evaluated for high-temperature use	LANGLEY-121	03			
Silazane polymers show promise for high- temperature application	M-FS-466	03			
Fibers of newly developed refractory ceramics produced by improved process	WOO-169	03			
Improved thermal insulation materials made of foamed refractory oxides					

SUBJECT INDEX

REINFORCEMENT (STRUCTURES)

between refractory metals
LEWIS-212 B65-10370 05

Copper-acrylic enamel serves as lubricant
for cold drawing of refractory metals
ARG-54 B66-10471 05

Hydraulic fluid serves as mandrel for small
diameter refractory tube drawing
ARG-44 B66-10523 05

Ductile mandrel and parting compound
facilitate tube drawing
ARG-43 B66-10571 05

Combustion chamber struts can be effectively
transpiration cooled
M-FS-1830 B66-10643 03

Reaction of steam with molybdenum is
studied
ARG-295 B67-10502 03

Survey made of refractory metals
LEWIS-10380 B68-10032 03

Improved torch increases weld quality in
refractory metals
LEWIS-324 B68-10041 05

Tungsten fiber-reinforced nickel superalloy
LEWIS-10424 B68-10369 03

Inverted grounding technique for electron
beam heating
LEWIS-10543 B68-10411 01

Precise doping of metals by small gas flows
LEWIS-10444 B68-10526 03

Refractory-metal compound impregnation of
polytetrafluoroethylene
LEWIS-10733 B69-10072 03

Cold machining of high density tungsten
and other materials
ARG-10289 B69-10110 05

Improved method of producing
oxide-dispersion-strengthened alloys
HQ-10461 B69-10536 03

REFRIGERATING

New nut and sleeve improve flared connections
M-FS-194 B65-10180 05

High-pressure, low temperature electrical
connector makes no-leak seal
MSC-276 B66-10079 02

Improved cryogenic refrigeration system
JPL-731 B67-10128 02

Development of dual solid cryogenics for
high reliability refrigeration system
GSFC-10188 B67-10644 02

Cold machining of high density tungsten
and other materials
ARG-10289 B69-10110 05

Tools made of ice facilitate forming of
soft, sticky materials
KSC-10262 B69-10199 05

Report on a cryogenic gyroscope
NPO-11200 B69-10504 02

REGENERATION

Chemical regeneration of emitter surface
increases thermionic diode life
LEWIS-17 B66-10435 02

REGENERATIVE COOLING

New method used to fabricate light-weight heat
exchanger for rocket motor
LEWIS-43 B63-10346 02

REGENERATIVE FUEL CELLS

Regenerative fuel cell combines high
efficiency with low cost
WOO-090 B65-10363 01

Iron serves as diffusion barrier in
thermally regenerative galvanic cell
ARG-29 B67-10189 03

REGENERATORS

Hybrid circuit achieves pulse regeneration
with low power drain
GSFC-382 B65-10314 01

REGISTERS

Pneumotachometer counts respiration rate of
human subject
MSC-92 B64-10259 01

Foot-operated cell-counter
ARG-10315 B69-10351 01

REGISTERS (COMPUTERS)

System monitors discrete computer inputs
M-FS-1021 B66-10389 01

Nixie tube display unit employs time-shared
logic
ARG-117 B66-10512 01

Digital system detects binary code patterns
containing errors
GSFC-541 B66-10516 01

Polynomial manipulator AP-168
MSC-1231 B67-10103 01

A conceptual, parallel operating data
compression processor
NPO-10068 B67-10204 01

Run numbering system for use with data
recorders
M-FS-2557 B67-10215 01

Low cost SCH lamp driver indicates contents
of digital computer registers
GSFC-10221 B67-10656 01

Circuitry selectively limits data
storage in general purpose computer
GSFC-10605 B69-10121 01

Novel multipurpose timer for laboratories
ARG-10147 B69-10410 01

Simplified, reliable circuit sorts binary
numbers in order of magnitude
NPO-10112 B69-10503 01

REGRESSION COEFFICIENTS

Multiple correlation computer program
determines relationships between several
independent and dependent variables
M-FS-13024 B67-10327 06

REGULATORS

Zener diode is starter for transistor
regulated power supply
NU-0015 B65-10052 01

Load current sensor for a pulse width
modulator power regulator
GSFC-10656 B69-10578 01

REINFORCED PLASTICS

Fiber glass reinforced structural materials
for aerospace application
M-FS-14806 B68-10360 03

New rapid-curing, stable polyimide
polymers with high-temperature strength
and thermal stability
LEWIS-10576 B69-10118 03

REINFORCEMENT (STRUCTURES)

Reinforcement core facilitates O-ring
installation
WOO-228 B65-10378 05

REINFORCING FIBERS

SUBJECT INDEX

Resilient clamp holds fuel cell stack through resilient clamp holds fuel cell stack through thermal cycle MSC-313	B66-10035	05	nonequilibrium performance program MSC-11780	B68-10376	06
Lightweight, all-metal hose assembly has high flexibility and strength over wide range of temperature and pressure M-FS-1831	B66-10635	05	RELAY		
Pipe joints reinforced in place with fitted aluminum sleeves MSC-11109	B67-10271	05	Circuit switches latching relay in response to signals of different polarity W00-055	B63-10508	01
Method for reinforcing tubing joints MSC-11108	B68-10115	05	Pulse generator permits nondestructive testing of component breakdown voltage MSC-122	B65-10054	01
REINFORCING FIBERS			Trisphere spark gap actuates overvoltage relay ARC-68	B66-10557	01
Boron carbide whiskers produced by vapor deposition HQ-24	B65-10261	03	Instrument sequentially samples ac signals from several accelerometers JPL-884	B67-10029	01
Composite gaskets are compatible with liquid oxygen, resist compression set M-FS-455	B66-10395	03	Improved relay optical element for spectroradiometer using cryogenically cooled detector MSC-11688	B68-10245	02
Tungsten fiber-reinforced copper composites form high strength electrical conductors LEWIS-338	B66-10572	03	RELEASING		
Nonwoven glass fiber mat reinforces polyurethane adhesive M-FS-2309	B67-10113	03	Simple mechanism combines positive locking and quick-release features W00-4	B63-10420	05
Tungsten fiber-reinforced nickel superalloy LEWIS-10424	B68-10369	03	Instrument adjustment knob locks to prevent accidental maladjustment M-FS-190	B64-10249	05
Boron fiber-reinforced aluminum alloy tubing /experimental/ MSC-15633	B69-10509	05	Cylindrical claw clamp has quick release feature M-FS-513	B66-10213	05
REJECTION			Fastener provides for bolt misalignment and quick release of flange NU-0074	B66-10275	05
Simple circuit provides reliable multiple signal average and reject capability NU-0069	B66-10282	01	Pneumatic separator gives quick release to heavy loads KSC-66-10	B66-10294	05
Composite filter steepens rejection slopes in microwave application GSFC-480	B66-10393	01	Flexible fastener effects airtight material closure JPL-684	B66-10304	05
Solid state circuit averages multiple signals and rejects those varying significantly from the average NUC-10066	B67-10262	01	Sea dye marker provides visibility for 20 hours MSC-714	B66-10313	03
RELATIONSHIPS			Controlled release device prevents damage from dynamic stresses KSC-66-14	B66-10628	05
Theory of a refined earth model M-FS-14679	B68-10228	02	Lock-disconnect mechanism gives positive release to joined bodies M-FS-2147	B67-10123	05
RELAXATION (MECHANICS)			Pyrotechnic-actuated cable release XNP-10849	B68-10535	05
Temperature-controlled resistor NPO-10713	B69-10440	01	RELIABILITY		
RELAXATION METHOD (MATHEMATICS)			Tool facilitates sealing of metal fill tubes MSC-24	B63-10519	05
FORTRAN 4 program calculates velocities and streamlines in a tandem blade turbomachine LEWIS-10743	B69-10219	06	Liquid switch is remotely operated by low dc voltage GSFC-119	B63-10599	01
RELAXATION OSCILLATORS			Compact coaxial connector for printed circuit adds reliability MSC-57	B64-10016	01
Unijunction frequency divider is free of backward loading JPL-W00-010	B65-10112	01	Logic redundancy improves digital system reliability JPL-SC-069	B65-10025	01
High-intensity flashing beacon powered by mercury cells LANGLEY-80	B65-10361	01	Improved holder protects crystal during high acceleration and impact JPL-463	B65-10037	05
Circuit exhibits power efficiency greater than 75 percent MSC-254	B66-10034	01	Solid-state laser transmitter is amplitude modulated MSC-121	B65-10238	01
RELAXATION TIME					
One-dimensional reacting gas nonequilibrium performance program MSC-11777	B68-10375	06			
One-dimensional two-phase reacting gas					

SUBJECT INDEX

REMOTE CONTROL

Triple Modular Redundancy /TMR/ computer operation improved MSC-831	B67-10085	01	ERC-10198	B68-10541	01
Automatic channel switching device MSC-832	B67-10086	01	Calibrated water tank facilitates proof-loading of cranes and derricks M-FS-15059	B69-10109	05
Application of a truncated normal failure distribution in reliability testing M-FS-14328	B68-10179	02	Design and sparing techniques to meet specified performance life HQ-10200	B69-10528	02
Temperature or pressure controller LEWIS-10297	B68-10337	01	Estimating reliability by application of matrix representation HQ-10246	B69-10793	02
Continuous analysis of nitrogen dioxide in gas streams of plants ARG-10356	B69-10254	03	RELIEF VALVES Sensitive low-pressure relief valve has positive seating against leakage WOO-041	B64-10278	05
On the bound of first excursion probability NPO-11158	B69-10334	06	One-shot valve may be remotely actuated WOO-195	B65-10266	05
Exact minimal-state system reliability analysis M-FS-16551	B69-10409	06	Dual regulator controls two gases from a single reference MSC-227	B66-10167	05
Punch-magnet delay eliminated by modification of circuit ARG-10333	B69-10416	01	Control system maintains compartment at constant temperature JPL-SC-145	B66-10188	05
Synchronizing redundant power oscillators XGS-09377	B69-10546	01	Expandable rubber plug seals openings for pressure testing NU-0048	B66-10229	05
System for computing operational probability equations M-FS-16410	B69-10566	06	Automatic cryogenic liquid level controller is safe for use near combustible substances LEWIS-195	B66-10482	01
Control for maintaining constant level of a cryogenic liquid NPO-11177	B69-10573	05	Check valve installation in pilot operated relief valve prevents reverse pressurization M-FS-1925	B66-10655	05
Programmed schedule holds for improving launch vehicle holds M-FS-14502	B69-10602	03	Improved cryogenic refrigeration system JPL-731	B67-10128	02
Microelectronic device data handbook ERC-10322	B69-10687	01	Aspirator increases relief valve poppet stroke HQ-77	B67-10154	05
Improved solenoid valve design GSFC-10607	B69-10704	05	Dynamic valve seal is reliable at cryogenic temperatures M-FS-12987	B67-10526	05
Optimum structural design based on reliability and proof-load testing NPO-11228	B69-10723	31	Vent and relief valve maintains low leakage rate over broad temperature range M-FS-12807	B68-10014	05
RELIABILITY ENGINEERING Composite, vacuum-jacketed tubing replaces bellows in cryogenic systems LEWIS-67	B63-10368	05	Device damps fluid pressure oscillations in vent valve M-FS-1329C	B68-10078	05
Assembly jig assures reliable solar cell modules GSFC-455	B66-10040	05	Proposed gas generation assembly would recover deeply submerged objects SAN-10007	B68-10211	05
One-piece transparent shell improves design of helmet assembly MSC-187	B66-10390	05	Dual rate pressure relief valve MSC-11606	B68-10237	05
Design reliability goal developed from small sample M-FS-403	B66-10405	05	Integral valve provides automatic relief and remote venting M-FS-12134	B69-10545	05
Fixture tests bellows reliability through repetitive pressure/temperature cycling MSC-1176	B67-10111	01	RELOCATION Remote control thermal actuator LEWIS-10873	B69-10307	01
Effects of heat input rates on T-1 and T-1A steel welds M-FS-2475	B67-10163	03	RELUCTANCE Noncontacting transducer measures shaft torque M-FS-474	B66-10048	01
Analytical technique permits comparison of reliability of alternate mechanical designs NUC-10065	B67-10261	06	Variable reluctance switch avoids contact corrosion and contact bounce MSC-1178	B67-10137	01
Electronic component reliability analysis by data reduction system NPO-10243	B68-10507	05	REMOTE CONTROL Solenoid permits remote control of stop watch and assures restarting FRC-17	B63-10024	01
Failure rates for accelerated acceptance testing of silicon transistors					

REMOTE HANDLING

SUBJECT INDEX

Simple mechanism combines positive locking and quick-release features WOO-4	B63-10420	05	Reconnect mechanism M-FS-12968	B67-10670	05
Device calibrates vibration transducer at amplitudes up to 20 g M-FS-86	B63-10572	01	Portable, high intensity isotopic neutron source provides increased experimental accuracy ARG-90250	B68-10243	02
Liquid switch is remotely operated by low dc voltage GSFC-119	B63-10599	01	Remotely operated gripper provides vertical control rod movement ARG-10160	B68-10359	05
Knob linkage permits one-hand control of several operations MSC-30	B65-10022	05	Improved electromechanical master-slave manipulator ARG-10027	B68-10372	05
Flow control valve is independent of pressure drop JPL-WOO-039	B65-10121	05	Pyrotechnic-actuated cable release XNP-10849	B68-10535	05
Collapsible truss structure is automatically expandable GSFC-265	B65-10126	05	Welding skate with computerized controls M-FS-20224	B68-10566	01
Quick-disconnect coupling safe transfer of hazardous fluids LEWIS-125	B65-10202	01	Remotely-actuated biomedical switch ARC-10105	B69-10117	01
Electromechanical flowmeter accurately monitors fluid flow GSFC-357	B65-10273	01	Remote balance weighs accurately amid high radiation ARG-10387	B69-10242	05
Remote control electrical switching system has 1000-output capability M-FS-380	B65-10318	01	Remote control thermal actuator LEWIS-10873	B69-10307	01
Respiratory transfer valve has fail-safe feature ARC-1	B65-10369	01	Separation simulator KSC-67-15	B69-10315	01
Threaded split ring connector separates structural sections LANGLEY-145	B65-10383	05	Piezoelectric linear actuator MSC-13194	B69-10469	02
Economical and maintenance-free gas system operates railroad switches NU-0045	B66-10124	05	Stereo TV enhancement study M-FS-14805	B69-10497	01
Electric arc heater is self starting LANGLEY-208	B66-10230	03	Integral valve provides automatic relief and remote venting M-FS-12134	B69-10545	05
Quick-closing valve is actuated by explosive discharge ARC-55	B66-10233	05	Versatile telemonitoring system ARG-10339	B69-10655	01
Remotely controlled system couples and decouples large diameter pipes NU-0062	B66-10276	05	Burn-rate testing apparatus MSC-10947	B69-10740	03
Latching mechanism operates in limited access area MSC-230	B66-10338	05	REMOTE HANDLING		
Junction connectors permit strategic placement of television cameras KSC-66-22	B66-10391	01	Remotely operated clamping tool has positive grip NU-0020	B65-10254	05
Remote preamplifier circuit maintains stability over wide temperature range WOO-278	B66-10432	01	Plug-in connector socket accepts coaxial cable end ARG-9	B66-10478	01
Carriage system remotely moves drawer over extended distance NU-0092	B66-10711	05	Remotely installed pipe plug provides effective seal in hazardous environment NUC-10303	B68-10053	05
Remotely operated high pressure valve protects test personnel MSC-11010	B67-10291	05	Random access-random release relay switching matrix M-FS-12590	B68-10301	01
Improved head-controlled TV system produces high-quality remote image ARG-128	B67-10317	01	REMOTE SENSORS		
Welding torch and wire feed manipulator M-FS-13102	B67-10385	05	One-shot valve may be remotely actuated WOO-195	B65-10266	05
Apparatus makes klystron operating frequency adjustable from remote point NFO-09831	B67-10514	01	Special mount improves remote transducer accuracy LEWIS-269	B66-10021	01
			Seismometer designed for remote operation in random orientation JPL-320	B66-10085	01
			Study made of far infrared spectra of silicate minerals M-FS-1811	B67-10075	02
			Closed circuit TV system monitors welding operations MSC-11002	B67-10162	01

SUBJECT INDEX

RESEARCH

REMOVAL

Electronic assembly rack panels snap on and off
GSFC-59 B64-10121 05

Reaction heat used in static water removal from fuel cells
M-FS-532 B66-10013 01

Mounting facilitates removal and installation of flame-detector rods
M-FS-555 B66-10150 05

Tool permits damage-free removal of solar cell
GSFC-467 B66-10219 05

Expandable takeup reel facilitates paper tape removal
WOO-271 B66-10399 05

Single wrench separates nuts from free-floating bolts
NUC-10013 B67-10158 05

Separation technique provides rapid quantitative determination of cesium-137 in irradiated nuclear fuel
NUC-10047 B67-10194 03

Multiple-mask chemical etching
MSC-13114 B69-10221 01

A method for precision anodize stripping
MSC-15040 B69-10581 03

Liquid oxygen-compatible insulation system
M-FS-16113 B69-10599 03

RENDEZVOUS

Earth orbit rendezvous evaluation program
M-FS-13016 B67-10407 06

RENDEZVOUS GUIDANCE

Occulting-filter method for obtaining flashing-light visibility data
MSC-13097 B69-10107 02

An interferometer tracking radar system
MSC-10956 B69-10523 01

RENDEZVOUS TRAJECTORIES

Fortran 4 program for two-impulse rendezvous analysis
M-FS-13971 B67-10479 06

RENE 41

Composite weld rod corrects individual filler weaknesses
M-FS-1923 B67-10107 05

Heat treatment procedure to increase ductility of degraded nickel alloy
M-FS-12410 B68-10029 03

Pre-weld heat treatment improves welds in Rene 41
M-FS-18174 B68-10285 03

Strain-age cracking in Rene 41 alloy
M-FS-18650 B69-10605 03

REPEATERS

Pulsed plasma accelerator operates repetitively without complex controls
LANGLEY-48 B65-10062 01

Improved first order interpolator
MSC-11085 B69-10291 02

REPETITION

Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time
ARG-10110 B68-10328 01

REPLACING

Mounting facilitates removal and installation of flame-detector rods
M-FS-555 B66-10150 05

Performance statistics of the FORTRAN 4 /H/ library for the IBM system/360
ARG-10299 B69-10157 06

REPORTS

Review of research and development in fluid logic elements
M-FS-420 B67-10438 01

JPKWIC - General key word in context and subject index report generator
NPO-10589 B68-10208 06

Daughter growth in freshly separated Ra-226, Ac-227 and U-232
ARG-10226 B69-10003 02

Corrosion reduction of aluminum alloys in flowing high-temperature water
ARG-10244 B69-10029 03

Weight Control System
M-FS-15028 B69-10041 06

Study of fluoride corrosion of nickel alloys
ARG-10224 B69-10048 03

Investigation of spacecraft coatings
M-FS-20458 B69-10181 06

REPRESENTATIONS

Dot patterns provide reproducible flaw areas for study of adhesive bonds
M-FS-862 B66-10367 05

Computer program samples digital data for CRT display
MSC-999 B67-10249 01

REPRODUCTION

Study of radiation effects on mammalian cells in vitro
ARG-10191 B68-10294 02

REPRODUCTION (COPYING)

Front and back printed circuit layouts presented on single sheet
GSFC-93 B63-10596 01

Plastic films for reflective surfaces reproduced from masters
GSFC-188 B64-10151 03

PCM magnetic tape system efficiently records and reproduces data
GSFC-375 B65-10311 01

Modified procedure speeds camera copy layout for offset printing
GSFC-424 B65-10373 02

Improved compression molding process
LANGLEY-10027 B67-10302 03

Shortened procedure for obtaining reproducible copies of 35 mm color slides
KSC-09957 B68-10560 02

Segmented SiGe-PbTe couples
GSFC-10746 B69-10233 01

REQUIREMENTS

Probabilistic approach to long range planning of manpower
MSC-11524 B67-10510 06

RESCUE OPERATIONS

Buoyant stokes litter assembly used for sea rescue operations
MSC-131 B66-10019 05

Miniature oxygen resuscitator
KSC-10398 B69-10319 04

RESEARCH

Multiple correlation computer program determines relationships between several independent and dependent variables
M-FS-13024 B67-10327 06

RESEARCH FACILITIES

SUBJECT INDEX

Review of research and development in fluid logic elements M-FS-420	B67-10438	01	radio transmitter, receiver MSC-53	B64-10015	05
Method for determining properties of microinstabilities of a magnetized plasma HQ-10447	B69-10462	02	Plastic plus stainless-steel fibers make resilient, impermeable material WOO-246	B65-10374	03
RESEARCH FACILITIES			Thermoplastic rubberlike material produced at low cost JPL-793	B66-10453	03
Hydrogen safety manual LEWIS-10487	B68-10323	01	Silazane elastomer remains resilient at 400 deg C M-FS-1144	B66-10667	05
Purification and characterization of two fully deuterated enzymes ARG-10314	B69-10207	04	Resilient bearing supports are gas controlled LEWIS-10109	B67-10364	05
RESEARCH PROJECTS			Fiber glass prevents cracking of polyurethane foam insulation on cryogenic vessels M-FS-20058	B68-10406	02
Built-in templates speed up process for making accurate models LANGLEY-23	B63-10526	05	Pressure transducer NFO-10853	B69-10364	01
Microelectronic device data handbook ERC-10322	B69-10687	01	Precisely repeatable rotary mechanism NFO-10679	B69-10696	05
RESERVOIRS			RESIN BONDING		
Dynamic-reservoir lubricating device M-FS-14652	B68-10261	05	Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02
RESIDUAL GAS			Improved adhesive for cryogenic applications cures at room temperature WOO-132	B66-10185	03
Auxiliary titanium sublimation pump produces ultrahigh /10 to the minus 11 torr/ vacuum LANGLEY-212	B66-10388	02	Coating permits use of strain gage in water and liquid hydrogen M-FS-594	B66-10192	01
RESIDUAL STRESS			Dry film lubricant is effective at extreme loads M-FS-628	B66-10256	03
Glass bead shot peening retards stress corrosion failure of titanium tanks LANGLEY-319	B67-10198	05	A new method for fabrication of flexible vacuum purge jackets M-FS-12646	B69-10564	03
Photosensitive filler minimizes internal stresses in epoxy resins M-FS-1880	B67-10227	03	RESINS		
Improved compression molding process LANGLEY-10027	B67-10302	03	Quick-hardening problems are eliminated with spray gun modification which mixes resin and accelerator liquids during application LANGLEY-6A	B63-10318	03
Stabilizing stainless steel components for cryogenic service M-FS-13127	B67-10377	05	Servo system facilitates photoelastic strain measurements on resins JPL-504	B64-10280	01
Machining heavy plastic sections M-FS-12720	B67-10381	03	Fiber glass parts cured during filament winding eliminates oven, saves time M-FS-14	B65-10088	03
Ultrasonics used to measure residual stress M-FS-12449	B67-10428	02	Compact assembly generates plastic foam, inflates flotation bag LANGLEY-96	B65-10090	05
Electrochemical cell has internal resistive heater element GSPC-10358	B68-10325	01	Polymer film exhibits thermal and radiation stability LANGLEY-100	B66-10043	03
Nondestructive method for measuring residual stresses in metals, a concept KSC-10237	B68-10378	03	Self-supported aluminum thin films produced by vacuum deposition process ARC-58	B66-10387	03
Techniques for controlling warpage and residual stresses in welded structures M-FS-20307	B69-10086	05	Reusable chelating resins concentrate metal ions from highly dilute solutions JPL-758	B66-10451	03
RESIDUES			Transducer measures embedment stresses in electronic modules M-FS-13486	B67-10367	01
Solvent residue content measured by light scattering technique M-FS-850	B66-10320	01	Flowmeter determines mix ratio for viscous adhesives M-FS-2308	B67-10378	01
Film coating permits low-force scribing MSC-990	B66-10609	03			
Xenon fluoride solutions effective as fluorinating agents ARG-217	B67-10133	03			
Wear studies made of slip rings and gas bearing components M-FS-12882	B67-10403	05			
Apparatus automatically measures soluble residue content of volatile solvents SAN-10032	B69-10292	03			
RESILIENCE					
Comfortable, lightweight safety helmet holds					

SUBJECT INDEX

RESISTORS

High-temperature bearing lubricants LEWIS-10408	B68-10249	05	Flow-test device fits into restricted access passages MSC-1078	B67-10074	01
Spiral-flow apparatus for measuring permeation of solids by gases M-FS-16517	B69-10357	03	Viscosity and density of methanol/water mixtures at low temperatures M-FS-14991	B68-10274	03
Separation of the rare earths by anion-exchange in the presence of lactic acid ARG-10436	B69-10377	03	Calibration of a resistance thermometer down to 0.04 degrees K ARG-10318	B69-10149	01
Improved primer for bonding polyurethane adhesives to metals M-FS-90591	B69-10540	03	RESISTORS		
RESISTANCE			Igniting system for mercury lamps protects transistorized sustaining supply JPL-421	B63-10262	01
Kinetic-energy absorber employs frictional force between mating cylinders LEWIS-75	B63-10442	05	Improved sensor counts micrometeoroid penetrations LEWIS-76	B63-10443	01
Selenium bond decreases ON resistance of light-activated switch JPL-SC-101	B65-10324	01	Simple circuit provides adjustable voltage with linear temperature variation JPL-W00-029	B63-10537	01
Studies in zirconium oxidation ARG-10099	B68-10199	03	Transistorized trigger circuit is frequency- controllable GSFC-111	B63-10553	01
Welder analyzer MSC-12068	B68-10242	01	High efficient square-wave oscillator operator at high power levels GSFC-112	B63-10554	01
Low energy ohmmeter can be used to test sensitive circuits, other meters SAN-10013	B68-10269	01	Circuit controls transients in SCR inverters GSFC-120	B63-10600	01
Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01	Monostable circuit with tunnel diode has fast recovery GSFC-132	B63-10603	01
Automated plotting of equipotentials NFO-11134	B69-10570	01	Temperature-sensitive network drives astable multivibrator GSFC-137	B63-10609	01
RESISTANCE HEATING			Low-power transistorized circuit provides staircase waveform GSFC-48	B64-10007	01
Apparatus facilitates high-temperature tensile testing in vacuum LEWIS-42	B63-10345	03	Efficient circuit triggers high-current, high-voltage pulses MSC-14	B64-10024	01
Electrically heated diaphragm eliminates use of pyrotechnics MSC-241	B65-10400	01	Ring counter may be advanced or retarded by command signal GSFC-101	B64-10144	01
Electrical upsetting of metal sheet forms weld edge M-FS-720	B66-10248	05	Field effect transistors used as voltage controlled resistors M-FS-174	B64-10163	01
Process sequence produces strong, lightweight reflectors of excellent quality LEWIS-331	B67-10010	05	Electronic device simulates respiration rate and depth MSC-89	B64-10255	01
Resistance heating releases structural adhesive M-FS-1607	B67-10045	05	Voltage generator sweeps oscillator frequency linearly with time M-FS-219	B64-10320	01
Radial furnace shows promise for growing straight boron carbide whiskers HQ-50	B67-10070	03	Circuit converts AM signals to FM for magnetic recording GSFC-227	B65-10001	01
Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide ARG-10154	B68-10293	02	Tunnel-diode circuit features zero-level clipping GSFC-241	B65-10002	01
Isothermal drop calorimeter provides measurements for alpha active, pyrophoric materials ARG-10186	B69-10002	02	Inexpensive, stable circuit measures heart rate MSC-95	B65-10010	01
Remote control thermal actuator LEWIS-10873	B69-10307	01	Zener diode function generator requires no external reference voltage JPL-0031	B65-10013	01
RESISTANCE THERMOMETERS			Transistor voltage comparator performs own sensing GSFC-228	B65-10028	01
Resistance thermometer has linear resistance-temperature coefficient at low temperatures W00-190	B66-10612	01	Circuit detects errors in address currents for		
Blackbody cavity radiometer has rapid response JPL-521	B66-10679	01			

RESISTORS CONT

SUBJECT INDEX

magnetic core arrays M-FS-234	B65-10047	01	Pulse generator using transistors and silicon controlled rectifiers produces high current pulses with fast rise and fall times MSC-405	B66-10456	01
Microparticle impact sensor measures energy directly GSFC-252	B65-10048	01	Solid state circuit switches ac load JPL-798	B66-10465	01
Synchronized pulse generator needs no external power GSFC-274	B65-10072	01	High voltage potential divider calibrated by simple device ARG-83	B66-10497	01
Transducer senses displacements of panels subjected to vibration ARC-37	B65-10085	01	Solid state annunciator facilitates complex system troubleshooting M-FS-1258	B66-10505	01
Variable voltage supply uses Zener diode as reference GSFC-262	B65-10097	01	Method permits mechanical and electrical checkout of piezoelectric transducers while installed in a system ARC-73	B66-10533	01
Boron trifluoride nuclear detector preamplifier uses single-cable connection LEWIS-178	B65-10255	01	Miniature electrometer preamplifier effectively compensates for input capacitance ARC-69	B66-10549	01
Electropneumatic rheostat regulates high current ARC-44	B65-10299	01	Monitoring circuit accurately measures movement of solenoid valve M-FS-1829	B66-10568	01
Improved strain-wire flowmeter has fast response time LEWIS-241	B65-10304	01	Resistor monitors transfer of liquid helium LANGLEY-229	B66-10580	01
Thin-film resistors used in functional electronic blocks GSFC-380	B65-10305	01	Electronic circuit provides accurate sensing and control of dc voltage NU-0089	B66-10591	01
Electronic ampere-hour integrator is accurate to one percent GSFC-203	B65-10308	01	Thermocouples electrically checked while connected to data system LANGLEY-182	B66-10623	01
Compact SCR trigger circuit for ignitron switch operates efficiently M-FS-371	B65-10347	01	Heater control circuit provides both fast and proportional control M-FS-906	B67-10097	01
Vibrating diaphragm measures high electrostatic field strengths MSC-189	B65-10352	01	Integrator can easily be set and reset with an electronic switch ARC-10002	B67-10135	01
Segmented electrode increases operating pressure of MHD accelerator LANGLEY-95	B65-10356	02	Digital-to-analog converter operates from low level inputs JPL-907	B67-10357	01
Temperature transducer has high output, is time stable GSFC-446	B65-10362	01	Circuit automatically calibrates flowmeter against liquid-level gage reference M-FS-2194	B67-10376	01
Improved chopper circuit uses parallel transistors M-FS-468	B66-10113	01	Converter provides constant electrical power at various output voltages GSFC-519	B67-10481	01
Digitally controlled pulse-level discriminator operates over wide voltage range GSFC-324	B66-10129	01	Cardiotachometer with linear beat-to-beat frequency response ARC-10033	B67-10598	01
Diffusion technique stabilizes resistor values MSC-205	B66-10142	01	Temperature-stabilized, triggerable microelectronic astable multivibrator starts reliably MSC-1173	B67-10624	01
Mounting improves heat-sink contact with beryllia washer MSC-194	B66-10144	01	Gyrator-type circuits replace ungrounded inductors XAC-10608	B68-10084	01
Simple circuit provides reliable multiple signal average and reject capability NU-0069	B66-10282	01	Moebius resistor is noninductive and nonreactive SAN-10020	B68-10267	01
Tool forms right angles in component leads M-FS-722	B66-10346	05	Flow angle sensor and readout system LEWIS-90298	B69-10050	01
Function generator eliminates necessity of series summation GSFC-214	B66-10351	01	Microelectronic oscillator, 2 GSFC-10387	B69-10063	01
Semiconductors can be tested without removing them from circuitry M-FS-1163	B66-10447	01	Microelectronic oscillator GSFC-10375	B69-10064	01
Basic suppression techniques are evaluated M-FS-867	B66-10449	01	Remotely-actuated biomedical switch ARC-10105	B69-10117	01

SUBJECT INDEX

RESONANT FREQUENCIES

Bootstrap unloader XNF-09768	B69-10120	01	Spherical ion source XNF-08898	B69-10186	01
Integrated circuit with multiple collector current source M-PS-20177	B69-10126	01	Semiautomatic inspection of microfilm records M-PS-20240	B69-10301	02
Calibration of a resistance thermometer down to 0.04 degrees K ARG-10318	B69-10149	01	Combination ranging system and mapping radar NPO-11001	B69-10325	01
Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01	Thermal calibration target XGS-11144	B69-10419	01
Improved liquid-level sensor for cryogenics ARG-10162	B69-10210	02	RESONANCE Lamb waves increase sensitivity in nondestructive testing ARG-10009	B67-10605	02
Technique for abrasive cutting of thick-film conductors for hybrid circuits MSC-13242	B69-10235	03	Improved atomic resonance gas cell for use in frequency standards MSC-11666	B68-10230	01
Continuous analysis of nitrogen dioxide in gas streams of plants ARG-10356	B69-10254	03	Device for diode tuning in a stripline varactor harmonic multiplier M-PS-20153	B69-10013	01
Punch-magnet delay eliminated by modification of circuit ARG-10333	B69-10416	01	RESONANCE SCATTERING Calculation of resonance neutron absorption in two-region problems /the GAROL code/ NUC-10045	B67-10223	06
Concept for improved vacuum pressure measuring device M-PS-20172	B69-10421	02	RESONANT FREQUENCIES Welded pressure transducer made as small as 1/8th-inch in diameter ARC-11	B63-10429	03
Temperature-controlled resistor NPO-10713	B69-10440	01	Vibrating-membrane electrometer has high conversion gain ARC-38	B65-10056	01
Fuse protects circuit from voltage and current overloads MSC-12135	B69-10490	01	Auxiliary circuit enables automatic monitoring of EKG's MSC-106	B65-10142	01
Radiometric temperature reference MSC-13276	B69-10507	01	Electrostatically driven dynamic capacitor employs capacitive feedback JPL-771	B65-10293	01
Constant-frequency, variable-duty-cycle multivibrator XGS-10033	B69-10512	01	Remote rapidly varying pressures accurately measured FRC-28	B65-10301	01
Miniature backward-diode pressure sensor features stability and low power consumption ERC-10229	B69-10690	01	Friction device damps linear motion of rotating shaft WOO-214	B66-10030	05
RESOLUTION Gapped toroid provides infinite resolution of delay-line pickup GSFC-370	B65-10258	01	Damping technique gives accelerometer flat frequency response M-PS-471	B66-10293	01
Modified developer increases line resolution in photosensitive resist GSFC-386	B65-10278	01	Resonant frequency can be adjusted on vibration mount JPL-SC-134	B66-10672	05
Local measurements in turbulent flows through cross correlation of optical signals M-PS-1268	B67-10030	01	Process reduces secondary resonant emission in electronic components JPL-934	B66-10685	01
Ultraminiature television camera M-PS-11967	B67-10469	01	Simple pump maintains liquid helium level in cryostat M-PS-1763	B67-10039	05
Lamb waves increase sensitivity in nondestructive testing ARG-10009	B67-10605	02	Liquid hydrogen densitometer utilizes open-ended microwave cavity LEWIS-390	B67-10115	01
Circuit enhances vertical resolution in raster scanning systems MSC-12123	B68-10121	01	Hydrogen maser as a highly stable frequency reference M-PS-2437	B67-10146	01
Improved gas ring laser MSC-11584	B68-10304	02	Computer program simplifies design of rotating components of turbomachinery NUC-10046	B67-10235	06
Mounting method improves electrical and vibrational characteristics of screen electrodes M-PS-20169	B69-10097	01	Post-stressed concrete foundation may reduce machinery vibration ARG-130	B67-10237	05
Fluorescent photography of spray droplets using a laser light source LEWIS-10777	B69-10122	02			

RESONANT VIBRATION

SUBJECT INDEX

System precisely controls oscillation of vibrating mass M-FS-1875	B67-10276	01	Simulator produces physiological waveforms MSC-94	B65-10091	01
Computer program for determination of natural frequencies of closed spherical sandwich shells MSC-1246	B67-10279	06	Plant respirometer enables high resolution of oxygen consumption rates HQ-47	B66-10406	04
Vibration damping composition has flush-away feature M-FS-597	B67-10432	03	High- and low-pressure pneumotachometers measure respiration rates accurately in adverse environments FRC-10012	B68-10188	01
Study made of thin-walled pipe response to turbulent fluids M-FS-1321	B67-10518	05	Nosepiece respiration monitor ERC-10136	B68-10438	01
Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles LANGLEY-10093	B67-10531	06	RESPIROMETERS Plant respirometer enables high resolution of oxygen consumption rates HQ-47	B66-10406	04
Mounting method improves electrical and vibrational characteristics of screen electrodes M-FS-20169	B69-10097	01	Nosepiece respiration monitor ERC-10136	B68-10438	01
Resonant microwave dichroic surface GSFC-10658	B69-10274	01	Direct reading of electrocardiograms and respiration rates KSC-10233	B69-10188	04
Automatic tuning of hydrogen masers GSFC-10127	B69-10452	01	RESPONSE BIAS Optically driven switch turn-off time reduced by opaque coatings JPL-SC-107	B66-10141	01
RESONANT VIBRATION Multicolor stroboscope pinpoints resonances in vibrating components JPL-0033	B66-10223	01	RESPONSE TIME (COMPUTERS) Study indicates fluid digital computation systems are feasible M-FS-520	B67-10181	01
Damper reduces effects of resonance on force transducer WSO-321	B66-10550	05	Computer program simulates physical systems by solving the simultaneous differential equations describing the systems NPO-10019	B67-10193	06
Resonant frequency can be adjusted on vibration mount JPL-SC-134	B66-10672	05	Fast-response frequency-to-analog converter M-FS-709	B67-10257	01
Edge-type connectors evaluated by electrical noise measurement M-FS-2243	B67-10125	01	RESPONSES Inductor flyback characteristic gives voltage regulator fast response GSFC-361	B65-10257	01
A modal combination computer program for dynamic analysis of structures NPO-10129	B67-10217	06	Differential pressure gauge has fast response M-FS-358	B65-10285	05
System precisely controls oscillation of vibrating mass M-FS-1875	B67-10276	01	Computer program reduces calculation time of normal response functions M-FS-1517	B67-10108	01
Study made of large amplitude fuel sloshing M-FS-12381	B67-10439	03	Computer program calculates monotonic maximum likelihood estimates using method of reversals M-FS-1516	B67-10136	01
Study made of thin-walled pipe response to turbulent fluids M-FS-1321	B67-10518	05	REST Shoulder adapter steadies spot welding gun M-FS-321	B66-10076	05
Mossbauer vibration calibration systems evaluated M-FS-20014	B69-10125	01	RESTARTABLE ROCKET ENGINES Cold solid propellant motor has stop-restart capability JPL-836	B66-10673	03
RESOURCES Computer program conducts facilities utilization and occupancy survey NPO-10438	B68-10137	06	RESTORATION Multisurface fixture permits easy grinding of tool bit angles M-FS-586	B66-10171	05
RESPIRATION Device induces lungs to maintain known constant pressure MSC-50	B64-10108	04	Ultrasonic cleaning restores depth-type filters M-FS-540	B66-10298	03
RESPIRATORY IMPEDANCE Automatic patient respiration failure detection system with wireless transmission ABC-10174	B68-10365	01	RETAINING Screw locking cups quickly and neatly crimped NU-0009	B65-10049	05
RESPIRATORY RATE Pneumotachometer counts respiration rate of human subject MSC-92	B64-10259	01	High-temperature bearing-cage materials LEWIS-10403	B68-10176	05
			Removal of retaining washers of the waffle-spring type		

SUBJECT INDEX

RHENIUM

MSC-15531	B69-10350	05	Modified soldering iron speeds cutting of synthetic materials	B66-10246	05
Iris-leaf core retainer for a surface drill			M-FS-725		
MSC-11402	B69-10496	05	Modified McLeod gage records automatically		
An electrical connector pin protector			LEWIS-290	B66-10290	02
MSC-15660	B69-10742	01	Pneumatic separator gives quick release to heavy loads		
RETARDANTS			KSC-66-10	B66-10294	05
Punch-magnet delay eliminated by modification of circuit			Parametric up-converter increases flexibility of maser		
ARG-10333	B69-10416	01	KSC-67-98	B67-10104	01
RETARDERS (DEVICES)			Improved cryogenic refrigeration system		
Electron beam parallel X-ray generator			JPL-731	B67-10128	02
MSC-11022	B67-10372	02	Study made of ductility limitations of aluminum-silicon alloys		
RETENTION			M-FS-12524	B67-10392	03
Gage measures electrical connector pin retention force			An improved magnetic tape recorder		
JPL-SC-071	B65-10034	03	GSFC-08259	B67-10646	01
Study of behavior of sterols at interfaces			Gage provides audible signal to facilitate checkout of connector pins		
ARG-10085	B68-10281	03	KSC-10335	B69-10173	01
RETICLES			Adjustable wrench for electronic connectors		
Raster linearity of video cameras calibrated with precision tester			M-FS-18547	B69-10184	05
GSFC-200	B64-10209	01	Improved system for documenting measurement data		
RETRACTABLE EQUIPMENT			M-FS-18269	B69-10513	01
Sheet metal strip unrolls to form circular boom			Modification to improve self-isolating transistor arrays		
GSFC-423	B66-10032	05	M-FS-20499	B69-10678	01
Cylindrical claw clamp has quick release feature			An electrical connector pin protector		
M-FS-513	B66-10213	05	MSC-15660	B69-10742	01
RETRIEVAL			REYNOLDS NUMBER		
System locates randomly placed remote objects			Rough surface improves stability of air-sounding balloons		
LANGLEY-209	B66-10315	01	M-FS-320	B65-10326	05
Reidentifying hardware after loss of serial number			Binary fluid amplifier solves stability and load problems		
M-FS-18133	B69-10059	05	ERC-15	B66-10177	01
RETROREFLECTION			Studies reveal effects of pipe bends on fluid flow cavitation		
Optical superheterodyne receiver uses laser for local oscillator			M-FS-516	B66-10228	05
M-FS-1605	B66-10584	01	Method for predicting frictional loss in metal bellows and flexible hose		
REVERSED FLOW			M-FS-883	B66-10662	05
Check valve installation in pilot operated relief valve prevents reverse pressurization			Computer program predicts thermal and flow transients experienced in a reactor loss-of-flow accident		
M-FS-1925	B66-10655	05	NUC-10054	B67-10281	06
Automatic filter-blowback systems used with sintered-metal filters			Review of research and development in fluid logic elements		
ARG-10324	B69-10342	05	M-FS-420	B67-10438	01
REVERSING			Study made of thin-walled pipe response to turbulent fluids		
Ring counter may be advanced or retarded by command signal			M-FS-1321	B67-10518	05
GSFC-101	B64-10144	01	Venturi meter with separable diffuser		
Thermal motor positions magnetometer sensors			LEWIS-10483	B68-10295	05
ARC-51	B66-10078	05	Flow direction measurement with fixed probes		
Ring counter circuit switches multiphase motor direction of rotation			LEWIS-11044	B69-10714	02
JPL-SC-166	B66-10101	01	RHENIUM		
REVISIONS			High temperature thermocouple operates in reduction atmosphere		
Modified power tool rapidly drives series torque bolts			NU-0046	B66-10134	01
MSC-221	B66-10054	05	Study shows effect of surface preparations on improving thermionic emission		
Plastic scintillator converts standard photomultiplier to ultraviolet range			JPL-SC-140	B66-10493	01
ERC-9	B66-10108	02	High-strength tungsten alloy with improved		
Modified drill permits one-step drilling operation					
M-FS-559	B66-10169	05			
Tool post modification allows easy turret lathe cutting-tool alignment					
M-FS-581	B66-10191	05			

RHENIUM ALLOYS

SUBJECT INDEX

ductility LEWIS-10257	B67-10340	03	molded wall of a package LANGLEY-10228	B69-10436	01
Reinforced thermal-shock resistant ceramics LEWIS-10376	B68-10085	03	RIBONUCLEIC ACIDS Purification and characterization of two fully deuterated enzymes ARG-10314	B69-10207	04
Fabrication techniques developed for small- diameter, thin-wall tungsten and tungsten alloy tubing ARG-10100	B68-10284	05	RIBS (SUPPORTS) Integral ribs formed in metal panels by cold- press extrusion M-FS-230	B65-10141	05
Nickel base alloy with improved stress rupture properties LEWIS-10283	B68-10344	03	RIGID MOUNTING Special mount improves remote transducer accuracy LEWIS-269	B66-10021	01
RHENIUM ALLOYS Tungsten wire and tubing joined by nickel brazing M-FS-394	B65-10391	05	Electrically conductive fibers thermally isolate temperature sensor GSFC-456	B66-10349	01
Lower-cost tungsten-rhenium alloys LEWIS-332	B66-10528	03	Combination double door high-vacuum valve provides access to vacuum chamber JPL-849	B66-10697	05
Tungsten-rhenium alloy thermocouples effective for high-temperature measurement ARG-10059	B68-10109	03	Teflon sheet permits valve and valve operator to move as a single unit in a cryogenic pipe line NU-0077	B66-10702	05
Refractory oxide insulated thermocouple designed and analyzed for high temperature applications ARG-10202	B69-10053	03	Post-stressed concrete foundation may reduce machinery vibration ARG-130	B67-10237	05
RHENIUM COMPOUNDS Refractory-metal compound impregnation of polytetrafluoroethylene LEWIS-10733	B69-10072	03	Connect-disconnect coupling for preadjusted rigid shafts MSC-15470	B69-10375	05
Mass-spectrometric study of the rhenium-oxygen system ARG-10421	B69-10645	02	RIGID ROTORS Valve effectively controls amount of contaminant in flow stream M-FS-1771	B66-10683	05
RHEOELECTRICAL SIMULATION Logarithmic current simulator generates electrical currents accurately between 10 to the minus 11 ampere to 10 to the minus 3 ampere NU-0087	B66-10706	01	RIGID STRUCTURES Apparatus of small size can be extended into long, rigid boom JPL-305	B63-10200	05
RHEOLOGY Study of high-speed angular-contact ball bearings under dynamic load M-FS-20562	B69-10367	05	Collapsible truss structure is automatically expandable GSFC-265	B65-10126	05
RHODIUM Subminiaturized gas chromatograph gives fast, efficient analysis JPL-735	B66-10182	01	Extendible column can be stowed on drum JPL-686	B65-10191	05
Sensing disks for slug-type calorimeters have higher temperature stability M-FS-1867	B67-10161	01	Vacuum chamber provides improved insulation and support for cryostat M-FS-415	B65-10368	02
Rhodium-plated barrier against high-temperature fusion bonding M-FS-92155	B69-10544	05	Cold cathode ionization gage has rigid metal housing GSFC-445	B66-10041	01
RHODIUM ALLOYS Superconductivity in zirconium-rhodium alloys ARG-10223	B69-10010	03	Bellows design features low spring rate and long life MSC-521	B66-10190	05
RIBBONS Gas leak detector is simple and inexpensive M-FS-1206	B66-10669	01	Fibers of newly developed refractory ceramics produced by improved process WOO-169	B66-10196	03
Improved method of edge coating flat ribbon wire M-FS-902	B66-10684	03	Rugged microelectronic module package supports circuitry on heat sink MSC-81A	B66-10245	01
Fast-acting calorimeter measures heat output of plasma gun accelerator LEWIS-388	B67-10192	01	Compact actuator converts rotary to linear motion JPL-786	B66-10265	05
Helical tape forming device GSFC-10830	B69-10137	05	Friction loading device enables accurate testing of brittle materials NU-0051	B66-10345	05
Leads integral with the internal interconnection that penetrate the			Lateral ring metal elastic wheel absorbs shock loading M-FS-1312	B66-10663	05
			Preformed stiffeners used to fabricate		

SUBJECT INDEX

RING STRUCTURES

structural components for pressurized tanks				O-rings with mylar back-up provide high-pressure cryogenic seal			
M-FS-1796	B66-10688	05		M-FS-603	B66-10278	05	
Work platform is supported by self-locking blades				High pressure tube coupling requires no threads or flares			
M-FS-2297	B67-10180	05		MSC-600	B66-10285	05	
Quick-release hook-and-loop fastener				Union would facilitate joining of tubing, minimize braze contamination			
MSC-10950	B69-10388	05		MSC-777	B66-10311	05	
Modular packaging technique for combining integrated circuits and discrete components				Torus elements used in effective shock absorber			
GSFC-10369	B69-10453	01		WOO-114	B66-10318	05	
RIGIDITY				Electrically conductive fibers thermally isolate temperature sensor			
Spring loaded beaded cable makes efficient wire puller				GSFC-456	B66-10349	01	
WOO-108	B65-10031	05		Hollow spherical rotors fabricated by electroplating			
Heat treatment stabilizes welded aluminum jigs and tool structures				JPL-SC-117	B66-10366	05	
MSC-800	B66-10458	03		Combination spacer and gasket provides effective static seal			
A mechanically extendible boom				M-FS-1397	B66-10485	05	
NPO-11118	B69-10328	05		High-reluctance rotor rings improve homopolar generator performance			
RING DISCHARGE				ARG-104	B66-10543	01	
Laser system generates single-frequency light				Lateral ring metal elastic wheel absorbs shock loading			
M-FS-2556	B67-10288	02		M-FS-1312	B66-10663	05	
RING LASERS				Cryogenic seal remains leaktight during thermal displacement			
Neon isotopes cancel errors in gas laser				ARG-96	B67-10134	02	
M-FS-1476	B66-10583	02		Environmental study of miniature slip rings			
Design concepts using ring lasers for frequency stabilization				M-FS-2443	B67-10210	05	
M-FS-2448	B67-10143	01		Design concept to decrease relative speed of ball bearings			
Nonreciprocal gain control for ring laser				M-FS-2003	B67-10212	05	
M-FS-14041	B67-10653	02		Line adapter provides quick disconnect under moderate side loading			
Ring laser angle encoder				M-FS-2159	B67-10256	05	
MSC-13099	B69-10115	01		Pipe joints reinforced in place with fitted aluminum sleeves			
RING STRUCTURES				MSC-11109	B67-10271	05	
Ring counter may be advanced or retarded by command signal				Circuit automatically calibrates flowmeter against liquid-level gage reference			
GSFC-101	B64-10144	01		M-FS-2194	B67-10376	01	
Ring valve responds to differential pressure changes				Wear studies made of slip rings and gas bearing components			
WOO-247	B66-10022	05		M-FS-12882	B67-10403	05	
Noncontacting transducer measures shaft torque				Torque meter aids study of hysteresis motor rings			
M-FS-474	B66-10048	01		M-FS-12219	B67-10412	01	
Angular acceleration measured by deflection in sensing ring				Aluminum and stainless steel tubes joined by simple ring and welding process			
MSC-250	B66-10105	01		M-FS-13120	B67-10472	05	
Intermediate rotating ring improves reliability of dynamic shaft seal				Cone and column solar energy concentrator			
M-FS-575	B66-10197	05		LANGLEY-210	B67-10517	01	
Pressure seal ring may be effective over wide temperature range				Computer program performs rectangular fitting stress analysis			
M-FS-486	B66-10211	05		M-FS-13010	B67-10520	06	
Electron beam welding of copper-Monel facilitated by circular magnetic shields				Dynamic valve seal is reliable at cryogenic temperatures			
M-FS-569	B66-10245	05		M-FS-12987	B67-10526	05	
Pressure-welded flange assembly provides leaktight seal at reduced bolt loads				Cryogenic seal concept for static and dynamic conditions			
M-FS-640	B66-10247	05		M-FS-12986	B67-10673	05	
Flow ring valve is simple, quick-acting				Mass loading effects on vibrated ring and shell structures			
M-FS-752	B66-10255	05		M-FS-14979	B68-10532	03	
Differential expansion provides pressure for diffusion bonding of large diameter rings							
M-FS-588	B66-10269	05					
Fastener provides for bolt misalignment and quick release of flange							
NU-0074	B66-10275	05					

RINGS

SUBJECT INDEX

Liquid gallium rotary electric contract LEWIS-10828	B69-10138	03	M-FS-772	B66-10588	05
Conceptual techniques for reducing parasitic current gain of lateral pnp transistors MSC-13199	B69-10244	01	ROCKET ENGINE DESIGN Development of detonation reaction engine M-FS-14020	B67-10652	01
Sealing a rubber bladder between two sections of an accumulator M-FS-20403	B69-10355	05	Rocket engine analog simulation M-FS-14511	B68-10511	01
RINGS Contact stresses calculated for miniature slip rings M-FS-280	B65-10098	05	ROCKET ENGINES Wire winding increases lifetime of oxide coated cathodes LEWIS-154	B65-10032	03
Improved poppet valve provides positive damageproof seal M-FS-293	B65-10346	05	Multiple correlation computer program determines relationships between several independent and dependent variables M-FS-13024	B67-10327	06
Flexible plastic ring assembly makes durable shaft seal WOO-227	B65-10367	05	Modified blackbody device emits high-density radiation M-FS-12744	B67-10388	02
Threaded split ring connector separates structural sections LANGLEY-145	B65-10383	05	Two-fluid, impinging-sheet injector NPO-10547	B68-10338	05
Fluorocarbon seal replaces metal piston ring in low density gas environment LEWIS-10277	B67-10591	05	Rocket engine analog simulation M-FS-14511	B68-10511	01
Shock-absorbing caster wheel is simple and compact SAN-10019	B68-10266	05	Semitoroidal-diaphragm cavitating valve designed for bipropellant flow control XNP-09704	B69-10016	05
Shock-absorbent mountings for bearings NPO-10626	B69-10331	05	Two-axis winch installer for heavy ducts in confined space M-FS-14254	B69-10062	05
RIVETS Jig and fixture aid fabrication of tungsten rivets LEWIS-185	B65-10101	05	Improved combustion chamber optical probe MSC-10953	B69-10142	02
Cable clamp bolt fixture facilitates assembly in close quarters KSC-67-80	B67-10244	05	Design and testing of liquid hydrogen-cooled, ultrahigh-speed ball bearings M-FS-18453	B69-10178	05
Development of structural test articles from magnesium-lithium and beryllium M-FS-14959	B69-10417	03	Two-step rocket engine bipropellant valve concept MSC-10951	B69-10280	05
Flexible rivet-set M-FS-20317	B69-10459	05	Technique for assessing potential fire hazards HQ-10279	B69-10287	03
RLC CIRCUITS Voltage variable oscillator has high phase stability LANGLEY-123	B65-10204	01	Computer simulation of high-frequency combustion instability and its suppression HQ-10391	B69-10368	06
ROASTING Direct indication of particle size in fluidized beds ARG-10130	B69-10083	05	Prediction of thermal radiation from a rocket's exhaust plume M-FS-20414	B69-10371	02
Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06	Burst diaphragm leak detector M-FS-14500	B69-10543	03
ROCKET-BORNE INSTRUMENTS Shock-absorbent mountings for bearings NPO-10626	B69-10331	05	Single-element coaxial injector for rocket fuel NPO-11095	B69-10547	05
ROCKET-BORNE PHOTOGRAPHY Rocket engine nozzle photographic system NPO-10174	B68-10113	02	A comparison of two methods of measuring particle size of Al2O3 produced by a small rocket motor NPO-11198	B69-10572	03
ROCKET ENGINE CASES New method used to fabricate light-weight heat exchanger for rocket motor LEWIS-43	B63-10346	02	New type pressure transducer for severe thermal environments M-FS-20208	B69-10652	01
Novel clamps align large rocket cases, eliminate back-up bars M-FS-1	B63-10376	05	Seismographic recording of large rocket engine operation M-FS-20545	B69-10756	01
ROCKET ENGINE CONTROL Plastic tubing protects flexible copper hose			ROCKET EXHAUST Refractory thermal insulation for smooth metal surfaces M-FS-160	B64-10099	03
			Air-cured ceramic coating insulates against high heat fluxes M-FS-150	B65-10357	03

SUBJECT INDEX

RODS

Probe samples components of rocket engine exhaust M-FS-485	B65-10384	03	M-FS-1265	B66-10614	01
Ultraviolet photographic pyrometer used in rocket exhaust analysis M-FS-499	B66-10095	02	Electron beam parallel X-ray generator MSC-11022	B67-10372	02
Hydrogen fire detection system features sharp discrimination M-FS-643	B66-10368	01	Handbooks describe eddy current techniques used in nondestructive testing of metal parts and components M-FS-13172	B67-10374	03
Predicting surface heating rates and pressures resulting from hot exhaust gases MSC-971	B66-10633	05	Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133	B67-10437	03
Study of hot wire techniques in low density flows with high turbulence levels M-FS-1269	B66-10687	01	A method of determining combustion gas flow M-FS-13757	B67-10455	03
General computer program for calculation of radiation from inhomogeneous, nonisobaric, nonisothermal rocket exhaust plume M-FS-14314	B68-10044	06	A polar graphic method for determining the attitude of rocket vehicles GSFC-10860	B69-10591	02
Infrared spectroradiometer for rocket exhaust analysis M-FS-14357	B68-10081	02	Aerodynamic forces of fluttering cylindrical and/or planar structures M-FS-20497	B69-10781	02
Plume radiation program M-FS-13202	B68-10447	06	ROCKS		
Molecular radiation - Its application in physical measurements and analyses M-FS-14816	B69-10562	02	Rock bit requires no flushing medium to maintain drilling speed JPL-W00-031	B65-10109	05
ROCKET FIRING			Preparing rock powder specimens of controlled size distribution NPO-10007	B68-10297	05
Portran 4 program for two-impulse rendezvous analysis M-FS-13971	B67-10479	06	Transplutonium elements processed from rock debris of underground detonations ARG-10222	B69-10054	03
ROCKET NOSE CONES			ROCKWELL HARDNESS		
High purity electroforming yields superior metal models ARC-6	B63-10007	05	Control of component differential hardness increases bearing life LEWIS-190	B65-10251	05
ROCKET NOZZLES			Flared-tube fittings with replaceable seat inserts MSC-15372	B69-10519	05
Multilayer refractory nozzles produced by plasma-spray process W00-318	B66-10611	05	RODS		
Silver plating technique seals leaks in thin wall tubing joints NU-0090	B66-10703	05	Lightweight universal joint transmits both torque and thrust JPL-375	B63-10236	05
Stress-testing of the throat of a rocket*s nozzle NPO-10311	B69-10358	05	Cooling method prolongs life of hot-wire transducer LEWIS-41	B63-10344	02
Hydraulic calipers M-FS-18052	B69-10399	05	Buckle joins web straps quickly, adjusts easily LANGLEY-21	B64-10119	05
ROCKET PROPELLANTS			Simple transducer measures low heat-transfer rates JPL-466	B64-10122	01
Quick-disconnect coupling safe transfer of hazardous fluids LEWIS-125	B65-10202	01	Carbon-arc rod holder has long life, reduces arc splatter MSC-144	B65-10095	03
Camera mount for close-up stereo photographs LANGLEY-10442	B69-10226	02	System measures unidirectional forces, excludes extraneous forces LEWIS-170	B65-10154	05
ROCKET SOUNDING			Mounting facilitates removal and installation of flame-detector rods M-FS-555	B66-10150	05
Multichannel pulse height analyzer is inexpensive, features low power requirements HQN-10020	B67-10258	01	Fibers of newly developed refractory ceramics produced by improved process W00-169	B66-10196	03
ROCKET TEST FACILITIES			Bypass rod transfers heat developed in thermionic diode JPL-SC-136	B66-10303	05
Computer program determines performance efficiency of remote measuring systems M-FS-1137	B66-10503	01	Ultrasonic water column probe speeds up testing of welds BQ-58	B66-10577	01
ROCKET THRUST					
Device measures reaction engine thrust vector deviations JPL-SC-163	B66-10642	05			
ROCKET VEHICLES					
Study of theory and application of long duration heat flux transducers					

ROLL FORMING

SUBJECT INDEX

Composite weld rod corrects individual filler weaknesses M-FS-1923	B67-10107	05	elongation in elastomers M-FS-517	B66-10284	05
Study of yttrium iron garnet rods reveals new magnetostatic echo mode ERC-37	B67-10153	01	Expandable takeup reel facilitates paper tape removal WOO-271	B66-10399	05
High-strength tungsten alloy with improved ductility LEWIS-10257	B67-10340	03	Carriage system remotely moves drawer over extended distance NU-0092	B66-10711	05
Pressure levels and pulsation frequencies can be varied on high pressure/frequency testing device LEWIS-10205	B67-10360	05	Web belt load measuring instrument has excellent stability MSC-921	B67-10242	01
Fiber glass reinforced structural materials for aerospace application M-FS-14806	B68-10360	03	Tape reading fixture M-FS-14146	B69-10008	05
Method of making conical fiber optical components XNP-09745	B69-10020	02	Helical tape forming device GSFC-10830	B69-10137	05
An ultrasonic method for studying elastic moduli as a function of temperature ARG-10187	B69-10082	02	Detachable caster adapter MSC-91215	B69-10164	05
Restricted-flow junction between liquids NFO-10682	B69-10332	02	Tools for applying lead tape to flat conductor cabling for chemical stripping M-FS-20429	B69-10190	05
Piezoelectric linear actuator MSC-13194	B69-10469	02	A concept for magazine Binat processor KSC-06786	B69-10275	02
A sterilizable high-impact antenna NFO-10231	B69-10697	01	A mechanically extendible boom NFO-11118	B69-10328	05
ROLL FORMING			ROLLING		
Metal bellows custom-fabricated from tubing LEWIS-192	B65-10150	05	Coating protects magnesium-lithium alloys against corrosion M-FS-2446	B67-10149	03
Thermal stress-relief treatments for 2219 aluminum alloy are evaluated M-FS-1213	B66-10448	03	ROLLING CONTACT LOADS		
Metal tube reducer is inexpensive and simple to operate ARG-49	B67-10401	05	High-temperature bearing lubricants LEWIS-10408	B68-10249	05
Roll diffusion bonding of titanium alloy panels M-FS-14743	B68-10161	05	Computer program analyzes whirl critical speeds and bearing loads for shafts coupled by nonlinear springs to machine housing NUC-10308	B69-10034	06
ROLLER BEARINGS			ROOM TEMPERATURE		
Control of component differential hardness increases bearing life LEWIS-190	B65-10251	05	Improved adhesive for cryogenic applications cures at room temperature WOO-132	B66-10185	03
Swing-out rail system separates overhead crane rails NU-0094	B66-10713	05	Radiation used to temperature compensate semiconductor strain gages LANGLEY-207	B66-10186	02
Tester for study of rolling element bearings LEWIS-305	B67-10009	01	Fluid damping reduces bellows seal fatigue failures M-FS-565	B66-10249	05
Rolanite - A new mechanical design concept SAN-10001	B67-10611	05	O-rings with mylar back-up provide high-pressure cryogenic seal M-FS-603	B66-10278	05
Damages in rolling element bearings may be detected early HQ-10031	B67-10658	01	Single-source mechanical loading system produces biaxial stresses in cylinders M-FS-12530	B67-10380	05
Bearings use dry self-lubricating cage materials LEWIS-10432	B68-10165	05	Warpage eliminated in copper-clad microwave circuit laminates M-FS-13892	B67-10454	03
ROLLERS			Environmental control system for cryogenic testing of tensile specimens NUC-10523	B67-10618	02
Stainless-steel elbows formed by spin forging M-FS-122	B63-10590	05	Encapsulation technique eliminates thermal stresses in welded electronic modules M-FS-14581	B68-10307	01
Upsetting butt edge increases weld-joint strength M-FS-175	B64-10164	05	Direct measurement of carbon-14 in carbon dioxide by liquid scintillation counting ARG-10237	B69-10092	03
T-handle wrench has torque-limiting action MSC-280	B66-10065	05	Tools made of ice facilitate forming of soft, sticky materials KSC-10262	B69-10199	05
Extensometer automatically measures					

SUBJECT INDEX

ROTATING CYLINDERS

Evaluation of magnetic materials for static inverters and converters LEWIS-10343	B69-10306	01	Rotating mandrel speeds assembly of plastic inflatables LANGLEY-155	B66-10137	05
Laser action from a terbium beta-ketoenolate at room temperature GSPC-10593	B69-10324	02	Segmented ball valve is easy to open and close WOO-248	B66-10195	05
Silphenylene elastomers have high thermal stability and tensile strength M-FS-20250	B69-10580	03	Intermediate rotating ring improves reliability of dynamic shaft seal M-FS-575	B66-10197	05
Technique for predicting the thermal expansion coefficients of cryogenic metallic alloys NUC-10554	B69-10707	02	Rotary valve controls multiple hydraulic leveling cylinders M-FS-361	B66-10402	05
ROOMS			Rotating magnetic poles used to pump mercury LEWIS-276	B66-10434	05
Computer program conducts facilities utilization and occupancy survey NPO-10326	B67-10476	06	Process yield Co-Fe alloys with superior high temperature magnetic properties LEWIS-333	B66-10535	03
ROOT-MEAN-SQUARE ERRORS			Rotational fluid coupling eliminates hose entanglements MSC-312	B66-10585	05
Maximum RMS error comparison of several redundancy techniques M-FS-15075	B69-10297	01	Automatic system determines moments of inertia of asymmetrical objects M-FS-1769	B66-10636	01
Automatic Gaussian random-noise limiter NPO-10169	B69-10349	01	Computer program simplifies design of rotating components of turbomachinery NUC-10046	B67-10235	06
ROOTS			Eccentric drive mechanism is adjustable during operation M-FS-2576	B67-10373	05
Root-cubing and general root-powering methods for finding the zeros of polynomials ARG-10444	B69-10424	02	Flowmeter determines mix ratio for viscous adhesives M-FS-2308	B67-10378	01
ROOTS OF EQUATIONS			Coaxial cable stripping device facilitates RF cabling fabrication NPO-10315	B67-10419	05
Computer program provides linear sampled-data analysis for high order systems M-FS-12821	B67-10287	06	Tool samples subsurface soil free of surface contaminants MSC-10988	B67-10473	05
Simple tunnel diode circuit for accurate zero crossing timing ARG-10309	B69-10116	01	Between-bearing shaft seal, a concept M-FS-18179	B68-10286	05
ROTARY GYROSCOPES			Improved gas ring laser MSC-11584	B68-10304	02
Adaptive control circuit prevents amplifier saturation ERC-10026	B67-10648	02	High-speed pulse camera MSC-11353	B68-10329	02
ROTARY STABILITY			Multiple-orifice throttle valve XNP-09698	B69-10030	05
Proposed method of rotary dynamic balancing by laser M-FS-12422	B67-10452	02	Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456	B69-10192	03
Electromechanical rotary actuator operates over wide temperature range M-FS-18402	B69-10100	05	Multi-feed cone for Cassegrainian antenna NPO-10539	B69-10269	01
ROTATING BODIES			Precisely repeatable rotary mechanism NPO-10679	B69-10696	05
Shock absorber protects motive components against overloads WOO-092	B65-10008	05	Burn-rate testing apparatus MSC-10947	B69-10740	03
Pickup device reads pressures from ports in rotating mechanisms LEWIS-158	B65-10021	05	ROTATING CYLINDERS		
Rotating filters permit wide range of optical pyrometry LANGLEY-33	B65-10100	02	Mechanism facilitates coating of inner surfaces of metal cylinders GSPC-515	B66-10698	05
Dispensing system eliminates torsion in deployed hoses MSC-80	B65-10185	05	Pneumatic wrench retains or discharges nuts or bolts as desired NU-0085	B66-10707	05
Rotating holder permits accurate grinding of metallurgical microsamples LEWIS-131	B65-10262	05	X-ray film holder permits single continuous picture of tubing joint LEWIS-10382	B68-10343	05
Multiple test chamber exposes materials to various environments MSC-179	B65-10268	01	Compact rotating cup anemometer		
Centrifugal device separates liquid from gas MSC-282	B65-10394	05			
Cryostat modified to aid rotating beam fatigue test M-FS-435	B66-10083	03			

ROTATING DISKS

SUBJECT INDEX

NPO-10563	B68-10436	01	Environmental study of miniature slip rings M-FS-2443	B67-10210	05
ROTATING DISKS			Design concept to decrease relative speed of ball bearings M-FS-2003	B67-10212	05
Analog device simulates physiological waveforms MSC-51	B64-10109	01	Segmented, arch-bound carbon seal is pressure loaded M-FS-12777	B67-10325	05
Gear drive automatically indexes rotary table M-FS-753	B66-10383	05	Spiral-grooved shaft seals substantially reduce leakage and wear LEWIS-10357	B68-10270	05
System enables dimensional inspection of very large structures M-FS-2477	B67-10214	05	Miniature paint-spray gun for recessed areas MSC-13060	B68-10387	05
Flow angle sensor and readout system LEWIS-90298	B69-10050	01	Connect-disconnect coupling for preadjusted rigid shafts MSC-15470	B69-10375	05
Study of high-speed angular-contact ball bearings under dynamic load M-FS-20562	B69-10367	05	High-pressure seals for rotary shafts M-FS-18548	B69-10649	05
ROTATING ELECTRICAL MACHINES			A rotating, noncapillary heat pipe LEWIS-10298	B69-10684	05
Electronic visualization of gas bearing behavior LEWIS-10711	B69-10073	01	ROTATING STALLS		
Improved design of item in high speed rotating machinery M-FS-18441	B69-10373	05	Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01
Automatic sample rotator for metallographic polishing NPO-11015	B69-10596	03	ROTATION		
ROTATING FLUIDS			Device transmits rotary motion through hermetically sealed wall JPL-303	B63-10198	05
Rotational fluid coupling eliminates hose entanglements MSC-312	B66-10585	05	Bearing transmits rotary and axial motion LANGLEY-27	B64-10130	05
ROTATING MIRRORS			Explosives actuate nonmagnetic indexing device GSFC-237	B65-10017	05
Twin helix system produces fast scan in infrared detector M-FS-1598	B66-10638	02	New coupling compensates for shaft misalignment NU-0013	B65-10077	05
High-speed camera synchronization M-FS-18062	B68-10282	02	Universal bellows joint restraint permits angular and offset movement WOO-102	B65-10371	05
Flow angle sensor and readout system LEWIS-90298	B69-10050	01	Ring counter circuit switches multiphase motor direction of rotation JPL-SC-166	B66-10101	01
Multipurpose binocular scanning apparatus NPO-11002	B69-10311	02	Compact actuator converts rotary to linear motion JPL-786	B66-10265	05
ROTATING SHAFTS			Uniform reflective films deposited on large surfaces GSFC-507	B66-10483	02
Optics used to measure torque at high rotational speeds LEWIS-13	B63-10338	01	Multilayer refractory nozzles produced by plasma-spray process WOO-318	B66-10611	05
Ohmmeter senses depletion of lubricant in journal bearings LEWIS-37	B64-10042	01	Power arc welder touch-started with consumable electrode M-FS-1485	B66-10641	05
Apparatus alters position of objects to facilitate demagnetization GSFC-234	B64-10277	05	Welding torch and wire feed manipulator M-FS-13102	B67-10385	05
Flexible plastic ring assembly makes durable shaft seal WOO-227	B65-10367	05	Metal tube reducer is inexpensive and simple to operate ARG-49	B67-10401	05
Friction device damps linear motion of rotating shaft WOO-214	B66-10030	05	Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01
Noncontacting transducer measures shaft torque M-FS-474	B66-10048	01	Swing arm carrier protects flexible lines during test item rotation MSC-11464	B68-10037	05
Flexible arms provide constant force for pressure switch calibration HQ-38	B66-10317	05	Gimbal angle sensor		
Laser measuring system accurately locates point coordinates on photograph ARG-74	B66-10560	02			
Rocket engine vibration accurately measured by photography M-FS-1916	B66-10652	02			

SUBJECT INDEX

RUBBER

GSFC-10305	B68-10315	01	life		
Liquid gallium rotary electric contract			GSFC-181	B66-10355	01
LEWIS-10828	B69-10138	03	Hollow spherical rotors fabricated by electroplating		
Journal gas bearing for curved surfaces			JPL-SC-117	B66-10366	05
M-FS-20423	B69-10182	05	Shaft encoder presents digital output		
Precise gimballing mechanism			JPL-SC-191	B66-10436	01
NPO-11057	B69-10270	01	High-reluctance rotor rings improve homopolar generator performance		
Preferred-orientation analysis of polycrystalline materials			ARG-104	B66-10543	01
NPO-10604	B69-10336	02	Pressure probe compensates for dimensional tolerance variations		
Rotary antenna attenuator			LEWIS-302	B66-10599	01
NPO-10648	B69-10502	01	Resilient bearing supports are gas controlled		
Method of directing a laser beam with very high accuracy			LEWIS-10109	B67-10364	05
NPO-11087	B69-10508	02	Wear studies made of slip rings and gas bearing components		
Measurement technique for the determination of antenna directivity			M-FS-12882	B67-10403	05
M-FS-12799	B69-10677	01	Torque meter aids study of hysteresis		
ROTOR AERODYNAMICS			motor rings		
Simple key locks turbine rotor blades			M-FS-12219	B67-10412	01
WOO-103	B66-10023	05	Shallow grooves in journal improve air bearing performance		
ROTOR BLADES			LEWIS-10396	B68-10134	05
Noise study of single stage compressor rotor-stator interaction			Laser system used for dynamic balancing of gyros		
LANGLEY-137	B67-10516	02	M-FS-12218	B68-10225	05
ROTOR BLADES (TURBOMACHINERY)			Acoustic wave analysis		
Simple key locks turbine rotor blades			M-FS-18076	B68-10265	02
WOO-103	B66-10023	05	Sweep frequency detector		
Computer programs for axial flow compressor design			NPO-10669	B69-10289	01
LEWIS-10765	B69-10174	06	Hermetically sealed pump		
ROTOR SPEED			LEWIS-10837	B69-10320	05
Noncontacting transducer measures shaft torque			A compact rotary vane attenuator		
M-FS-474	B66-10048	01	NPO-10562	B69-10427	01
Variable-capacitance tachometer eliminates troublesome magnetic fields			Foil bearing support for high-speed rotor		
GSFC-435	B66-10126	01	HQ-10315	B69-10661	05
Intermediate rotating ring improves reliability of dynamic shaft seal			ROUGHNESS		
M-FS-575	B66-10197	05	Chemical milling solution produces smooth surface finish on aluminum		
Valve effectively controls amount of contaminant in flow stream			MSC-549	B66-10312	03
M-FS-1771	B66-10683	05	Selective tube roughening increases heat transfer capability		
Design concept to decrease relative speed of ball bearings			M-FS-599	B66-10610	05
M-FS-2003	B67-10212	05	Method for predicting frictional loss in metal bellows and flexible hose		
Computer program simplifies design of rotating components of turbomachinery			M-FS-883	B66-10662	05
NUC-10046	B67-10235	06	Steel test panel helps control additives in pyrophosphate copper plating		
ROTORS			LEWIS-10101	B67-10358	05
Pickup device reads pressures from ports in rotating mechanisms			Damages in rolling element bearings may be detected early		
LEWIS-158	B65-10021	05	HQ-10031	B67-10658	01
Rotor position sensor switches currents in brushless dc motors			RP-1 ROCKET PROPELLANTS		
GSFC-315	B65-10151	01	Run-in with chemical additive protects gear surface		
Brushless dc motor uses electron beam switching tube as commutator			M-FS-548	B66-10069	05
GSFC-345	B65-10237	01	Ultraviolet photographic pyrometer used in rocket exhaust analysis		
Ring counter circuit switches multiphase motor direction of rotation			M-FS-499	B66-10095	02
JPL-SC-166	B66-10101	01	RUBBER		
Switching mechanism senses angular acceleration			Frictional wedge shock mount is inexpensive, has good damping characteristics		
GSFC-462	B66-10158	01	JPL-IT-1001	B63-10289	05
Brushless dc motor has high efficiency, long			Vacuum-type backup bar speeds weld repairs		

RUBIDIUM

SUBJECT INDEX

M-FS-12	B63-10384	05	gyros		
Improved electrode gives high-quality biological recordings			M-FS-12218	B68-10225	05
MSC-17	B64-10025	04	Coolants with selective optical filtering characteristics for ruby laser applications		
Dispenser leak-tests and sterilizes rubber gloves			M-FS-20188	B68-10508	02
MSC-285	B66-10166	03	Two-color holography		
Coating permits use of strain gage in water and liquid hydrogen			HQ-10349	B69-10662	02
M-FS-594	B66-10192	01	RUGGEDNESS		
Expandable rubber plug seals openings for pressure testing			Lamp enables measurement of oxygen concentration in presence of water vapor		
NU-0048	B66-10229	05	MSC-10043	B67-10387	01
Fixed vacuum plate clamps styrofoam for machining			Rugged switch responds to minute pressure differentials		
M-FS-683	B66-10283	05	M-FS-12704	B67-10389	01
Special mandrel permits uniform welding of out-of-round tubing			RUNGE-KUTTA METHOD		
M-FS-706	B66-10323	05	Study of dynamic response of elastic space stations		
Thermoplastic rubberlike material produced at low cost			NPO-10124	B67-10169	06
JPL-793	B66-10453	03	Computer program simulates physical systems by solving the simultaneous differential equations describing the systems		
Static electricity of polymers reduced by treatment with iodine			NPO-10019	B67-10193	06
NPO-10062	B67-10132	03	One-dimensional reacting gas nonequilibrium performance program		
Improved ultrasonic TV images achieved by use of Lamb-wave orientation technique			MSC-11777	B68-10375	06
ARG-203	B67-10295	02	ABTRAJ on-site tracking prediction program		
Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations			NPO-10836	B69-10103	06
ARG-251	B67-10305	04	Some numerical methods for integrating systems of first-order ordinary differential equations		
Eccentric drive mechanism is adjustable during operation			ARG-10308	B69-10204	02
M-FS-2576	B67-10373	05	Numerical solutions of differential equations		
X-ray film holder permits single continuous picture of tubing joint			M-FS-20537	B69-10779	02
LEWIS-10382	B68-10343	05	RUPTURING		
Sealing a rubber bladder between two sections of an accumulator			Safety restrainer prevents whipping of ruptured high-pressure hose		
M-FS-20403	B69-10355	05	LEWIS-99	B64-10348	05
Spiral-flow apparatus for measuring permeation of solids by gases			Universal bellows joint restraint permits angular and offset movement		
M-FS-16517	B69-10357	03	WOO-102	B65-10371	05
Development of structural test articles from magnesium-lithium and beryllium			Remotely operated high pressure valve protects test personnel		
M-FS-14959	B69-10417	03	MSC-11010	B67-10291	05
Flexible rivet-set			Hand-held instrument should relieve hematoma pressure		
M-FS-20317	B69-10459	05	MSC-599	B67-10332	04
RUBIDIUM			Pneumatic raft automatically reforms after rupture of buoyant member		
Magnetometer measures orthogonal components of magnetic fields			MSC-11562	B68-10011	05
GSFC-395	B65-10315	01	S		
Electrodeless discharge lamp is easily started, has high stability			S CURVES		
WOO-030	B66-10015	01	Unique frequency-shift-keyed demodulation system		
Improved atomic resonance gas cell for use in frequency standards			GSFC-217	B67-10668	01
MSC-11666	B68-10230	01	S WAVES		
RUBIDIUM COMPOUNDS			Ultrasonics used to measure residual stress		
Synthesis of perbromates			M-FS-12449	B67-10428	02
ARG-10459	B69-10647	03	An ultrasonic method for studying elastic moduli as a function of temperature		
RUBY			ARG-10187	B69-10082	02
Improved traveling wave maser amplifier			SADDLES (SUPPORTS)		
NPO-10548	B68-10244	01	Vertical boring mill capacity is increased		
RUBY LASERS			M-FS-16196	B68-10530	05
Laser system used for dynamic balancing of			Detachable caster adapter		
			MSC-91215	B69-10164	05

SUBJECT INDEX

SAFETY FACTORS

SAFETY

Automatic cryogenic liquid level controller
is safe for use near combustible substances
LEWIS-195 B66-10482 01

Miniature piezoelectric triaxial
accelerometer measures cranial accelerations
ARC-71 B66-10534 01

Ambient temperature catalyst for hydrogen
ignition
LEWIS-10551 B68-10520 03

Hydrodynamics of a new concept of primary
containment by energy absorption
ARG-10242 B69-10046 05

Instruction manuals for liquid penetrant
nondestructive testing
M-FS-14010 B69-10278 05

SAFETY DEVICES

Break-up of metal tube makes one-time shock
absorber, bars rebound
LANGLEY-1A B63-10304 05

Self-balancing beam permits safe, easy load
handling under overhang
M-FS-84 B63-10571 05

Comfortable, lightweight safety helmet holds
radio transmitter, receiver
MSC-53 B64-10015 05

Filler device for handling hot corrosive
materials
MSC-85 B64-10166 03

Threading hook facilitates safe recovery of
heavy loads
MSC-46 B64-10185 05

Instrument adjustment knob locks to prevent
accidental maladjustment
M-FS-190 B64-10249 05

Safety restrainer prevents whipping of
ruptured high-pressure hose
LEWIS-99 B64-10348 05

Mouthpiece adapter for pipettes protects mouth
from harmful liquids
LANGLEY-47 B65-10043 03

Double gloves reduce contamination of dry box
atmosphere
LEWIS-211 B65-10117 03

Fluid check valve has fail-safe feature
JPL-0019 B65-10207 05

Cam-operated limit switch features safe fuse
replacement
MSC-218 B65-10322 01

Single connector provides safety fuses for
multiple lines
MSC-199 B66-10050 01

Nylon shock absorber prevents injury to
parachute jumpers
MSC-226 B66-10080 05

Dispenser leak-tests and sterilizes rubber
gloves
MSC-285 B66-10166 03

Safety switch permits emergency bridge crane
shutdown
M-FS-549 B66-10168 05

Lifting clamp positively grips structural
shapes
M-FS-593 B66-10176 05

Self-inflating lifevest stores in small
package
MSC-5A B66-10184 04

Body-fitted harness provides safe and easy
component handling
M-FS-533 B66-10202 05

Adjustable cutting guide aligns and positions
stacks of material
MSC-321 B66-10210 05

Soft-seal valve holds hazardous fluids
safely
LEWIS-275 B66-10216 05

Key-locked guard prevents accidental switch
actuation
MSC-419 B66-10235 05

Lathe chuck key incorporates safety feature
MSC-506 B66-10243 05

Magnetic latches provide positive
overpressure control
NU-0057 B66-10279 05

Modified hydraulic braking system limits
angular deceleration to safe values
GSPC-476 B66-10310 05

Adapter assembly prevents damage to tubing
during high pressure tests
MSC-563 B66-10330 02

Sniffer used as portable hydrogen leak
detector
M-FS-846 B66-10356 01

Emergency escape system protects personnel
from explosion and fire
KSC-66-12 B66-10634 05

Toroidal ring prevents gas ignition at
vent stack outlet
M-FS-2042 B67-10098 05

Device enables calibration of microphones
at high sound pressure levels
M-FS-11980 B67-10336 01

Safety yoke would protect construction
workers from falling
KSC-10075 B67-10445 05

Saran film is fire-retardant in oxygen
atmosphere
MSC-11604 B68-10177 03

Thermal protective visor for entering
high temperature areas
MSC-10285 B68-10277 05

Solid state high-voltage pulser operates
with low supply voltage
M-FS-14034 B68-10308 01

Protective clothing for workers with 5-kW
and 20-kW short-arc lamps
NPO-11155 B69-10218 01

Improved fire resistant radio frequency
anechoic materials
M-FS-16600 B69-10450 05

Exploding bridgewire detonator simulator
M-FS-02191 B69-10782 01

SAFETY FACTORS

Emission tester for high-power vacuum tubes
JPL-628 B64-10158 01

Compressed gas system operates semitrailer
brakes during winching operation
JPL-0036 B64-10306 05

Miniature bearings lubricated by sonic
dispersion method
M-FS-202 B65-10106 03

Inert gas spraying device aids in repair of
hazardous systems
LEWIS-8B B65-10115 05

SALT BATHS

SUBJECT INDEX

Self-contained clothing system provides protection against hazardous environments M-FS-536 B66-10201	05	Frequency correction device uses digital circuitry GSFC-268 B65-10307	01
Nonhazardous acid etches weld samples M-FS-975 B66-10378	05	Probe samples components of rocket engine exhaust M-FS-485 B65-10384	03
Remotely operated high pressure valve protects test personnel MSC-11010 B67-10291	05	Cryogenic fluid sampling device permits testing under hazardous conditions M-FS-1927 B66-10654	02
Training course for radiation safety technicians ARG-216 B67-10477	02	Two techniques enable sampling of filtered and unfiltered molten metals ARG-150 B67-10034	03
Quick-attach clamp XFR-05421 B68-10250	05	System automatically supplies precise analytical samples of high-pressure gases M-FS-1814 B67-10090	01
Low energy ohmmeter can be used to test sensitive circuits, other meters SAN-10013 B68-10269	01	Self-sealing closure enables access to several fluid containers NPO-10123 B67-10207	04
Hydrogen safety manual LEWIS-10487 B68-10323	01	An improved nuclear magnetic resonance spectrometer JPL-762 B67-10234	01
Chemistry laboratory safety manual available SAN-10030 B68-10419	03	Improved ultrasonic TV images achieved by use of Lamb-wave orientation technique ARG-203 B67-10295	02
Isothermal drop calorimeter provides measurements for alpha active, pyrophoric materials ARG-10186 B69-10002	02	Tool samples subsurface soil free of surface contaminants MSC-10988 B67-10473	05
Teflon-packed flexible joint LEWIS-90252 B69-10049	03	Development of lunar drill to take core samples to 100-foot depths M-FS-13015 B67-10529	05
Inflatable bladder to facilitate handling of heavy objects - A concept M-FS-14272 B69-10069	05	Air sampler collects and protects minute particles HQ-10037 B67-10661	01
Calibrated water tank facilitates proof-loading of cranes and derricks M-FS-15059 B69-10109	05	Vacuum probe sampler removes micron-sized particles from surfaces SAN-10003 B68-10231	04
Automated microorganism Sample Collection Module HQ-10421 B69-10223	04	Automated microorganism Sample Collection Module HQ-10421 B69-10223	04
Electronic analog equalization for vibrational testing NPO-10544 B69-10472	01	Sealed container sampling device GSFC-10690 B69-10682	03
Fuse protects circuit from voltage and current overloads MSC-12135 B69-10490	01	Fluid sample collection and storage device MSC-10962 B69-10816	05
Estimating reliability by application of matrix representation HQ-10246 B69-10793	02	SAMPLES Rapid and precise analysis for calcium in blood serum ARG-10246 B69-10160	04
SALT BATHS Coating protects magnesium-lithium alloys against corrosion M-FS-2446 B67-10149	03	Laser microprobe facility used in the elemental analysis of small feature of a sample ARG-10359 B69-10165	02
SALT SPRAY TESTS Corrosion protection of aluminum alloys in contact with other metals M-FS-18526 B69-10098	03	SAMPLING PCM magnetic tape system efficiently records and reproduces data GSFC-375 B65-10311	01
SALTS Crucible cast from beryllium oxide and refractory cement is impervious to flux and molten metal ARG-22 B66-10527	03	Sensor detects hydrocarbon oil contaminants in fluid lines M-FS-522 B66-10068	01
Coordination chemistry in fused-salt solutions ARG-10469 B69-10423	03	Radioactive tracer system detects oil contaminants in fluid lines M-FS-512 B66-10090	03
SAMPLES Rock bit requires no flushing medium to maintain drilling speed JPL-WOO-031 B65-10109	05	Multiple temperatures sampled using only one reference junction GSFC-485 B66-10260	01
Plastic bags in evacuated chamber make lightweight gas sampling system FRC-31 B65-10264	01	Submicron holes in thin films increase sampling range of mass spectrometers JPL-SC-097 B66-10380	03

SUBJECT INDEX

SATURATION

Cryogenic fluid sampling device permits testing under hazardous conditions M-FS-1927	B66-10654	02	Composite bulkhead fabrication development M-FS-1264	B66-10582	05
Automated microsyringe is highly accurate and reliable NPO-10142	B67-10203	01	Study made to control depth of potting compound for honeycomb sandwich fasteners LEWIS-370	B66-10677	05
Improved atmospheric particle analyzer ERC-33	B67-10231	01	Detection of entrapped moisture in honeycomb sandwich structures MSC-1103	B67-10116	01
Analytical technique characterizes all trace contaminants in water MSC-11032	B67-10243	03	Computer program for determination of natural frequencies of closed spherical sandwich shells MSC-1246	B67-10279	06
Computer program uses Monte Carlo techniques for statistical system performance analysis M-FS-2234	B67-10306	06	Metal flame spray coating protects electrical cables in extreme environment NUC-10077	B67-10351	03
Multiplexer uses insulated gate-field effect transistors M-FS-13096	B67-10396	01	Analysis of stability-critical orthotropic cylinders subjected to axial compression M-FS-12869	B67-10375	03
Computer program generates averaged value data tapes M-FS-12728	B67-10411	06	Heavy-gage bonded honeycomb sandwich as primary load-bearing structure M-FS-12060	B67-10427	05
Method for X-ray study under extreme temperature and pressure conditions MSC-11232	B67-10474	02	Shock-absorbing caster wheel is simple and compact SAN-10019	B68-10266	05
The X square statistic and goodness of fit test GSFC-10547	B68-10136	02	Thermal protective visor for entering high temperature areas MSC-10285	B68-10277	05
Preparing rock powder specimens of controlled size distribution NPO-10007	B68-10297	05	SAPPHIRE Indium adhesion provides quantitative measure of surface cleanliness SAN-10024	B68-10342	01
Failure rates for accelerated acceptance testing of silicon transistors ERC-10198	B68-10541	01	Proposed accusto-optic filter HQ-10440	B69-10466	02
Experimental prediction of performance by superconducting cables ARG-10215	B69-10161	01	SATELLITE ATTITUDE CONTROL Study indicates fluid digital computation systems are feasible M-FS-520	B67-10181	01
Apparatus automatically measures soluble residue content of volatile solvents SAN-10032	B69-10292	03	SATELLITE INSTRUMENTS Electron beam parallel X-ray generator MSC-11022	B67-10372	02
Sampling and handling of desert soils NPO-11171	B69-10304	04	Charts designate probable future oceanographic research fields M-FS-20202	B68-10397	01
Circuit counts pulses and indicates time of occurrence of slow pulses INP-06234	B69-10313	01	SATELLITE TELEVISION Video synchronization processor overcomes poor signal-to-noise ratio KSC-10002	B67-10515	01
Development and test of flexible film coupon strips for use as a sampling technique M-FS-20448	B69-10339	03	SATELLITE TRANSMISSION Communication system uses modulated laser beam GSFC-377	B65-10333	01
Basal-plane metallography of deformed pyrolytic carbon NPO-11196	B69-10488	03	Fully automatic telemetry data processor GSFC-10576	B68-10336	01
SANDS Portable sandblaster cleans small areas MSC-523	B66-10242	05	SATELLITES Device removes hydrogen gas from enclosed spaces GSFC-495	B66-10340	03
Selective tube roughening increases heat transfer capability M-FS-599	B66-10610	05	An investigation of phase-lock loop swept-frequency synchronization M-FS-656	B66-10423	01
Heat-treatment of metal parts facilitated by sand embedment M-FS-1543	B66-10616	03	Earth orbit rendezvous evaluation program M-FS-13016	B67-10407	06
SANDWICH STRUCTURES Apparatus permits flexure testing of specimens at cryogenic temperatures M-FS-257	B65-10129	02	SATURATION Blood oxygen saturation determined by transmission spectrophotometry of hemolyzed blood samples MSC-11018	B67-10252	04
Fastener distributes stress evenly from sandwich-panel-hung items MSC-236	B65-10358	05	Thermodynamic properties of saturated liquid parahydrogen charted for important		

SATURN LAUNCH VEHICLES

SUBJECT INDEX

temperature range NUC-10018	B67-10346	03	Experimental program to investigate transonic flow around protuberances M-FS-20037	B69-10609	05
Adaptive control circuit prevents amplifier saturation ERC-10026	B67-10648	02	SAWS Versatile machine mills, saws light materials M-FS-827	B66-10364	05
Possible correlation between work-hardening and fatigue-failure ARG-10371	B69-10414	03	Hole saw drill attachment has zero force reaction MSC-543	B66-10604	05
SATURN LAUNCH VEHICLES Continuous wave detector has wide frequency range M-FS-1849	B67-10386	01	SAWTOOTH WAVEFORMS Traveling-wave tube circuit simplifies microwave relay GSFC-299	B65-10127	01
Computer program generates averaged value data tapes M-FS-12728	B67-10411	06	Circuit operates as sine function generator MSC-255	B66-10038	01
Study made of large amplitude fuel sloshing M-FS-12381	B67-10439	03	Circuit provides accurate four-quadrant multiplication WOO-272	B66-10331	02
Computer program performs rectangular fitting stress analysis M-FS-13010	B67-10520	06	Series transistors isolate amplifier from flyback voltage MSC-11023	B67-10468	01
Accurate digital technique simulates flight control system M-FS-14787	B68-10569	02	SCALE (RATIO) Simple scale interpolator facilitates reading of graphs LANGLEY-88	B65-10070	05
Improved phase-shift-keyed detector M-FS-20064	B69-10101	01	Simple scale interpolator facilitates reading of graphs LEWIS-92	B66-10302	05
System for computing operational probability equations M-FS-16410	B69-10566	06	Instrument transmits vanishing point to illustration point MSC-267A	B66-10324	01
SATURN S- 1C STAGE Novel clamps align large rocket cases, eliminate back-up bars M-FS-1	B63-10376	05	Vis-A-Plan /visualize a plan/ management technique provides performance-time scale KSC-10073	B67-10240	06
Analysis of stability-critical orthotropic cylinders subjected to axial compression M-FS-12869	B67-10375	03	Experiments shed new light on nickel-fluorine reactions ARG-10008	B67-10397	03
SATURN S- 2 STAGE Saturn S-2 Automatic Software System /SASS/ M-FS-1741	B67-10405	06	Fast method for obtaining scale dimensions on tape-controlled milling machine HSC-11609	B68-10047	05
Space-saving hoist for tank manholes M-FS-16508	B69-10180	05	SCALE MODELS Built-in templates speed up process for making accurate models LANGLEY-23	B63-10526	05
SATURN S- 4B STAGE Phase plane displays detect incipient failure in servo system testing HQ-10018	B67-10662	01	Analog solar system model relates celestial bodies spatially JPL-195	B66-10413	01
SATURN STAGES Tool facilitates installation of Marmon clamps M-FS-2039	B67-10105	05	Application of distorted models in developing scaled structural models M-FS-2540	B67-10321	05
SATURN 1 LAUNCH VEHICLES Study of theory and application of long duration heat flux transducers M-FS-1265	B66-10614	01	High-torque precision stepping drive M-FS-14772	B68-10549	05
SATURN 5 LAUNCH VEHICLES System automatically provides dynamic launch decision criteria M-FS-13063	B67-10363	01	SCALERS Nonlinear feedback reduces analog-to-digital converter error ARC-46	B65-10277	01
Earth orbit rendezvous evaluation program M-FS-13016	B67-10407	06	Digitally controlled pulse-level discriminator operates over wide voltage range GSFC-324	B66-10129	01
New method for critical failure prediction of complex systems M-FS-14133	B68-10252	02	Nixie tube display unit employs time-shared logic ARG-117	B66-10512	01
Improved technique for digital simulation of bending and slosh phenomena M-FS-14788	B68-10570	02	Digital filter suppresses effects of nonstatistical noise bursts on multichannel scaler digital averaging systems ARG-90143	B68-10193	06
Monte Carlo simulation by computer for life-cycle costing M-FS-14754	B69-10590	05	Pulse-height analyzer with digital readout ARG-10503	B69-10640	01

SUBJECT INDEX

SCATTERING CROSS SECTIONS

SCALING

Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter
 NUC-10044 B67-10222 06

Locating and sealing air leaks in multiroomed buildings
 NUC-10304 B68-10024 05

High-energy, high-power, long-life battery
 LEWIS-10724 B69-10131 01

SCALING LAWS

Experimental scaling study of fluid amplifier elements
 M-FS-1882 B67-10088 02

SCANNERS

Multiple port pressure scanner valve features greater accuracy, quicker data
 JPL-555 B64-10031 05

Distant objects detected visually with optical filters
 LANGLEY-166 B65-10252 02

Ultrasonic recording scanner used for nondestructive weld inspection
 M-FS-284 B66-10220 01

Ultrasonic hand tool allows convenient scanning of spot welds
 M-FS-539 B66-10289 02

Instrument calculates moments of inertia of complex plane figures
 MSC-628 B66-10306 01

Photoelectric scanner makes detailed work function maps of metal surface
 JPL-SC-176 B66-10440 01

Thermionic scanner pinpoints work function of emitter surfaces
 JPL-SC-177 B66-10444 01

Electrical continuity scanner facilitates identification of wires for soldering to connectors
 MSC-626 B66-10605 01

Motion drive system is accurately controlled in the 1-micron range
 JPL-864 B66-10695 05

Instrument sequentially samples ac signals from several accelerometers
 JPL-884 B67-10029 01

High impact pressure regulator withstands impacts of over 15,000 g
 NFO-10175 B67-10274 01

New electron microscope employs new video display technique
 ARG-158 B67-10312 03

Electronic test instrument generates extremely small current signals
 ARG-276 B67-10318 01

Computer program utilizes FORTRAN 4 subroutines for contour plotting
 NFO-10127 B67-10323 06

Braze joint quality tested electromagnetically
 M-FS-12795 B67-10333 01

Development of mechanized ultrasonic scanning system
 M-FS-13638 B68-10004 05

Circuit enhances vertical resolution in raster scanning systems
 MSC-12123 B68-10121 01

Improved electro-optical tracking system
 M-FS-14791 B68-10311 01

System for measuring spatial distribution of ejected droplets, a concept
 NFO-10185 B68-10402 01

Microscopes and computers combined for analysis of chromosomes
 ARG-10256 B69-10088 04

Ring laser angle encoder
 MSC-13099 B69-10115 01

Surface irregularities detected by flare inspection instrument
 M-FS-20157 B69-10152 01

Multipurpose binocular scanning apparatus
 NFO-11002 B69-10311 02

Phase multiplying electronic scanning array
 NFO-10302 B69-10381 01

SCANNING

An improved method for testing performance of vidicons during vibration
 JPL-SC-113 B66-10442 01

Scan rate converter for tape recording and playback of TV pictures
 NFO-10166 B67-10676 01

Closed circuit TV system automatically guides welding arc
 M-FS-20084 B68-10357 01

Determination of the absolute contours of optical flats
 ARG-10352 B69-10209 05

A thirty-six element array antenna system
 M-FS-20435 B69-10390 01

Technique for pinpointing submicron particles in the electron microprobe
 HQ-10043 B69-10465 01

Electrooptical scanning of film
 NFO-11106 B69-10568 01

Flexible high-voltage supply for experimental electron microscope
 ARG-10482 B69-10603 01

System converts slow-scan to standard fast-scan TV signals
 MSC-90534 B69-10748 01

SCARFING

Study made to establish parameters and limitations of explosive welding
 M-FS-13006 B67-10393 05

SCATTERING

Instrument performs nondestructive chemical analysis, data can be telemetered
 JPL-SC-078 B65-10317 01

Method prevents secondary radiation in radiographic inspection
 M-FS-13383 B67-10391 02

Thick transducers used for generating short-duration stress pulses in thin specimens
 ARG-10232 B69-10045 01

SCATTERING CROSS SECTIONS

Calculation of resonance neutron absorption in two-region problems /the GAROL code/
 NUC-10045 B67-10223 06

Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters
 M-FS-13594 B67-10527 03

Compilation of detection sensitivities in thermal-neutron activation
 ARG-10068 B67-10641 03

SCAVENGING

SUBJECT INDEX

Computer program /P1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas NUC-10141	B67-10678	06	New electron microscope employs new video display technique ARG-158	B67-10312	03
Electron interaction in matter M-PS-14886	B69-10674	02	Epoxy resins produce improved plastic scintillators ARG-241	B67-10596	03
SCAVENGING			The response of monoenergetic gamma rays in finite media are investigated ARG-10295	B69-10080	02
Primary radical yields in pulse irradiated alkaline aqueous solution ARG-10322	B69-10167	02	Direct measurement of carbon-14 in carbon dioxide by liquid scintillation counting ARG-10237	B69-10092	03
SCHEDULING			Mossbauer vibration calibration systems evaluated M-PS-20014	B69-10125	01
Actuator device schedules rate of valve closure M-PS-1556	B66-10686	05	Recent development in organic scintillators ARG-10344	B69-10198	03
Vis-A-Plan /visualize a plan/ management technique provides performance-time scale KSC-10073	B67-10240	06	Combustion method for assay of biological materials labeled with carbon-14 or tritium, or double-labeled ARG-10331	B69-10208	04
KOPE /Kalendar Oriented Program Efforts/ provides data for management decisions M-PS-12331	B67-10478	06	Improved pulse shape discriminator for fast neutron-gamma ray detection system HQ-10151	B69-10481	01
Computerized Schedule Effectiveness Technique /SET/ determines present and future schedule position M-PS-13012	B67-10522	06	Direct determination of lead-210 by liquid-scintillation counting ARG-10462	B69-10611	03
Automatic planning concept - An analysis of optimum scheduling M-PS-14198	B68-10127	06	Manganese-56 coincidence-counting facility precisely measures neutron-source strength ARG-90261	B69-10621	01
DSN seven day/twelve week schedule program NPO-10752	B68-10410	06	SCORING		
Visual task analysis /VISTA/ M-PS-14716	B69-10394	06	Run-in with chemical additive protects gear surface M-PS-548	B66-10069	05
Programmed schedule holds for improving launch vehicle holds M-PS-14502	B69-10602	03	Film coating permits low-force scribing MSC-990	B66-10609	03
SCHOOLS			Scribable coating for plastic films MSC-11194	B67-10409	03
Handbooks for nondestructive testing using ultrasonics M-PS-20409	B69-10108	03	Coaxial cable stripping device facilitates RF cabling fabrication NPO-10315	B67-10419	05
SCINTILLATION			Restricted-flow junction between liquids NPO-10682	B69-10332	02
Thin carbon film serves as UV bandpass filter ERC-8	B66-10060	02	Improved method of dicing integrated circuit wafers into chips ERC-10138	B69-10441	01
Tunnel diode circuit used as nanosecond-range time marker ARG-90164	B68-10173	01	SCREEN EFFECT		
Dual-mode operation of a neutron source, a concept HQ-10106	B69-10248	02	Luminescent screen composition for cathode ray tubes ERC-19	B68-10056	01
Direct in-vial collection for liquid-scintillation assay of carbon-14 and tritium ARG-10424	B69-10412	03	Mounting method improves electrical and vibrational characteristics of screen electrodes M-PS-20169	B69-10097	01
SCINTILLATION COUNTERS			SCREENING		
Cesium iodide crystals fused to vacuum tube faceplates GSFC-67	B63-10476	03	Technique for abrasive cutting of thick-film conductors for hybrid circuits MSC-13242	B69-10235	03
Plastic scintillator converts standard photomultiplier to ultraviolet range ERC-9	B66-10108	02	SCREENS		
Nondestructive test method accurately sorts mixed bolts M-PS-1426	B66-10574	01	Filter for high-pressure gases has easy take-down, assembly JPL-373	B63-10234	03
Radioactive method enables determination of surface areas rapidly and accurately NU-0088	B66-10710	03	Servo system facilitates photoelastic strain measurements on resins JPL-504	B64-10280	01
Thermal neutron image intensifier tube provides brightly visible radiographic pattern ARG-120	B67-10296	02	Fine-mesh screen made by simplified method WOO-104	B64-10282	03

SUBJECT INDEX

SEALING

Screening technique makes reliable bond at room temperature M-FS-227	B65-10004	03	Proposed gas generation assembly would recover deeply submerged objects SAN-10007	B68-10211	05
Library of documents compressed into lap-held display kit MSC-125	B65-10030	01	Separation of traces of metal ions from sodium matrices ARG-10341	B69-10168	03
Nozzles for size reclassification of microfog particles LEWIS-10705	B69-10076	05	SEALERS Oil-smeared models aid wind tunnel measurements LANGLEY-4	B63-10311	03
Electrochemical sintering process for producing electrodes from cadmium felt and a nickel or silver grid GSFC-10764	B69-10227	05	Composite seal reduces alkaline battery leakage GSFC-337	B65-10271	01
SCREWS V-slotted screw head and matching driving tool facilitate insertion and removal of screw fasteners PRC-16	B63-10023	05	Liquid trap seals thermocouple leads M-FS-688	B66-10212	05
Screw locking cups quickly and neatly crimped NU-0009	B65-10049	05	Thermoplastic rubberlike material produced at low cost JPL-793	B66-10453	03
Coiled spring makes self-locking device for threaded fasteners MSC-149	B65-10135	05	Soft metal plating enables hard metal seal to operate successfully in low temperature, high pressure environment NUC-10083	B67-10350	03
Electromechanical flowmeter accurately monitors fluid flow GSFC-357	B65-10273	01	Dynamic captive plastic seal M-FS-12988	B67-10600	03
Die and telescoping punch form convolutions in thin diaphragm JPL-SC-135	B65-10393	05	Inspection criteria ensure quality control of parallel gap soldering M-FS-14530	B68-10257	05
Adhesive-backed terminal board eliminates mounting screws MSC-173	B65-10396	01	Electron beam selectively seals porous metal filters LEWIS-10162	B68-10331	05
Expandable insert serves as screw anchor MSC-301	B66-10132	05	Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01
Mounting facilitates removal and installation of flame-detector rods M-FS-555	B66-10150	05	Fractography can be used to analyze failure modes in polytetrafluoroethylene M-FS-20294	B69-10066	03
Quick-attach clamp XFR-05421	B68-10250	05	Tools made of ice facilitate forming of soft, sticky materials KSC-10262	B69-10199	05
Countersunk headscrew retainer M-FS-16481	B69-10282	05	Improved cure method for single component silicone rubber MSC-12230	B69-10749	03
Shock-absorbent mountings for bearings NPO-10626	B69-10331	05	SEALING Vented piston seal prevents fluid leakage between two chambers JPL-179	B63-10141	05
Removal of retaining washers of the waffle-spring type MSC-15531	B69-10350	05	Packless valve with all-metal seal handles wide temperature, pressure range JPL-361	B63-10228	05
Precisely repeatable rotary mechanism NPO-10679	B69-10696	05	Design of valve permits sealing even if the stem is misaligned LEWIS-38	B63-10341	05
SDS 930 COMPUTER Computer program for Video Data Processing System /VDPS/ NPO-10042	B67-10630	06	Liquid-level meter has no moving parts M-FS-3	B63-10378	03
X-Y plotter adapter developed for SDS-930 computer NPO-10220	B67-10654	06	Vacuum-type backup bar speeds weld repairs M-FS-12	B63-10384	05
ABTRAJ on-site tracking prediction program NPO-10836	B69-10103	06	Tool facilitates sealing of metal fill tubes MSC-24	B63-10519	05
SEA WATER Emergency solar still desalts seawater MSC-135	B65-10214	03	Cryogenic waveguide window is sealed with plastic foam JPL-559	B63-10613	01
Buoyant Stokes' litter assembly used for sea rescue operations MSC-131	B66-10019	05	Blade valve isolates compartment in pipe, opens to allow free flow JPL-585	B64-10188	05
Sea dye marker provides visibility for 20 hours MSC-714	B66-10313	03	Pressure molding of powdered materials improved by rubber mold insert WOO-100	B64-10270	03

SEALING CONT

SUBJECT INDEX

Connector seals fluid lines at cryogenic temperatures and high vacuums GSPC-253	B64-10327	05	NU-0067	B66-10266	05
Use of tear ring permits repair of sealed module circuitry M-FS-210	B65-10014	05	O-rings with mylar back-up provide high-pressure cryogenic seal M-FS-603	B66-10278	05
Metal sheath improves thermocouple using graphite in one leg NU-0011	B65-10051	01	Fixed vacuum plate clamps styrofoam for machining M-FS-683	B66-10283	05
Seal allows blind assembly and thermal expansion of components NU-0005	B65-10053	05	Flexible fastener effects airtight material closure JPL-684	B66-10304	05
Low-cost seal compensates for surface irregularities NU-0016	B65-10160	05	Fiber length and orientation prevent migration in fluid filters M-FS-541	B66-10319	05
Diaphragm eliminates leakage in cryogenic fluid duct coupling WOO-142	B65-10227	05	Valve seat pores sealed with thermosetting monomer M-FS-900	B66-10322	03
Coating method enables low-temperature brazing of stainless steel NU-0030	B65-10250	03	Bimetallic devices help maintain constant sealing forces down to cryogenic temperatures M-FS-800	B66-10325	02
Improved poppet valve provides positive damageproof seal M-FS-293	B65-10346	05	External linkage tie permits reduction in ducting system flange thickness M-FS-823	B66-10326	05
Flexible plastic ring assembly makes durable shaft seal WOO-227	B65-10367	05	Diaphragm valve for corrosive and high temperature fluid flow control has unique features LEWIS-304	B66-10365	05
Lightweight door seals cryogenic container against diaphragm type loading M-FS-476	B65-10402	05	Portable lightweight cell provides controlled environment MSC-648	B66-10370	05
Electron beam seals outer surfaces of porous bodies M-FS-562	B66-10033	03	Gas-injection valve operates at high speed HQ-49	B66-10381	05
Rotating mandrel speeds assembly of plastic inflatables LANGLEY-155	B66-10137	05	Inflatable C-ring seal would ease closing of hatch cover plate MSC-740	B66-10385	05
Bismuth alloy potting seals aluminum connector in cryogenic application WOO-260	B66-10138	03	High pressure cryogenic liquid flow sight assembly provides streamlined flow for easy observation LEWIS-310	B66-10394	01
Circular, explosion-proof lamp provides uniform illumination MSC-382	B66-10156	02	Electroplating eliminates gas leakage in brazed areas M-FS-923	B66-10415	05
Special tool seals conductors with combination of plastic sleeves M-FS-579	B66-10209	05	Large diameter metal ring seal prevents gas leakage at 5000 psi M-FS-1064	B66-10422	05
Pressure seal ring may be effective over wide temperature range M-FS-486	B66-10211	05	Seal-off assembly permits rapid evacuation of air from containers GSPC-513	B66-10446	05
Expandable rubber plug seals openings for pressure testing NU-0048	B66-10229	05	Large seals fabricated from small segments reduce procurement lead time M-FS-1117	B66-10464	05
Insert sleeve prevents tube soldering contamination MSC-552	B66-10238	05	Combination spacer and gasket provides effective static seal M-FS-1397	B66-10485	05
Brazing process using Al-Si filler alloy reliably bonds aluminum parts MSC-448	B66-10241	05	Plug replaces weld filler as seal in complex casting NU-0049	B66-10489	05
Pressure-welded flange assembly provides leaktight seal at reduced bolt loads M-FS-640	B66-10247	05	Feed-thru flange is useful in vacuum applications to cryogenic temperatures JPL-846	B66-10615	02
Diffusion bonding makes strong seal at flanged connector M-FS-637	B66-10250	05	Combination double door high-vacuum valve provides access to vacuum chamber JPL-849	B66-10697	05
Critical parts are stored and shipped in environmentally controlled reusable container M-FS-703	B66-10258	05	Silver plating technique seals leaks in thin wall tubing joints NU-0090	B66-10703	05
Seal surfaces protected during assembly			Metal boot permits fabrication of hermetically sealed splices in metal		

SUBJECT INDEX

SEALS (STOPPERS)

sheathed instrumentation cables NU-0083	B66-10704	05	filters LEWIS-10162	B68-10331	05
Visco seal design offers zero-leakage and wear-free characteristics WSO-329	B67-10047	05	Hydrostatic testing of porous assemblies M-FS-18298	B68-10439	05
Vacuum chamber is remotely sealed by eutectic metal NU-0091	B67-10059	05	Frangible electrochemical cell and sealing technique XGS-10010	B69-10056	01
Undercoat prevents blistering of silver plating at elevated temperatures M-FS-2049	B67-10096	05	Insertion device for pressure testing MSC-15185	B69-10061	03
Cryogenic seal remains leaktight during thermal displacement ARG-96	B67-10134	02	Advances in aluminum anodizing M-FS-14600	B69-10144	05
Cracks in glass electrical connector headers removed by dry blasting with fine abrasive LEWIS-381	B67-10148	03	Sealing a rubber bladder between two sections of an accumulator M-FS-20403	B69-10355	05
Apparatus for fabrication of americium-beryllium neutron sources prevents capsule contamination ARG-184	B67-10202	05	Heat-shrinkable jacket holds fluid in contact with tensile test specimen MSC-13195	B69-10495	05
Welding, bonding, and sealing of refractory metals by vapor deposition LEWIS-123	B67-10232	03	Two-functional seal for hose connection M-FS-14062	B69-10588	05
Inexpensive cryogenic insulation replaces vacuum jacketed line NUC-10061	B67-10264	02	Sealed container sampling device GSFC-10690	B69-10682	03
Pipe joints reinforced in place with fitted aluminum sleeves MSC-11109	B67-10271	05	Fluid sample collection and storage device MSC-10962	B69-10816	05
Static seal concept to accommodate seat tolerances M-FS-1854	B67-10285	05	SEALS (STOPPERS)		
Segmented, arch-bound carbon seal is pressure loaded M-FS-12777	B67-10325	05	High-temperature, high-pressure spherical segment valve provides quick opening ARC-13	B63-10431	05
Low-energy gamma ray inspection of brazed aluminum joints MSC-1189	B67-10337	02	Elastomers bonded to metal surfaces seal electrochemical cells GSFC-168	B64-10113	03
Study made of anodized aluminum circuit boards M-FS-13580	B67-10425	01	Quick-disconnect coupling safe transfer of hazardous fluids LEWIS-125	B65-10202	01
Hand-operated plug insertion valve M-FS-12019	B67-10466	05	Ring valve responds to differential pressure changes WOO-247	B66-10022	05
Dynamic valve seal is reliable at cryogenic temperatures M-FS-12987	B67-10526	05	Resilient clamp holds fuel cell stack through resilient clamp holds fuel cell stack through thermal cycle MSC-313	B66-10035	05
Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01	High-pressure, low temperature electrical connector makes no-leak seal MSC-276	B66-10079	02
Fluorocarbon seal replaces metal piston ring in low density gas environment LEWIS-10277	B67-10591	05	Cryostat modified to aid rotating beam fatigue test M-FS-435	B66-10083	03
Development of helical seal for high temperature /2000 degrees F/ application M-FS-13304	B67-10655	05	Capacitive system detects and locates fluid leaks M-FS-478	B66-10099	01
Cryogenic seal concept for static and dynamic conditions M-FS-12986	B67-10673	05	Intermediate rotating ring improves reliability of dynamic shaft seal M-FS-575	B66-10197	05
Heat-shrink plastic tubing seals joints in glass tubing LEWIS-10329	B68-10040	05	Fiberglass container shells form contamination-free storage units WOO-275	B66-10217	05
Inspection criteria ensure quality control of parallel gap soldering M-FS-14530	B68-10257	05	Expandable rubber plug seals openings for pressure testing NU-0048	B66-10229	05
Electron beam selectively seals porous metal			Fluid damping reduces bellows seal fatigue failures M-FS-565	B66-10249	05
			Diffusion bonding makes strong seal at flanged connector M-FS-637	B66-10250	05
			Flow ring valve is simple, quick-acting M-FS-752	B66-10255	05

SEAMS (JOINTS)

SUBJECT INDEX

Seal surfaces protected during assembly NU-0067	B66-10266	05	M-FS-14500	B69-10543	03
Bypass rod transfers heat developed in thermionic diode JPL-SC-136	B66-10303	05	High-pressure seals for rotary shafts M-FS-18548	B69-10649	05
Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics LEWIS-320	B66-10373	03	SEAMS (JOINTS) Method of welding joint in closed vessel improves quality of seam JPL-170	B63-10139	05
Labyrinth-type valve seat increases valve life by decreasing fluid velocity M-FS-1051	B66-10424	05	Rotating mandrel speeds assembly of plastic inflatables LANGLEY-155	B66-10137	05
In-tank shutoff valve is provided with maximum blast protection M-FS-1529	B66-10514	05	Hollow spherical rotors fabricated by electroplating JPL-SC-117	B66-10366	05
Cryogenic seal remains leaktight during thermal displacement ARG-96	B67-10134	02	SEARCHING System locates randomly placed remote objects LANGLEY-209	B66-10315	01
Static seal concept to accommodate seat tolerances M-FS-1854	B67-10285	05	Computer optimization program finds values for several independent variables that minimize a dependent variable M-FS-13030	B67-10328	06
Ultrasonic wrench produces leaktight connections M-FS-12561	B67-10353	05	Reidentifying hardware after loss of serial number M-FS-18133	B69-10059	05
Single-source mechanical loading system produces biaxial stresses in cylinders M-FS-12530	B67-10380	05	SEARCHLIGHTS Improved carbon electrode reduces arc sputtering MSC-219	B66-10026	01
Development of lunar drill to take core samples to 100-foot depths M-FS-13015	B67-10529	05	SEAS Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01
Eddy current disk valve LEWIS-10123	B67-10638	05	SEAT BELTS Break-up of metal tube makes one-time shock absorber, bars rebound LANGLEY-1A	B63-10304	05
Development of helical seal for high temperature /2000 degrees F/ application M-FS-13304	B67-10655	05	Buoyant Stokes litter assembly used for sea rescue operations MSC-131	B66-10019	05
Cryogenic seal concept for static and dynamic conditions M-FS-12986	B67-10673	05	SEATS Valve designed with elastic seat JPL-442	B65-10040	05
Asbestos and Inconel combined to form hot-gas seal M-FS-14004	B68-10162	05	Flared-tube fittings with replaceable seat inserts MSC-15372	B69-10519	05
Spiral-grooved shaft seals substantially reduce leakage and wear LEWIS-10397	B68-10270	05	Improved solenoid valve design GSFC-10607	B69-10704	05
Between-bearing shaft seal, a concept M-FS-18179	B68-10286	05	SECONDARY EMISSION Lightweight coaxial cable connector reduces signal loss JPL-720	B65-10244	01
Hand-tightened, high-pressure seal M-FS-18416	B68-10417	05	SECTIONS Study made of destructive sectioning of complex structures for examination LEWIS-341	B66-10676	05
Evaluation of a fluorocarbon plastic used in cryogenic valve seals M-FS-18189	B68-10523	03	SECURITY Security warning system monitors up to fifteen remote areas simultaneously KSC-66-39	B66-10548	01
Tube joint leak repair coupling MSC-15022	B68-10540	05	SEEBECK EFFECT Thermoelectric metal comparator determines composition of alloys and metals ARG-235	B67-10035	01
Abrasion and resistant discharge valve developed ARG-10219	B69-10044	05	Identification of thermocouple material M-FS-18540	B69-10356	01
Tools made of ice facilitate forming of soft, sticky materials KSC-10262	B69-10199	05	SEEDS Study made of relationship between growth and metabolism ARG-10046	B67-10604	04
Sealing a rubber bladder between two sections of an accumulator M-FS-20403	B69-10355	05			
Flared-tube fittings with replaceable seat inserts MSC-15372	B69-10519	05			
Burst diaphragm leak detector					

SUBJECT INDEX

SEMICONDUCTOR DEVICES

SEEPAGE					
Restricted-flow junction between liquids				Quick attach and release fluid coupling	
NPO-10682	B69-10332	02		assembly is self-aligning, self-sealing	
				KSC-66-8	B66-10627 05
SEGMENTS					
Extendible column can be stowed on drum				Self-aligning rod prevents eccentric	
JPL-686	B65-10191	05		loading of tensile specimens	
				NUC-10525	B67-10594 05
Segmented ball valve is easy to open and close				Foil bearing support for high-speed rotor	
WOO-248	B66-10195	05		HQ-10315	B69-10661 05
Pressure vessels fabricated with high-strength				SELF ERECTING DEVICES	
wire and electroformed nickel				Self-inflating lifevest stores in small	
M-FS-580	B66-10218	05		package	
Segmented SiGe-PbTe couples				MSC-5A	B66-10184 04
GSFC-10746	B69-10233	01		Metal tube can be folded for compact	
SEISMIC WAVES				storage, is self-erecting	
Unmanned seismometer levels self, corrects				LEWIS-288	B66-10450 05
drift errors				Automatic telemetry checkout system	
GSFC-100	B63-10551	01		M-FS-12580	B67-10402 01
Seismometer designed for remote operation in				Quick-acting backup tool for welding ducts	
random orientation				M-FS-18404	B69-10396 05
JPL-320	B66-10085	01			
SEISMOGRAPHS				SELF LUBRICATING MATERIALS	
Unmanned seismometer levels self, corrects				Composites of porous metal and solid	
drift errors				lubricants increase bearing life	
GSFC-100	B63-10551	01		LEWIS-307	B67-10007 03
Ultra-sensitive transducer advances				Self-lubricating gear	
micro-measurement range				M-FS-14971	B69-10408 05
ARC-26	B64-10004	01		SELF LUBRICATION	
Seismometer designed for remote operation in				Unique gear design provides self-lubrication	
random orientation				JPL-SC-079	B65-10366 03
JPL-320	B66-10085	01		Compact retractor protects cabling loops	
Seismographic recording of large rocket				M-FS-561	B66-10018 05
engine operation				SELF OSCILLATION	
M-FS-20545	B69-10756	01		Voltage regulator/amplifier is self-regulated	
SEISMOLOGY				MSC-1240	B67-10156 01
Seismic transducer measures small horizontal				SELF SEALING	
displacements				Quick attach and release fluid coupling	
M-FS-81	B65-10029	05		assembly is self-aligning, self-sealing	
SELECTIVITY				KSC-66-8	B66-10627 05
Study of behavior of sterols at interfaces				Self-sealing closure enables access to	
ARG-10085	B68-10281	03		several fluid containers	
Tunable bandpass filter with variable				NPO-10123	B67-10207 04
selectivity				Fire retardant foams developed to suppress	
ARC-10191	B69-10130	01		fuel fires	
SELENIDES				ARC-10098	B68-10358 03
Environmental study of miniature slip rings				SEMICONDUCTING FILMS	
M-FS-2443	B67-10210	05		Modified developer increases line resolution	
SELENIUM				in photosensitive resist	
Selenium bond decreases ON resistance of				GSFC-386	B65-10278 01
light-activated switch				Capacitive system detects and locates fluid	
JPL-SC-101	B65-10324	01		leaks	
Electrically conductive fibers thermally				M-FS-478	B66-10099 01
isolate temperature sensor				Single-crystal semiconductor films grown on	
GSFC-456	B66-10349	01		foreign substrates	
Automatic bird watcher				WOO-076	B66-10225 01
ARG-10342	B69-10286	02		Process facilitates photoresist mask	
SELENIUM OXIDES				alignment on SiC crystals	
Synthesis of perbromates				M-FS-2394	B67-10144 01
ARG-10459	B69-10647	03		SEMICONDUCTOR DEVICES	
SELENOGRAPHY				Thermocompression bonding produces efficient	
Nondispersive X-ray emission analysis				surface-barrier diode	
for geochemical exploration				JPL-SC-066	B65-10007 05
GSFC-10568	B69-10011	02		Optical arrangement increases useful light	
SELF ALIGNMENT				output of semiconductor diodes	
Self-aligning fixture used in lathe chuck jaw				JPL-SC-064	B65-10020 05
refacing				Photoelectric semiconductor switch operates	
FRC-21	B65-10198	05		with low level inputs	
Floating device aligns blind connections				JPL-SC-068	B65-10033 01
MSC-256	B66-10007	05		Piezoresistive gage tests pin-connector	

SEMICONDUCTOR JUNCTIONS

SUBJECT INDEX

sockets JPL-675	B65-10128	01	Pulse-height defect due to electron interaction in dead layers of Ge/Li/ gamma-ray detectors ARG-10362	B69-10767	02
Thin-film semiconductor rectifier has improved properties MSC-207	B66-10012	01	SEMICONDUCTOR JUNCTIONS		
Optically driven switch turn-off time reduced by opaque coatings JPL-SC-107	B66-10141	01	Impurity diffusion process for silicon semiconductors is fast and precise GSFC-397	B65-10300	01
Radiation used to temperature compensate semiconductor strain gages LANGLEY-207	B66-10186	02	Vapor grown silicon dioxide improves transistor base-collector junctions GSFC-389	B66-10091	01
Apparatus presents visual display of semiconductor surface characteristics JPL-665	B66-10200	01	Improved chopper circuit uses parallel transistors M-FS-468	B66-10113	01
Semiconductor forms biomedical radiation probe MSC-320	B66-10252	04	Optically driven switch turn-off time reduced by opaque coatings JPL-SC-107	B66-10141	01
System for etching thick aluminum layers minimizes bridging and undercutting M-FS-1366	B66-10400	03	Diffusion technique stabilizes resistor values MSC-205	B66-10142	01
Semiconductors can be tested without removing them from circuitry M-FS-1163	B66-10447	01	Circuit protects regulated power supply against overload current GSFC-453	B66-10292	01
Computer program searches characteristic data of diodes and transistors GSFC-493	B66-10529	01	Bypass rod transfers heat developed in thermionic diode JPL-SC-136	B66-10303	05
Process facilitates photoresist mask alignment on SiC crystals M-FS-2394	B67-10144	01	Double emitter suppressed carrier modulator uses commercially available components M-FS-2494	B67-10101	01
Thermal and bias cycling stabilizes planar silicon devices ERC-48	B67-10176	01	Efficient millimeter wave 1140 GHz/ diode for harmonic power generation HQ-61	B67-10166	01
Alpha particle backscattering measurements used for chemical analysis of surfaces ARG-116	B67-10186	03	An efficient, temperature-compensated subcarrier oscillator JPL-SC-091	B67-10251	01
Fused diode provides visual indication of fuse condition KSC-67-16	B67-10230	01	Pressure-sensitive bonded junction transducers ERC-10087	B68-10563	01
Thermionic diode switching has high temperature application NPO-10404	B67-10672	01	Integrated circuit with multiple collector current source M-FS-20177	B69-10126	01
Bilateral, zero-impedance static semiconductor switch LEWIS-10129	B68-10118	01	Modification to improve self-isolating transistor arrays M-FS-20499	B69-10678	01
Semiconductor ac static power switch LEWIS-10344	B68-10224	01	Miniature backward-diode pressure sensor features stability and low power consumption ERC-10229	B69-10690	01
Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01	SEMICONDUCTORS (MATERIALS)		
CIRCUS--A digital computer program for transient analysis of electronic circuits M-FS-15002	B68-10416	06	Temperature-compensation circuit stabilizes performance of vidicons JPL-486	B64-10226	01
Silicon carbide diode for increased light output M-FS-20063	B69-10096	01	Radiation-detector optical-imaging device is of simplified construction GSFC-251	B64-10299	01
Radiation tolerant silicon nitride insulated gate field effect transistors GSFC-10581	B69-10253	01	High permeability semiconductors permit close-tolerance soldering GSFC-319	B65-10134	05
Concept for improved vacuum pressure measuring device M-FS-20172	B69-10421	02	Refractory coating protects intricate graphite elements from high-temperature hydrogen NU-0027	B66-10084	01
Improved method of dicing integrated circuit wafers into chips ERC-10138	B69-10441	01	Status of ultrachemical analysis for semiconductors M-FS-2254	B67-10138	03
Reducing contact resistance at semiconductor to metal or aluminum to metal interfaces ERC-10254	B69-10689	01	Process controls introduction of selected impurities into semiconductor wafers GSFC-523	B67-10303	01
			Silicon strain sensors enable pressure measurement at cryogenic temperatures		

SUBJECT INDEX

SENSITIVITY

M-FS-14703	B68-10262	01	Bellows design features low spring rate and long life MSC-521	B66-10190	05
Power consumption in acoustic amplifiers under conditions of maximum stable gain GSFC-10067	B68-10327	01	Device without electrical connections in tank measures liquid level WOO-235	B66-10198	01
Temperature or pressure controller LEWIS-10297	B68-10337	01	Acceleration-compensated pressure transducer has fast response LANGLEY-113	B66-10353	01
Electron beam recrystallization of amorphous semiconductor materials LEWIS-10443	B68-10556	02	Solid state detectors monitor relay contacts JPL-785	B66-10396	01
Reliable method for testing gross leaks in semiconductor component packages ERC-10150	B68-10562	01	Precision CW laser automatic tracking system investigated M-FS-1606	B66-10629	01
Study of fluoride corrosion of nickel alloys ARG-10224	B69-10048	03	Computer program simulates design, test, and analysis phases of sensitivity experiments M-FS-1496	B67-10077	01
Multiple-mask chemical etching MSC-13114	B69-10221	01	Computer program reduces calculation time of normal response functions M-FS-1517	B67-10108	01
RF noise suppression using the photodiodelectric effect in semiconductors MSC-12259	B69-10225	01	Calibrating ultrasonic test equipment for checking thin metal strip stock NUC-10009	B67-10127	01
Calibratable solid-state pressure switch M-FS-20474	B69-10437	05	Computer program calculates monotonic maximum likelihood estimates using method of reversals M-FS-1516	B67-10136	01
Optimizing solar-cell grid geometry HQ-10417	B69-10460	01	Sensing disks for slug-type calorimeters have higher temperature stability M-FS-1867	B67-10161	01
An unconventional magnetically-coupled multivibrator HQ-10226	B69-10480	01	A theoretical model for determining turbine flowmeter sensitivity M-FS-1172	B67-10179	01
Pulsed high-voltage dc RF sputtering LEWIS-10920	B69-10699	01	Electronic shutter gates image orthicon on and off HQ-96	B67-10270	01
Controlled substrate cooling improves reproducibility of vapor deposited semiconductor composites ERC-10161	B69-10732	01	Sensitive bridge circuit measures conductance of low-conductivity electrolyte solutions ARG-147	B67-10294	01
Determination of permissible applied load stress in structural elements M-FS-16556	B69-10823	02	Practical new method of measuring thermal-neutron fluence NUC-10086	B67-10352	02
SENSITIVITY			Measuring coplanarity of surfaces MSC-12044	B67-10371	02
Ultra-sensitive transducer advances micro-measurement range ARC-26	B64-10004	01	Instrumentation monitors transported material through variety of parameters M-FS-12938	B67-10545	01
Sensitive low-pressure relief valve has positive seating against leakage WOO-041	B64-10278	05	Lamb waves increase sensitivity in nondestructive testing ARG-10009	B67-10605	02
Sensitive level sensor made with spirit level, gives electrical output LANGLEY-49	B65-10067	01	Compilation of detection sensitivities in thermal-neutron activation ARG-10068	B67-10641	03
Noncontacting vibration transducer has constant sensitivity LANGLEY-99	B65-10392	01	Review of biological mechanisms for application to instrument design HQ-33	B67-10663	04
Ferroelectric bolometer measures RF absolute power at submillimeter wavelengths GSFC-422	B66-10051	01	Liquid crystal calibrator M-FS-14151	B68-10221	03
Auxiliary coil controls temperature of RF induction heater GSFC-428	B66-10067	01	Detection sensitivities in 3-8 MeV neutron activation ARG-10210	B68-10298	02
Rod and dish cathode improves penning-type vacuum gage GSFC-447	B66-10082	01	Temperature or pressure controller LEWIS-10297	B68-10337	01
Highly sensitive solids mass spectrometer uses inert-gas ion source ERC-11	B66-10114	02	Laser microprobe facility used in the elemental analysis of small feature of a		
Surfactant for dye-penetrant inspection is insensitive to liquid oxygen M-FS-475	B66-10131	03			
Binary fluid amplifier solves stability and load problems ERC-15	B66-10177	01			

SENSORS

SUBJECT INDEX

sample ARG-10359	B69-10165	02	is safe for use near combustible substances LEWIS-195	B66-10482	01
Ion-retarding lens improves the abundance sensitivity of tandem mass spectrometers ARG-10365	B69-10166	02	Sensors measure surface ablation rate of reentry vehicle heat shield LANGLEY-287	B66-10592	01
Ion mass spectrometer for special uses HQ-10418	B69-10510	02	Study of theory and application of long duration heat flux transducers M-FS-1265	B66-10614	01
Fine-line sensitivity for holographic interferograms HQ-10348	B69-10663	02	Automatic system determines moments of inertia of asymmetrical objects M-FS-1769	B66-10636	01
Monopole mass spectrometer with improved sensitivity and reduced background HQ-10476	B69-10666	01	Logic circuitry used to automatically test shielded cables HQ-60	B66-10659	01
SENSORS			Miniature capacitor functions as pressure sensor JPL-903	B67-10020	01
Improved sensor counts micrometeoroid penetrations LEWIS-76	B63-10443	01	Flow-test device fits into restricted access passages MSC-1078	B67-10074	01
Tiny sensor-transmitter can withstand extreme acceleration, gives digital output ARC-22	B63-10561	01	System maintains constant penetration during fusion welding M-FS-937	B67-10091	01
Simple circuit continuously monitors thermocouple sensor M-FS-61	B63-10567	01	Glow discharge density sensor probe life is extended M-FS-1707	B67-10229	01
Speed-sensing device aids crane operators WS-4	B64-10006	05	Improved fuel-cell-type hydrogen sensor M-FS-14656	B68-10263	01
Ohmmeter senses depletion of lubricant in journal bearings LEWIS-37	B64-10042	01	Gimbal angle sensor GSFC-10305	B68-10315	01
Pneumotachometer counts respiration rate of human subject MSC-92	B64-10259	01	Ultrasonic temperature measuring device LEWIS-10446	B68-10319	01
Apparatus measures very small thrusts WOO-048	B64-10284	05	Fluidic-thermochromic display device ERC-10031	B68-10350	01
Explosives actuate nonmagnetic indexing device GSFC-237	B65-10017	05	System for measuring spatial distribution of ejected droplets, a concept NPO-10185	B68-10402	01
Wide-angle sensor measures radiant heat energy in corrosive atmospheres M-FS-228	B65-10019	05	Flow angle sensor and readout system LEWIS-90298	B69-10050	01
Microparticle impact sensor measures energy directly GSFC-252	B65-10048	01	Laser microprobe facility used in the elemental analysis of small feature of a sample ARG-10359	B69-10165	02
Sensitive level sensor made with spirit level, gives electrical output LANGLEY-49	B65-10067	01	Improved liquid-level sensor for cryogenics ARG-10162	B69-10210	02
Photoelectric sensor output controlled by eyeball movements M-FS-274	B65-10079	01	Low-loss C-band parasitic probe KSC-09348	B69-10251	01
Transducer senses displacements of panels subjected to vibration ARC-37	B65-10085	01	Remote control thermal actuator LEWIS-10873	B69-10307	01
Rotor position sensor switches currents in brushless dc motors GSFC-315	B65-10151	01	Concept for improved vacuum pressure measuring device M-FS-20172	B69-10421	02
Ball and socket joints provide accurate biaxial gimbal JPL-658	B65-10205	05	Load current sensor for a pulse width modulator power regulator GSFC-10656	B69-10578	01
Photosensors used to maintain welding electrode-to-joint alignment MSC-243	B65-10401	05	Wind tower influence study M-FS-20239	B69-10653	01
Pressure transducers dynamically tested with sinusoidal pressure generator LEWIS-268	B66-10031	01	SENSORY DISCRIMINATION		
Microminiature thermocouple monitors own installation M-FS-1111	B66-10463	05	Hydrogen fire detection system features sharp discrimination M-FS-643	B66-10368	01
Automatic cryogenic liquid level controller			SENSORY PERCEPTION		
			Review of biological mechanisms for application to instrument design HQ-33	B67-10663	04

SUBJECT INDEX

SERVICE LIFE

SEPARATED FLOW

FORTTRAN 4 program calculates velocities and streamlines in a tandem blade turbomachine
LEWIS-10743 B69-10219 06

SEPARATION

Gas diffusion cell removes carbon dioxide from occupied airtight enclosures
MSC-118 B64-10319 03

Splice plate design assures structural separation by mild explosive
MSC-137 B65-10166 05

Threaded split ring connector separates structural sections
LANGLEY-145 B65-10383 05

Dual regulator controls two gases from a single reference
MSC-227 B66-10167 05

Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys
ARG-199 B66-10594 03

Resistance heating releases structural adhesive
M-FS-1607 B67-10045 05

Large volume continuous counterflow dialyzer has high efficiency
HQ-10055 B67-10395 04

Vibration testing and dynamic studies of relays
M-FS-14542 B68-10268 01

Spiral-grooved shaft seals substantially reduce leakage and wear
LEWIS-10397 B68-10270 05

Transplutonium elements processed from rock debris of underground detonations
ARG-10222 B69-10054 03

Improved mouse cage provides versatility and ease in handling laboratory mice
MSC-12250 B69-10124 04

Separation of traces of metal ions from sodium matrices
ARG-10341 B69-10168 03

Improved nickel plating of Inconel X-750
M-FS-18604 B69-10463 05

SEPARATORS

Centrifugal device separates liquid from gas
MSC-282 B65-10394 05

Automatic fluid separator supplies own driving power
WOO-085 B66-10008 02

Combustion chamber inlet manifold separates vapor from liquid
M-FS-531 B66-10052 05

Pneumatic separator gives quick release to heavy loads
KSC-66-10 B66-10294 05

Hydrostatic testing of porous assemblies
M-FS-18298 B68-10439 05

Separator for alkaline batteries
GSFC-10173 B68-10557 03

Frangible electrochemical cell and sealing technique
XGS-10010 B69-10056 01

Improved anode design for metal-oxygen cells
LEWIS-10871 B69-10318 01

Study of high-speed angular-contact ball

bearings under dynamic load
M-FS-20562 B69-10367 05

Device separates hydrogen from solution in water at ambient temperatures
MSC-13335 B69-10635 03

SEPTUM

Self-sealing closure enables access to several fluid containers
NPO-10123 B67-10207 04

SEQUENCING

Fluid logic control circuit operates nutator actuator motor
LEWIS-294 B66-10593 05

Monitoring system determines amplitude and time of vibration channel peaks
JPL-879 B66-10699 01

Multiplexing control device enables handling of wide variations in sampling rates
M-FS-1871 B67-10150 01

Computer program offers new method for constructing periodic orbits in nonlinear dynamical systems
M-FS-14654 B68-10217 06

Parallel-to-serial biphasic-data converter
MSC-11600 B68-10241 01

Acquisition of pseudonoise signals by sequential estimation
M-FS-13898 B68-10258 01

Simultaneous message framing and error detection
MSC-12001 B68-10330 01

SEQUENTIAL ANALYSIS

Binary sequence detector uses minimum number of decision elements
JPL-673 B66-10264 01

Study of optimum discrete estimators in measurement analysis
M-FS-14915 B68-10348 02

Simple quasi-exponential slope generator
NPO-11130 B69-10439 01

SEQUENTIAL COMPUTERS

Concept for simplified serial digital decoder
NPO-10150 B68-10045 06

SEQUENTIAL CONTROL

Ring counter may be advanced or retarded by command signal
GSFC-101 B64-10144 01

Analog-to-digital converter has increased reliability and reduced power consumption
GSFC-246 B65-10194 01

Current steering commutator offers versatility
JPL-812 B67-10410 01

SERIES (MATHEMATICS)

Function generator eliminates necessity of series summation
GSFC-214 B66-10351 01

General series solution technique for bending of irregular laterally loaded flat plates
NUC-10170 B69-10035 06

SERUMS

Rapid and precise analysis for calcium in blood serum
ARG-10246 B69-10160 04

SERVICE LIFE

Lamp automatically switches to new filament on burnout

SERVOAMPLIFIERS

SUBJECT INDEX

M-FS-498	B66-10046	01	Gimbaled-mirror scanning system capable of spiral pattern	B67-10609	02
Fixture tests bellows reliability through repetitive pressure/temperature cycling	B67-10111	01	Hydraulic servo system increases accuracy in fatigue testing	LANGLEY-217	01
Study indicates fluid digital computation systems are feasible	M-FS-520	01	Conceptual dead weight device to provide pressure calibration	M-FS-14672	01
Water cooled anode increases life of high temperature arc lamp	NPO-10180	02	Improved electromechanical master-slave manipulator	ARG-10027	05
Flow liner extends operating life of high-angulation bellows	M-FS-12023	05	Low friction servo valve	LEWIS-10574	05
Development of low temperature battery	LEWIS-10326	01	Automatic calibration apparatus for telemetry systems	NPO-10560	01
Device for obtaining separation of oxygen	LANGLEY-11007	01	Welding skate with computerized controls	M-FS-20224	01
SERVOAMPLIFIERS			SERVOAMPLIFIERS		
Apparatus measures very small thrusts	WOO-048	05	Microwave interferometer controls cutting depth of plastics	M-FS-14673	01
Tension is servo controlled in film advance system	LANGLEY-54	05	Torsion system for creep testing with multiple stress reversals	HQ-10039	03
Servo calorimeter measures material heating rate	NU-0024	01	Oculometer for remote tracking of eye movement	ERC-10114	02
Hydraulic servo system increases accuracy in fatigue testing	LANGLEY-217	01	SERVO MECHANISMS		
Closed circuit TV system automatically guides welding arc	M-FS-20084	01	Optics used to measure torque at high rotational speeds	LEWIS-13	01
Low-cost, fast-response drive circuit for electromagnetic torque motors	LEWIS-10143	01	Servo system facilitates photoelastic strain measurements on resins	JPL-504	01
Remote balance weighs accurately amid high radiation	ARG-10387	05	Shock absorber protects motive components against overloads	WOO-092	05
SERVOCONTROL			System measures angular displacement without contact	LANGLEY-46	01
Tension is servo controlled in film advance system	LANGLEY-54	05	System selects framing rate for spectrograph camera	LANGLEY-55	01
Crystal measures short-term, large-magnitude forces	JPL-77	01	Digital system accurately controls velocity of electromechanical drive	GSFC-287	01
Magnetometer measures orthogonal components of magnetic fields	GSFC-395	01	High-gain amplifier has excellent stability and low power consumption	GSFC-272	01
Quick-response servo amplifies small hydraulic pressure differences	ARG-99	05	Ball and socket joints provide accurate biaxial gimbal	JPL-658	05
Precision CW laser automatic tracking system investigated	M-FS-1606	01	Miniature servo accelerometer is force-balanced	JPL-155	01
Automatic system determines moments of inertia of asymmetrical objects	M-FS-1769	01	Auxiliary coil controls temperature of RF induction heater	GSFC-428	01
System maintains constant penetration during fusion welding	M-FS-937	01	Simulator effects partial gravity conditions	MSC-152	05
Low speed, long term tracking electric drive system has zero backlash	NPO-10173	01	Brushless dc motor has high efficiency, long life	GSFC-181	01
Conceptual servo technique for controlling tape drivers	M-FS-12955	01	Concept of planetary gear system to control fluid mixture ratio	M-FS-1785	05

SUBJECT INDEX

SHAFTS (MACHINE ELEMENTS)

Polynomial manipulator AP-168 MSC-1231	B67-10103	01	definitions ARG-10475	B69-10608	06
Material fatigue data obtained by card-programmed hydraulic loading system LANGLEY-10042	B67-10491	03	SEX Experimental study and evaluation of radioprotective drugs ARG-10196	B68-10320	04
Digital servo readout system increases recording accuracy of servo-balance scales NUC-10125	B67-10496	01	SEXTANTS Sextant measures spacecraft altitude without gravitational reference MSC-200	B66-10143	02
Light-controlled resistors provide quadrature signal rejection for high-gain servo systems WSO-340	B67-10552	01	Star/horizon simulator used to test space guidance system MSC-407	B67-10110	02
Phase plane displays detect incipient failure in servo system testing HQ-10018	B67-10662	01	Automatic star-horizon angle measurement system MSC-11585	B69-10597	01
Alternating current electromagnetic servo induction meter XPR-03838	B68-10100	01	SHADOWGRAPH PHOTOGRAPHY Liquid laser cavities GSFC-10592	B69-10234	02
Low-cost, fast-response drive circuit for electromagnetic torque motors LEWIS-10143	B68-10386	01	SHADOWS Circular, explosion-proof lamp provides uniform illumination MSC-382	B66-10156	02
Digital laser-beam deflection sensor M-FS-14785	B68-10525	01	SHAFTS (MACHINE ELEMENTS) Stepping switch with simple actuator provides many contacts in small space JPL-122	B63-10118	01
SERVO MOTORS Hydraulic device provides accurate displacements to microinches MSC-112	B65-10230	05	Device transmits rotary motion through hermetically sealed wall JPL-303	B63-10198	05
Electronic ohmmeter provides direct digital output GSFC-363	B65-10274	01	New package for Belleville spring permits rate change, easy disassembly JPL-392	B63-10247	05
Noncontacting vibration transducer has constant sensitivity LANGLEY-99	B65-10392	01	High-temperature, high-pressure spherical segment valve provides quick opening ARC-13	B63-10431	05
Photosensors used to maintain welding electrode-to-joint alignment MSC-243	B65-10401	05	Speed-sensing device aids crane operators WS-4	B64-10006	05
Rotary valve controls multiple hydraulic leveling cylinders M-FS-361	B66-10402	05	Quick-acting clutch disengages idle drive motor GSFC-143	B64-10028	05
Light-intensity modulator withstands high heat fluxes MSC-246	B66-10532	02	Bearing transmits rotary and axial motion LANGLEY-27	B64-10130	05
Laser measuring system accurately locates point coordinates on photograph ARG-74	B66-10560	02	Shock absorber protects motive components against overloads WOO-092	B65-10008	05
Simple motor drive system operates heavy hinged door NU-0093	B66-10712	05	Knob linkage permits one-hand control of several operations MSC-30	B65-10022	05
Closed circuit TV system monitors welding operations MSC-11002	B67-10162	01	Fluid pressure used to test turbopump bearings NU-0001	B65-10024	03
Concept for sleeve induction motor with 1-msec mechanical time constant ARG-10124	B68-10185	01	Device measures curved surface finish on gear teeth WOO-112	B65-10064	05
Improved electromechanical master-slave manipulator ARG-10027	B68-10372	05	New coupling compensates for shaft misalignment NU-0013	B65-10077	05
Remote balance weighs accurately amid high radiation ARG-10387	B69-10242	05	Bidirectional torque filter eliminates backlash GSFC-335	B65-10148	05
Precise gimballing mechanism NPO-11057	B69-10270	01	Air brake-dynamometer accurately measures torque LEWIS-163	B65-10312	05
Automatic leveling and equalizing hoist device M-FS-16549	B69-10514	05	Plugged hollow shaft makes fatigue-resistant shear pin LANGLEY-195	B66-10077	05
SET THEORY Automatic computation of data-set			Intermediate rotating ring improves		

SHAKERS

SUBJECT INDEX

reliability of dynamic shaft seal M-FS-575	B66-10197	05	rigid shafts MSC-15470	B69-10375	05
Mount enables precision adjustment of optical-instrumentation mirror MSC-184	B66-10199	02	SHAKERS		
Torque wrench allows readings from inaccessible locations M-FS-598	B66-10204	05	Air bearing provides friction-free support for shaker system slip table NU-0086	B66-10708	05
Extensometer automatically measures elongation in elastomers M-FS-517	B66-10284	05	Vibrator elapsed time is automatically controlled M-FS-2573	B67-10284	01
Diaphragm spring gives clutch over-center toggle effect GSFC-499	B66-10297	05	Pneumatic pressure wave generator provides economical, simple testing of pressure transducers NUC-10024	B67-10664	05
Interior servicing platform simplifies maintenance of storage tanks M-FS-1300	B66-10425	05	Shock and vibration response of multistage structure M-FS-14972	B68-10353	05
Flexible drive allows blind machining and welding in hard-to-reach areas MSC-524	B66-10428	05	Analysis of space vehicle structures using the transfer-function concept NPO-11162	B69-10337	06
Shaft encoder presents digital output JPL-SC-191	B66-10436	01	Electronic analog equalization for vibrational testing NPO-10544	B69-10472	01
Braking mechanism is self actuating and bidirectional M-FS-1299	B66-10484	05	Shaker slip-plate adapter M-FS-14063	B69-10785	05
Swing-out rail system separates overhead crane rails NU-0094	B66-10713	05	SHAPERS		
Lock-disconnect mechanism gives positive release to joined bodies M-FS-2147	B67-10123	05	Compound taper milling machine MSC-15174	B69-10018	05
Resilient bearing supports are gas controlled LEWIS-10109	B67-10364	05	SHAPES		
Machine tests slow-speed sliding friction in high vacuum M-FS-12341	B67-10379	05	Shaped superconductor cylinder retains intense magnetic field JPL-381	B63-10238	01
Welding torch and wire feed manipulator M-FS-13102	B67-10385	05	Portable flooring protects finished surfaces, is easily moved M-FS-15	B63-10387	05
Shallow grooves in journal improve air bearing performance LEWIS-10396	B68-10134	05	Device measures curved surface finish on gear teeth WOO-112	B65-10064	05
Between-bearing shaft seal, a concept M-FS-18179	B68-10286	05	Aluminized fiberglass insulation conforms to curved surfaces M-FS-477	B66-10024	03
Remotely operated gripper provides vertical control rod movement ARG-10160	B68-10359	05	Specimen holder design improves accuracy of X-ray powder analysis JPL-SC-165	B66-10075	02
Computer program analyzes whirl critical speeds and bearing loads for shafts coupled by nonlinear springs to machine housing NUC-10308	B69-10034	06	Swiveling lathe jaw concept for holding irregular pieces M-FS-783	B66-10321	05
Electronic visualization of gas bearing behavior LEWIS-10711	B69-10073	01	Alignment tool facilitates pin placement on irregular horizontal surfaces LANGLEY-219	B66-10410	05
Magnetron tuner has locking feature XNP-09771	B69-10119	05	Packaging of electronic modules JPL-801	B66-10664	01
Journal gas bearing for curved surfaces M-FS-20423	B69-10182	05	Monte Carlo direct view factor and generalized radiative heat transfer programs M-FS-15051	B69-10038	06
High temperature coatings for gas bearings LEWIS-10793	B69-10200	03	SHEAR FLOW		
Study of high temperature bearing materials LEWIS-10829	B69-10252	03	Mechanical properties of a lap joint under uniform clamping pressure M-FS-14538	B69-10141	05
Shock-absorbent mountings for bearings NPO-10626	B69-10331	05	SHEAR LAYERS		
Connect-disconnect coupling for preadjusted			Study of hot wire techniques in low density flows with high turbulence levels M-FS-1269	B66-10687	01
			SHEAR PROPERTIES		
			An ultrasonic method for studying elastic moduli as a function of temperature ARG-10187	B69-10082	02

SUBJECT INDEX

SHIELDING

SHEAR STRENGTH

Modified power tool rapidly drives series torque bolts
MSC-221 B66-10054 05

Improved adhesive for cryogenic applications cures at room temperature
WOO-132 B66-10185 03

Synthesis of pure aromatic glycidyl esters for use as adhesives
M-FS-12705 B67-10647 03

Buckling strength of filament-wound cylinders under axial compression is investigated
HQ-10032 B67-10659 03

SHEAR STRESS

Splice plate design assures structural separation by mild explosive
MSC-137 B65-10166 05

Stress calculator speedily converts strain data
M-FS-2021 B67-10182 03

Computer program for determination of natural frequencies of closed spherical sandwich shells
MSC-1246 B67-10279 06

SHEARING

Plugged hollow shaft makes fatigue-resistant shear pin
LANGLEY-195 B66-10077 05

SHEARS

Versatile impact hand tool
M-FS-20140 B68-10371 05

Battery case shear
GSFC-10783 B69-10127 05

SHEATHS

Metal sheath improves thermocouple using graphite in one leg
NU-0011 B65-10051 01

Metal boot permits fabrication of hermetically sealed splices in metal sheathed instrumentation cables
NU-0083 B66-10704 05

Glass formulation has high coefficient of thermal expansion
NU-0084 B66-10705 03

Thermocouple-flexible cable connector insulator is highly reliable
NU-0082 B66-10709 01

Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area
NUC-10007 B67-10538 01

Thoriated tungsten tube provides improved high temperature thermocouple sheath
NUC-10145 B67-10627 03

Design concept for nonarcing electrical connector
M-FS-14937 B68-10404 01

Refractory oxide insulated thermocouple designed and analyzed for high temperature applications
ARG-10202 B69-10053 03

Glass fabric fire barrier for silicone rubber parts
MSC-15555 B69-10629 03

SHEETS

Machine tests crease durability of sheet materials
JPL-604 B64-10178 05

Teflon sheet permits valve and valve operator to move as a single unit in a cryogenic pipe line
NU-0077 B66-10702 05

SHELL STABILITY

Static structural analysis of shell-type structures
MSC-11555 B68-10066 03

Computer program analyzes Buckling Of Shells Of Revolution with various wall construction, BOSOR
LANGLEY-10290 B68-10226 06

Buckling Of Shells Of Revolution /BOSOR/ with various wall constructions
LANGLEY-10441 B69-10300 06

SHELL THEORY

Analysis of stability-critical orthotropic cylinders subjected to axial compression
M-FS-12869 B67-10375 03

Buckling strength of filament-wound cylinders under axial compression is investigated
HQ-10032 B67-10659 03

SHELLS (STRUCTURAL FORMS)

A technique for making animal restraints
ARC-25 B63-10564 05

Fiberglass container shells form contamination-free storage units
WOO-275 B66-10217 05

Improved sample capsule for determination of oxygen in hemolyzed blood
MSC-11017 B67-10408 04

Mass loading effects on vibrated ring and shell structures
M-FS-14979 B68-10532 03

Shell design computer program
LEWIS-10734 B69-10175 06

SHELTERS

Storage-stable foamable polyurethane is activated by heat
LANGLEY-187 B66-10111 03

SHIELDING

Small foamed polystyrene shield protects low-frequency microphones from wind noise
M-FS-123 B63-10579 01

Temperature-sensitive network drives astable multivibrator
GSFC-137 B63-10609 01

Cutter and stripper reduces coaxial cable connection time
ARC-40 B65-10094 05

Spherical electrode eliminates high-voltage breakdown
LEWIS-155 B65-10139 01

Superconductor shields test chamber from ambient magnetic fields
JPL-627 B65-10297 02

Titanium diaphragm makes excellent amplitron cathode support
GSFC-394 B65-10298 01

Calorimeter accurately measures thermal radiation energy
LANGLEY-173 B66-10058 02

Logic circuitry used to automatically test shielded cables
HQ-60 B66-10659 01

Portable spectrometer monitors inert gas shield in welding process
M-FS-12144 B67-10326 02

SHIFT REGISTERS

SUBJECT INDEX

Modified blackbody device emits high-density radiation M-FS-12744	B67-10388	02	Fluidic-thermochromic display device ERC-10031	B68-10350	01
Coaxial cable stripping device facilitates RF cabling fabrication NPO-10315	B67-10419	05	Simple quasi-exponential slope generator NPO-11130	B69-10439	01
Training course for radiation safety technicians ARG-216	B67-10477	02	SHIPS Flexible rivet-set M-FS-20317	B69-10459	05
Mechanical shielding reduces weld surface cracking in 6061 T6 aluminum MSC-11494	B68-10022	05	Nondestructive determination of cohesive strength of adhesive-bonded composites M-FS-20397	B69-10464	03
Rocket engine nozzle photographic system NPO-10174	B68-10113	02	Explosive bonding of metal-matrix composites M-FS-20657	B69-10804	05
X-ray film holder permits single continuous picture of tubing joint LEWIS-10382	B68-10343	05	SHOCK Simple device produces accelerometer calibration pulse M-FS-363	B65-10269	01
Hydrodynamics of a new concept of primary containment by energy absorption ARG-10242	B69-10046	05	Perforations in jet engine supersonic inlet increase shock stability NEO-8	B66-10530	05
Refractory-metal compound impregnation of polytetrafluoroethylene LEWIS-10733	B69-10072	03	SHOCK ABSORBERS Thermally conductive metal wool-silicone rubber material can be used as shock and vibration damper JPL-321	B63-10207	03
Improved fire resistant radio frequency anechoic materials M-FS-16600	B69-10450	05	Frictional wedge shock mount is inexpensive, has good damping characteristics JPL-IT-1001	B63-10289	05
Balloon batteries, charged and heated by solar energy GSFC-10769	B69-10585	01	Break-up of metal tube makes one-time shock absorber, bars rebound LANGLEY-1A	B63-10304	05
SHIFT REGISTERS Small digital recording head has parallel bit channels, minimizes cross talk JPL-0029	B63-10284	01	Portable flooring protects finished surfaces, is easily moved M-FS-15	B63-10387	05
Computer circuit will fit on single silicon chip JPL-513	B63-10514	01	Novel shock absorber features varying yield strengths MSC-63A	B64-10138	03
Blocking oscillator uses low triggering voltage MSC-58	B64-10017	01	Shock absorber protects motive components against overloads WOO-092	B65-10008	05
Ring counter may be advanced or retarded by command signal GSFC-101	B64-10144	01	Shock mount isolates pressure transducers from vibration JPL-631	B65-10113	05
Magnetic-shift-register circuit controls step motor operation GSFC-340	B65-10226	01	Wire mesh isolator protects sensitive electronic components GSFC-347	B65-10216	05
Queueing register uses fluid logic elements M-FS-317	B66-10100	05	Shock absorber operates over wide range MSC-168	B65-10241	05
Binary sequence detector uses minimum number of decision elements JPL-673	B66-10264	01	Nylon shock absorber prevents injury to parachute jumpers MSC-226	B66-10080	05
Electronic frequency discriminator M-FS-2434	B67-10151	01	Torus elements used in effective shock absorber WOO-114	B66-10318	05
Improved television signal processing system NPO-10140	B67-10246	01	Lateral ring metal elastic wheel absorbs shock loading M-FS-1312	B66-10663	05
Review of research and development in fluid logic elements M-FS-420	B67-10438	01	Land landing couch dynamics computer program MSC-1210	B67-10233	06
Parallel-to-serial biphase-data converter MSC-11600	B68-10241	01	Sleeved damper limits spring surging MSC-12071	B68-10111	05
Acquisition of pseudonoise signals by sequential estimation M-FS-13898	B68-10258	01	Pressure variable orifice for hydraulic control valve MSC-11323	B68-10120	05
Simultaneous message framing and error detection MSC-12001	B68-10330	01	Shock-absorbing caster wheel is simple and compact SAN-10019	B68-10266	05

SUBJECT INDEX

SHORT CIRCUITS

Calibrated water tank facilitates proof-loading of cranes and derricks M-FS-15059	B69-10109	05	SHOCK TESTS Analysis of problems related to slingshot shock machine high-velocity shock testing NFO-11193	B69-10506	05
Shock-absorbent mountings for bearings NFO-10626	B69-10331	05	SHOCK TUBES Blade valve isolates compartment in pipe, opens to allow free flow JPL-585	B64-10188	05
Vibration dampener for Niles vertical boring mill ram MSC-15529	B69-10348	05	Program computes equilibrium normal shock and stagnation point solutions for arbitrary gas mixtures LANGLEY-10090	B67-10509	06
Effects of sterilization on the energy-dissipating properties of balsa wood NFO-11207	B69-10592	03	Gage measures total radiation, including vacuum UV, from ionized high-temperature gases INP-09802	B69-10028	02
Hermetically sealed vibration damper MSC-10959	B69-10634	05	Multichannel spectroscopy guide HQ-10441	B69-10550	01
SHOCK LOADS Nylon shock absorber prevents injury to parachute jumpers MSC-226	B66-10080	05	SHOCK TUNNELS Acceleration-compensated pressure transducer has fast response LANGLEY-113	B66-10353	01
Rugged microelectronic module package supports circuitry on heat sink MSC-81A	B66-10245	01	SHOCK WAVE CONTROL Development of detonation reaction engine M-FS-14020	B67-10652	01
Damping technique gives accelerometer flat frequency response M-FS-471	B66-10293	01	SHOCK WAVE GENERATORS Development of detonation reaction engine M-FS-14020	B67-10652	01
Treatment increases stress-corrosion resistance of aluminum alloys M-FS-1840	B66-10595	05	Experimental design for research on shock-turbulence interaction M-FS-20031	B69-10604	02
Design concept for pressure switch calibrator HQ-36	B66-10598	01	SHOCK WAVE INTERACTION Experimental design for research on shock-turbulence interaction M-FS-20031	B69-10604	02
Boron fiber-reinforced aluminum alloy tubing /experimental/ MSC-15633	B69-10509	05	SHOCK WAVE PROPAGATION Shock and vibration response of multistage structure M-FS-14972	B68-10353	05
SHOCK RESISTANCE Adhesive for vacuum environments resists shock and vibration MSC-56	B65-10016	03	SHOCK WAVES Microparticle impact sensor measures energy directly GSFC-252	B65-10048	01
Pigmented coating resists thermal shock JPL-SC-083	B65-10354	03	Pressure sensor responds only to shock wave M-FS-238	B65-10184	01
Phonocardiograph microphone is rugged and moistureproof MSC-212	B66-10314	04	High-energy-rate magnetohydraulic metal forming system M-FS-2142	B67-10126	02
Crucible cast from beryllium oxide and refractory cement is impervious to flux and molten metal ARG-22	B66-10527	03	Study made to establish parameters and limitations of explosive welding M-FS-13006	B67-10393	05
Design concept for pressure switch calibrator HQ-36	B66-10598	01	High energy forming facility M-FS-14026	B67-10588	05
Multilayer refractory nozzles produced by plasma-spray process WOO-318	B66-10611	05	Explosive-train initiated through solid bulkhead by pressure cartridge MSC-11395	B67-10589	03
Photosensitive filler minimizes internal stresses in epoxy resins M-FS-1880	B67-10227	03	Modified cryogenic storage tank subsystem KSC-10380	B69-10556	02
Rugged switch responds to minute pressure differentials M-FS-12704	B67-10389	01	SHOES Plastic shoe facilitates ultrasonic inspection of thin wall metal tubing NUC-10010	B67-10542	02
Newly developed foam ceramic body shows promise as thermal insulation material at 3000 deg F M-FS-11968	B67-10441	03	SHORT CIRCUITS New method used to fabricate gallium arsenide photovoltaic device WOO-062	B64-10019	01
Reinforced thermal-shock resistant ceramics LEWIS-10376	B68-10085	03	Calculations enable optimum design of magnetic brake LEWIS-251	B66-10073	05
Thermally conducting electron transfer polymers GSFC-10703	B69-10511	03			

SHOT PEENING

SUBJECT INDEX

Thermocouple-flexible cable connector insulator is highly reliable NU-0082	B66-10709	01	Use of color-coded sleeve shutters accelerates oscillograph channel selection KSC-10092	B67-10382	01
Fused diode provides visual indication of fuse condition KSC-67-16	B67-10230	01	SIDEBANDS Phase shift frequency synthesizer is efficient, small in size M-FS-250	B65-10169	01
Liquid crystals detect voids in fiber glass laminates LEWIS-10104	B67-10286	03	Compact microwave mixer has high conversion efficiency GSFC-197	B66-10625	01
Current-limiting voltage regulator MSC-11824	B68-10305	01	Double emitter suppressed carrier modulator uses commercially available components M-FS-2494	B67-10101	01
Novel terminal strips for transformers NPO-10842	B69-10246	01	Absolute frequency stabilization of laser oscillator against laser amplifier M-FS-2559	B67-10255	01
Ionene membrane battery separator NPO-11091	B69-10501	03	Interference effects eliminated in random oriented space station antenna system MSC-11004	B67-10435	01
Testing the flammability of materials exposed to arcs MSC-15225	B69-10531	03	SIDELobe REDUCTION Novel horn antenna reduces side lobes, improves radiation pattern JPL-425	B63-10264	01
Load current sensor for a pulse width modulator power regulator GSFC-10656	B69-10578	01	SIEVES Strainer fits inside flared-tube fittings LANGLEY-180	B65-10388	05
Design of printed circuit coils HQ-10431	B69-10665	01	Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06
SHOT PEENING Glass bead shot peening retards stress corrosion failure of titanium tanks LANGLEY-319	B67-10198	05	SIGNAL ANALYSIS Study made of acoustical monitoring for mechanical checkout M-FS-13372	B67-10430	02
Nondestructive method for measuring residual stresses in metals, a concept KSC-10237	B68-10378	03	New technique for determination of cross-power spectral density with damped oscillators M-FS-14022	B67-10602	02
SHOULDERS Shoulder adapter steadies spot welding gun M-FS-321	B66-10076	05	SIGNAL ANALYZERS Single channel pulse-height analyzer operates in subnanosecond range LEWIS-267	B66-10377	01
SHRINKAGE Hand tool permits shrink sizing of assembled tubing MSC-504	B66-10239	05	Multichannel pulse height analyzer is inexpensive, features low power requirements BQN-10020	B67-10258	01
Cork is used to make tooling patterns and molds MSC-425	B66-10328	01	Solid state circuit averages multiple signals and rejects those varying significantly from the average NUC-10066	B67-10262	01
New backup-bar groove configuration improves helium welding of 2014-T6 aluminum MSC-806	B66-10443	05	Oscilloscope used as X-Y plotter or two-dimensional analyzer LEWIS-311	B67-10269	01
Photosensitive filler minimizes internal stresses in epoxy resins M-FS-1880	B67-10227	03	Machine tests slow-speed sliding friction in high vacuum M-FS-12341	B67-10379	05
SHROUDS Computer program performs flow analysis through turbines LEWIS-236	B66-10496	01	Multichannel analyzers at high rates of input ARG-10355	B69-10214	02
SHUTDOWNS Shock-operated valve would automatically protect fluid systems M-FS-801	B66-10335	03	SIGNAL DETECTION New low-level a-c amplifier provides adjustable noise cancellation and automatic temperature compensation ARC-2	B63-10003	04
Solid state annunciator facilitates complex system troubleshooting M-FS-1258	B66-10505	01	Gapped toroid provides infinite resolution of delay-line pickup GSFC-370	B65-10258	01
Computer program FPIP-REV calculates fission product inventory for U-235 fission NUC-10089	B67-10450	06	Frequency correction device uses digital circuitry GSFC-268	B65-10307	01
SHUTTERS Nulling pyrometer uses Kerr cell shutter for fast responses NU-0010	B65-10050	01	FET comparator detects analog signal levels		
Brushless dc motor uses electron beam switching tube as commutator GSFC-345	B65-10237	01			

SUBJECT INDEX

SIGNAL GENERATORS

without loading analog device M-FS-503	B66-10224	01	Accuracy of laser measurements improved by pulse autocorrelator electronic system MSC-10033	B67-10338	01
Point-source light sensor circuit is insensitive to background light JPL-778	B66-10502	01	Continuous wave detector has wide frequency range M-FS-1849	B67-10386	01
Optical automatic gain channel M-FS-1550	B66-10596	02	Unique frequency-shift-keyed demodulation system GSFC-217	B67-10668	01
MOSFET analog memory circuit achieves long duration signal storage M-FS-860	B66-10603	01	Improved phase-shift-keyed detector M-FS-20064	B69-10101	01
Scanning means for Cassegrainian antenna JPL-946	B67-10174	05	Multichannel analyzers at high rates of input ARG-10355	B69-10214	02
Current pulse amplifier transmits detector signals with minimum distortion and attenuation NUC-10055	B67-10347	01	SIGNAL DISTORTION		
Improved dc voltage regulator XKS-06467	B69-10369	01	Frequency offset in linear FM/CW transponder eliminates clutter M-FS-249	B65-10146	01
A positive taper traveling-wave tube LANGLEY-10263	B69-10407	01	Detector circuit compensates for vidicon beam current variations GSFC-310	B65-10212	01
Data processing method for a weak, moving telemetry signal NPO-11003	B69-10639	01	Microphone multiplex system provides multiple outlets from single source GSFC-426	B66-10308	01
Pocket-sized tone-modulated FM transmitter NPO-11180	B69-10725	01	TV synchronization system features stability and noise immunity JPL-915	B67-10118	01
Pulse-height defect due to electron interaction in dead layers of Ge/Li/gamma-ray detectors ARG-10362	B69-10767	02	Harmonic distortion analyzer speeds setup of magnetic tape recorders GSFC-10198	B68-10254	01
SIGNAL DETECTORS			Improved communication system for large operations center M-FS-15016	B68-10529	01
Phase detector circuit synthesizes own reference signal M-FS-247	B65-10080	01	Millivolt signal limiter LEWIS-90297	B69-10015	01
Detector circuit compensates for vidicon beam current variations GSFC-310	B65-10212	01	SIGNAL ENCODING		
Frequency discriminator with binary output eliminates tuned circuits M-FS-376	B65-10349	01	Optical output enhances flowmeter accuracy M-FS-482	B65-10395	02
Digitally controlled pulse-level discriminator operates over wide voltage range GSFC-324	B66-10129	01	SIGNAL FADING		
Simple circuit provides reliable multiple signal average and reject capability NU-0069	B66-10282	01	Lightweight coaxial cable connector reduces signal loss JPL-720	B65-10244	01
Hydrogen fire detection system features sharp discrimination M-FS-643	B66-10368	01	Video signal processing system uses gated current mode switches to perform high speed multiplication and digital-to-analog conversion MSC-781	B66-10429	01
Instrument automatically selects peak acceleration signal from several accelerometers JPL-816	B66-10462	01	SIGNAL GENERATORS		
Spray-on electrodes enable EKG monitoring of physically active subjects FRC-36	B66-10649	04	Transducer senses displacements of panels subjected to vibration ARC-37	B65-10085	01
Monitor assures availability and quality of communication channels KSC-66-38	B67-10028	01	Pressure transducers dynamically tested with sinusoidal pressure generator LEWIS-268	B66-10031	01
Electronic frequency discriminator M-FS-2434	B67-10151	01	Circuit operates as sine function generator MSC-255	B66-10038	01
Oscilloscope used as X-Y plotter or two-dimensional analyzer LEWIS-311	B67-10269	01	Parallel line raster eliminates ambiguities in reading timing of pulses less than 500 microseconds apart JPL-805	B66-10386	01
Transistor biased amplifier minimizes diode discriminator threshold attenuation ARG-163	B67-10311	01	Logic circuitry used to automatically test shielded cables HQ-60	B66-10659	01
			FM carrier deviation measured by differential probability method M-FS-2166	B67-10213	01
			A calibration means for spectrum analyzers MSC-10987	B67-10254	01

SIGNAL MEASUREMENT

SUBJECT INDEX

Electronic test instrument generates extremely small current signals ARG-276	B67-10318	01
Signal generator converts direct current to multiphase supplies MSC-11043	B67-10368	01
Circuit automatically calibrates flowmeter against liquid-level gage reference M-FS-2194	B67-10376	01
Ultrasonics used to measure residual stress M-FS-12449	B67-10428	02
Digital voltage-controlled oscillator GSFC-512	B67-10449	01
Hydraulic servo system increases accuracy in fatigue testing LANGLEY-217	B67-10637	01
Reflectometer for receiver input system NPO-10843	B67-10657	01
Technique increases storage capacity in camera tube target MSC-11599	B68-10213	01
Harmonic distortion analyzer speeds setup of magnetic tape recorders GSFC-10198	B68-10254	01
Acquisition of pseudonoise signals by sequential estimation M-FS-13898	B68-10258	01
High-speed camera synchronization M-FS-18062	B68-10282	02
Dynamic linearity measurement technique KSC-10186	B68-10290	01
A 35 GHz solid state transmitter/driver M-FS-20152	B68-10545	01
Technique for tuning antenna systems producing negligible signal radiation KSC-10060	B69-10215	01
Optimum FM pre-emphasis KSC-10151	B69-10359	01
Automatic frequency control of voltage-controlled oscillators NPO-11064	B69-10569	01
SIGNAL MEASUREMENT		
Range recording technique enables four-way polarization measurements M-FS-12447	B67-10460	01
SIGNAL MIXING		
Linear signal noise summer accurately determines and controls S/N ratio JPL-SC-152	B66-10433	01
Electronic frequency discriminator M-FS-2434	B67-10151	01
Voltage regulator/amplifier is self-regulated MSC-1240	B67-10156	01
Solid state phase detector replaces bulky transformer circuit MSC-11007	B67-10253	01
Interference effects eliminated in random oriented space station antenna system MSC-11004	B67-10435	01
Improved communication system for large operations center M-FS-15016	B68-10529	01
Long range holographic contour mapping concept HQ-10350	B69-10700	02
SIGNAL PROCESSING		
System proportions fluid-flow in response to demand signals GSFC-457	B66-10094	01
Phonocardiograph system monitors heart sounds MSC-185	B66-10154	04
Exclusive-or logic circuit has useful properties LANGLEY-214	B66-10272	01
Ultrasonic emission method enables testing of adhesive bonds M-FS-799	B66-10341	01
Hydrogen fire detection system features sharp discrimination M-FS-643	B66-10368	01
Feedback loop compensates for rectifier nonlinearity M-FS-384	B66-10382	01
Video signal processing system uses gated current mode switches to perform high speed multiplication and digital-to-analog conversion MSC-781	B66-10429	01
Single-sideband modulator accurately reproduces phase information in 2-Mc signals M-FS-664	B66-10437	01
Photocell shadowing technique improves light source detector JPL-809	B66-10564	01
Monitoring system determines amplitude and time of vibration channel peaks JPL-879	B66-10699	01
Recording and time expansion technique for high-speed, single-shot transient video signal ARC-10003	B67-10139	01
Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry NPO-10149	B67-10245	04
Improved television signal processing system NPO-10140	B67-10246	01
Limit circuit prevents overdriving of operational amplifier NUC-10082	B67-10343	01
Stable ac phase and amplitude comparator M-FS-13086	B67-10459	01
Video synchronization processor overcomes poor signal-to-noise ratio KSC-10002	B67-10515	01
Circuit measures hysteresis loop areas at 30 Hz M-FS-13069	B67-10519	01
Damages in rolling element bearings may be detected early HQ-10031	B67-10658	01
Portable Pulse Code Modulation /PCM/ MSC-11369	B68-10106	01
Analysis and design of a class-D amplifier M-FS-14803	B68-10313	01
Analysis of magnetically-controlled processes in pulse-modulation systems GSFC-10241	B69-10070	01
Bootstrap unloader INP-09768	B69-10120	01
Remote balance weighs accurately amid high radiation		

SUBJECT INDEX

SIGNAL TO NOISE RATIOS

ARG-10387	B69-10242	05	Parametric up-converter increases flexibility of maser	B67-10104	01
Wide-band doubler and sine wave quadrature generator			KSC-67-98		
NPO-11133	B69-10383	01	TV synchronization system features stability and noise immunity	JPL-915	B67-10118 01
Technique for improving solid state mosaic images			Personal communication system combines high performance with miniaturization	MSC-720	B67-10119 01
M-FS-20532	B69-10676	01	Edge-type connectors evaluated by electrical noise measurement	M-FS-2243	B67-10125 01
Biomedical bulk data processing program			Environmental study of miniature slip rings	M-FS-2443	B67-10210 05
FRC-10015	B69-10720	06	Glow discharge density sensor probe life is extended	M-FS-1707	B67-10229 01
System converts slow-scan to standard fast-scan TV signals			Improved television signal processing system	NPO-10140	B67-10246 01
MSC-90534	B69-10748	01	Infrared radiometer	M-FS-13373	B67-10422 01
Seismographic recording of large rocket engine operation			Video synchronization processor overcomes poor signal-to-noise ratio	KSC-10002	B67-10515 01
M-FS-20545	B69-10756	01	Light-controlled resistors provide quadrature signal rejection for high-gain servo systems	WSO-340	B67-10552 01
SIGNAL RECEPTION			Improved phase locked loop receiver	GSFC-09561	B68-10008 01
Automatic gain control circuit handles wide input range			Harmonic distortion analyzer speeds setup of magnetic tape recorders	GSFC-10198	B68-10254 01
MSC-166	B66-10089	01	Acquisition of pseudonoise signals by sequential estimation	M-FS-13898	B68-10258 01
Optical superheterodyne receiver uses laser for local oscillator			Laser-Doppler gas-velocity instrument	M-FS-20039	B68-10349 02
M-FS-1605	B66-10584	01	Readout system for radiation detector	MSC-90180	B68-10501 01
Monitor assures availability and quality of communication channels			Simple demodulator for telemetry phase-shift keyed subcarriers	NPO-11000	B69-10095 01
KSC-66-38	B67-10028	01	RF noise suppression using the photodiode effect in semiconductors	MSC-12259	B69-10225 01
Automatic telemetry checkout system			Survey of man-made electrical noise affecting radio broadcasting	HQ-10290	B69-10308 01
M-FS-12580	B67-10402	01	New passive telemetry system	HQ-10214	B69-10312 01
Blood pressure reprogramming adapter assists signal recording			Combination ranging system and mapping radar	NPO-11001	B69-10325 01
MSC-265	B67-10475	01	Optimum FM pre-emphasis	KSC-10151	B69-10359 01
Video synchronization processor overcomes poor signal-to-noise ratio			A compact rotary vane attenuator	NPO-10562	B69-10427 01
KSC-10002	B67-10515	01	Estimation of signal-to-noise ratios	XNP-05254	B69-10557 01
SIGNAL STABILIZATION			Electrooptical scanning of film	NPO-11106	B69-10568 01
Design concepts using ring lasers for frequency stabilization			Data processing method for a weak, moving telemetry signal	NPO-11003	B69-10639 01
M-FS-2448	B67-10143	01			
Electrometer amplifier operates over dynamic range of five orders of magnitude					
ARC-75	B67-10199	01			
Foil radiometer accessory improves measurements					
M-FS-12684	B67-10448	01			
SIGNAL TO NOISE RATIOS					
Computer determines high-frequency phase stability					
GSFC-113	B63-10555	01			
Bandwidth switching is transient-free, avoids loss of loop lock					
WOO-054	B64-10349	01			
Pressure transducers dynamically tested with sinusoidal pressure generator					
LEWIS-268	B66-10031	01			
Semiconductor forms biomedical radiation probe					
MSC-320	B66-10252	04			
Exclusive-or logic circuit has useful properties					
LANGLEY-214	B66-10272	01			
Microphone multiplex system provides multiple outlets from single source					
GSFC-426	B66-10308	01			
Linear signal noise summer accurately determines and controls S/N ratio					
JPL-SC-152	B66-10433	01			
Precision CW laser automatic tracking system investigated					
M-FS-1606	B66-10629	01			

SIGNAL TRANSMISSION

SUBJECT INDEX

Pulse-code-modulation baseline correction for low signal-to-noise ratios MSC-13268	B69-10750	01	High voltage pulse generator MSC-12178	B69-10548	01
SIGNAL TRANSMISSION			SIGNATURES		
Modified filter prevents conduction of microwave signals along high-voltage power supply leads JPL-63	B63-10091	01	Magnetoresistor monitors relay performance M-FS-1754	B66-10650	01
Digital system accurately controls velocity of electromechanical drive GSFC-287	B65-10096	01	SILANES		
Added diodes increase output of balanced mixer circuit GSFC-354	B65-10276	01	Flexible protective coatings made from silicon-nitrogen materials M-FS-528	B66-10027	03
Frequency correction device uses digital circuitry GSFC-268	B65-10307	01	Silazane polymers show promise for high-temperature application M-FS-466	B66-10194	03
Variable word length encoder reduces TV bandwidth requirements LANGLEY-87	B65-10345	01	SILICATES		
Remote preamplifier circuit maintains stability over wide temperature range WOO-278	B66-10432	01	Standards for electron probe microanalysis of silicates prepared by convenient method GSFC-469	B66-10234	03
Device to color modulate a stationary light beam gives high intensity HQ-44	B66-10476	01	Trace levels of metallic corrosion in water determined by emission spectrography MSC-1193	B66-10701	03
Electronic circuit delivers pulse of high interval stability MSC-673	B66-10501	01	Study made of far infrared spectra of silicate minerals M-FS-1811	B67-10075	02
Rotational fluid coupling eliminates hose entanglements MSC-312	B66-10585	05	Manganese-alumina-ceramic glass eliminates rigid controls necessary in bonding metals to ceramics SAN-10012	B68-10204	03
Monitor assures availability and quality of communication channels KSC-66-38	B67-10028	01	Thermal conductivity and dielectric constant of silicate materials M-FS-14856	B68-10351	03
Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01	Silphenylene elastomers have high thermal stability and tensile strength M-FS-20250	B69-10580	03
Pump simulator provides variable pressure-flow characteristics LEWIS-10122	B67-10453	05	SILICIDES		
Optically induced free carrier light modulator GSFC-10216	B69-10114	01	Improved high-temperature silicide coatings LEWIS-10817	B69-10266	03
Self-shielding printed circuit boards for high frequency amplifiers and transmitters HQ-10433	B69-10314	01	SILICON		
Preferred-orientation analysis of polycrystalline materials NPO-10604	B69-10336	02	Computer circuit will fit on single silicon chip JPL-513	B63-10514	01
Pocket-sized tone-modulated FM transmitter NPO-11180	B69-10725	01	Miniature stress transducer has directional capability JPL-591	B65-10023	01
SIGNALS			Microparticle impact sensor measures energy directly GSFC-252	B65-10048	01
Circuit switches latching relay in response to signals of different polarity WOO-055	B63-10508	01	New alloy brazes titanium to stainless steel MSC-102	B65-10060	05
Camera shutter is actuated by electric signal ARC-20	B63-10560	05	Solid-state switching used to speed up capacitive integrator LANGLEY-104	B65-10159	01
Ring counter may be advanced or retarded by command signal GSFC-101	B64-10144	01	Selenium bond decreases ON resistance of light-activated switch JPL-SC-101	B65-10324	01
Phase shift frequency synthesizer is efficient, small in size M-FS-250	B65-10169	01	Aluminum doping improves silicon solar cells LEWIS-206	B66-10181	02
Solid state annunciator facilitates complex system troubleshooting M-FS-1258	B66-10505	01	Radiation used to temperature compensate semiconductor strain gages LANGLEY-207	B66-10186	02
			Solar cell submodule design facilitates assembly of lightweight arrays JPL-728	B66-10231	02
			Circuit protects regulated power supply against overload current GSFC-453	B66-10292	01
			Substituting transistor for diode improves rectifying means GSFC-474	B66-10295	01

SUBJECT INDEX

SILICON CONTROLLED RECTIFIERS

Alpha particle backscattering measurements used for chemical analysis of surfaces ARG-116	B67-10186	03	GSFC-346	B65-10309	01
Method of improving contact bonds in silicon integrated circuits M-FS-1753	B67-10335	01	Improved thermal insulation materials made of foamed refractory oxides M-FS-735	B66-10288	03
Blood pressure reprogramming adapter assists signal recording MSC-265	B67-10475	01	Thin film process forms effective electrical contacts on semiconductor crystals M-FS-2343	B67-10142	01
Areas of irregular, discontinuous patterns rapidly and accurately measured GSFC-10184	B67-10674	01	Process facilitates photoresist mask alignment on SiC crystals M-FS-2394	B67-10144	01
Small, low power analog-to-digital converter M-FS-13954	B68-10016	01	SiC/Si diode trigger circuit provides automatic range switching for log amplifier M-FS-1879	B67-10314	01
Silicon solar cell monitors high temperature furnace operation NUC-10163	B68-10148	01	UV detector monitors organic contamination of optical surfaces M-FS-20246	B68-10413	01
Silicon strain sensors enable pressure measurement at cryogenic temperatures M-FS-14703	B68-10262	01	Ambient temperature catalyst for hydrogen ignition LEWIS-10551	B68-10520	03
Temperature or pressure controller LEWIS-10297	B68-10337	01	Silicon carbide diode for increased light output M-FS-20063	B69-10096	01
Improved process for epitaxial deposition of silicon on prediffused substrates M-FS-14910	B68-10390	03	SILICON COMPOUNDS		
Electron beam recrystallization of amorphous semiconductor materials LEWIS-10443	B68-10556	02	Multiple-mask chemical etching MSC-13114	B69-10221	01
Improved high-temperature silicide coatings LEWIS-10817	B69-10266	03	Segmented SiGe-PbTe couples GSFC-10746	B69-10233	01
An integrated circuit switch NPO-11073	B69-10326	01	SILICON CONTROLLED RECTIFIERS		
An electronic circuit for sensing malfunctions in test instrumentation KSC-10209	B69-10392	01	Circuit switches latching relay in response to signals of different polarity WOO-055	B63-10508	01
A new method for producing optical mirrors HQ-10227	B69-10529	02	Circuit controls transients in SCR inverters GSFC-120	B63-10600	01
Reducing contact resistance at semiconductor to metal or aluminum to metal interfaces BRC-10254	B69-10689	01	Digital cardiometer computes and displays heartbeat rate MSC-93	B64-10258	01
SILICON ALLOYS			Digital-output cardiometer measures rapid changes in heartbeat rate MSC-133	B65-10143	01
Brazing process using Al-Si filler alloy reliably bonds aluminum parts MSC-448	B66-10241	05	Simple circuit reduces transistor switching time GSFC-314	B65-10234	01
Brazing process provides high-strength bond between aluminum and stainless steel M-FS-803	B66-10352	05	Solid-state laser transmitter is amplitude modulated MSC-121	B65-10238	01
Gage of 6.5 per cent Si-Fe sheet is chemically reduced MSC-537	B66-10454	03	Compact SCR trigger circuit for ignition switch operates efficiently M-FS-371	B65-10347	01
Preformed stiffeners used to fabricate structural components for pressurized tanks M-FS-1796	B66-10688	05	Pulse generator using transistors and silicon controlled rectifiers produces high current pulses with fast rise and fall times MSC-405	B66-10456	01
Study made of ductility limitations of aluminum-silicon alloys M-FS-12524	B67-10392	03	Solid state circuit controls direction, speed, and braking of dc motor JPL-757	B66-10486	01
Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03	Solid state annunciator facilitates complex system troubleshooting M-FS-1258	B66-10505	01
SILICON CARBIDES			Instrument sequentially samples ac signals from several accelerometers JPL-884	B67-10029	01
Metal sheath improves thermocouple using graphite in one leg NU-0011	B65-10051	01	Heater control circuit provides both fast and proportional control M-FS-906	B67-10097	01
Thermoelectric elements diffusion-bonded to tungsten electrodes			Long time constant timer requires no recovery time GSFC-10091	B67-10487	01

SILICON DIOXIDE

SUBJECT INDEX

Teleprinter uses thermal printing technique MSC-11327	B67-10572	01	Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons ARG-10220	B69-10211	02
Ferromagnetic core valve gives rapid action on minimum energy LEWIS-10135	B67-10623	05	SILICON FILMS Thin-film resistors used in functional electronic blocks GSFC-380	B65-10305	01
Low cost SCR lamp driver indicates contents of digital computer registers GSFC-10221	B67-10656	01	Silicon oxide films grown in microwave discharge M-FS-14634	B68-10171	01
High voltage pulse generator MSC-12178	B69-10548	01	SILICON JUNCTIONS Impurity diffusion process for silicon semiconductors is fast and precise GSFC-397	B65-10300	01
SILICON DIOXIDE Refractory ceramic has wide usage, low fabrication cost M-FS-67	B63-10481	03	Semiconductor forms biomedical radiation probe MSC-320	B66-10252	04
Refractory thermal insulation for smooth metal surfaces M-FS-160	B64-10099	03	Simplified method introduces drift fields into cells GSFC-572	B67-10102	03
Lead oxide ceramic makes excellent high-temperature lubricant LEWIS-144	B64-10116	03	Process facilitates photoresist mask alignment on SiC crystals M-FS-2394	B67-10144	01
Adhesive for vacuum environments resists shock and vibration MSC-56	B65-10016	03	Thermal and bias cycling stabilizes planar silicon devices ERC-48	B67-10176	01
Flexible curtain shields equipment from intense heat fluxes M-FS-48	B65-10044	03	Fused diode provides visual indication of fuse condition KSC-67-16	B67-10230	01
Impurity diffusion process for silicon semiconductors is fast and precise GSFC-397	B65-10300	01	Development of reliability prediction technique for semiconductor diodes GSFC-10231	B67-10651	06
Thin-film resistors used in functional electronic blocks GSFC-380	B65-10305	01	Remotely-actuated biomedical switch ARC-10105	B69-10117	01
Air-cured ceramic coating insulates against high heat fluxes M-FS-150	B65-10357	03	SILICON NITRIDES Radiation tolerant silicon nitride insulated gate field effect transistors GSFC-10581	B69-10253	01
Reflective insulator layers separated by bonded silica beads MSC-215	B66-10070	03	SILICON OXIDES Improved sensor counts micrometeoroid penetrations LEWIS-76	B63-10443	01
Vapor grown silicon dioxide improves transistor base-collector junctions GSFC-389	B66-10091	01	Special coatings control temperature of structures GSFC-444	B65-10337	03
Optically driven switch turn-off time reduced by opaque coatings JPL-SC-107	B66-10141	01	Glass formulation has high coefficient of thermal expansion NU-0084	B66-10705	03
Fibers of newly developed refractory ceramics produced by improved process WOO-169	B66-10196	03	Silicon oxide films grown in microwave discharge M-FS-14634	B68-10171	01
Standards for electron probe microanalysis of silicates prepared by convenient method GSFC-469	B66-10234	03	Graphite cloth facilitates vacuum evaporation of silicon monoxide M-FS-14764	B68-10256	03
Improved thermal insulation materials made of foamed refractory oxides M-FS-735	B66-10288	03	Radiation tolerant silicon nitride insulated gate field effect transistors GSFC-10581	B69-10253	01
Special treatment reduces helium permeation of glass in vacuum systems HQ-25	B66-10372	02	Improved method of fabricating planar gallium arsenide diodes XNP-04235	B69-10271	01
Process facilitates photoresist mask alignment on SiC crystals M-FS-2394	B67-10144	01	Dielectric materials for use in thin-film capacitors M-FS-20471	B69-10387	02
A ceramic composite thermal insulation M-FS-13991	B67-10608	03	SILICON POLYMERS Flexible protective coatings made from silicon-nitrogen materials M-FS-528	B66-10027	03
Study of behavior of sterols at interfaces ARG-10085	B68-10281	03	Silazane polymers show promise for high-		
Miniaturized King furnace permits absorption spectroscopy of small samples ARG-10177	B68-10418	02			

SUBJECT INDEX

SILICONES

temperature application M-FS-466	B66-10194	03	Copper foil provides uniform heat sink path MSC-262	B66-10004	02
Substituted silane-diol polymers have improved thermal stability M-FS-469	B66-10259	03	Capacitive system detects and locates fluid leaks M-FS-478	B66-10099	01
SILICON RADIATION DETECTORS Silicon surface barrier detectors used for liquid hydrogen density measurement M-FS-14115	B68-10166	01	Split glass tube assures quality in electron beam brazing M-FS-564	B66-10151	05
SILICON TETRACHLORIDE Impurity diffusion process for silicon semiconductors is fast and precise GSFC-397	B65-10300	01	Circular, explosion-proof lamp provides uniform illumination MSC-382	B66-10156	02
Lateral PNP bipolar transistor with aiding field diffusions MSC-13072	B69-10741	01	Rubber-coated bellows improves vibration damping in vacuum lines LEWIS-273	B66-10187	02
SILICON TRANSISTORS Zener diode is starter for transistor regulated power supply NU-0015	B65-10052	01	Rubber and alumina gaskets retain vacuum seal in high temperature EMF cell ARG-17	B66-10472	05
Temperature transducer has high output, is time stable GSFC-446	B65-10362	01	Encapsulation technique eliminates thermal stresses in welded electronic modules M-FS-14581	B68-10307	01
Vapor grown silicon dioxide improves transistor base-collector junctions GSFC-389	B66-10091	01	Battery-package design provides for cell cooling and constraint MSC-11839	B68-10398	05
Transistor circuit increases range of logarithmic current amplifier NU-0018	B66-10350	01	Tools made of ice facilitate forming of soft, sticky materials KSC-10262	B69-10199	05
Metal Oxide Silicon /MOS/ transistors protected from destructive damage by wire ARC-65	B66-10419	01	Glass fabric fire barrier for silicone rubber parts MSC-15555	B69-10629	03
Miniature electrometer preamplifier effectively compensates for input capacitance ARC-69	B66-10549	01	SILICONES Improved electrode gives high-quality biological recordings MSC-17	B64-10025	04
New microelectronic power amplifier M-FS-13621	B68-10073	01	Gas diffusion cell removes carbon dioxide from occupied airtight enclosures MSC-118	B64-10319	03
Failure rates for accelerated acceptance testing of silicon transistors ERC-10198	B68-10541	01	Flexible curtain shields equipment from intense heat fluxes M-FS-48	B65-10044	03
Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01	Lightweight load support serves as vibration damper JPL-661	B65-10144	05
Accurate nine-decade temperature-compensated logarithmic amplifier ARG-10480	B69-10429	01	Organic reactants rapidly produce plastic foam LANGLEY-37	B65-10288	03
Highly stable high-rate discriminator for nuclear counting ARG-10483	B69-10614	01	Coating permits use of strain gage in water and liquid hydrogen M-FS-594	B66-10192	01
SILICONE RESINS Special coatings control temperature of structures GSFC-444	B65-10337	03	Damping technique gives accelerometer flat frequency response M-FS-471	B66-10293	01
SILICONE RUBBER Thermally conductive metal wool-silicone rubber material can be used as shock and vibration damper JPL-321	B63-10207	03	Electrical cabling withstands severe environmental conditions M-FS-1585	B66-10427	01
Pressure molding of powdered materials improved by rubber mold insert WOO-100	B64-10270	03	Improved method of edge coating flat ribbon wire M-FS-902	B66-10684	03
Shock mount isolates pressure transducers from vibration JPL-631	B65-10113	05	Self-sealing closure enables access to several fluid containers NPO-10123	B67-10207	04
High-intensity flashing beacon powered by mercury cells LANGLEY-80	B65-10361	01	Process controls introduction of selected impurities into semiconductor wafers GSFC-523	B67-10303	01
			Study made of dielectric properties of promising materials for cryogenic capacitors M-FS-13620	B67-10366	03
			Composite solar cell matrix is reliable,		

SILK

SUBJECT INDEX

lightweight and flexible NFO-10821	B67-10503	01	Copper wire plated with nickel and silver resists corrosion M-FS-761	B66-10421	03
Polystyrene cryostat facilitates testing tensile specimens under liquid nitrogen NUC-10522	B67-10613	02	Rotating magnetic poles used to pump mercury LEWIS-276	B66-10434	05
Effects of surface preparation on quality of aluminum alloy weldments M-FS-13152	B68-10302	03	Helmet system broadcasts electroencephalograms of wearer ARC-70	B66-10536	01
Compressible sleeve provides automatic centering for grinding or turning of cylinders SAN-10021	B68-10318	05	Silver plating technique seals leaks in thin wall tubing joints NU-0090	B66-10703	05
Evaluation of magnetic materials for static inverters and converters LEWIS-10343	B69-10306	01	Plasma jet electrode has longer operating life NU-0098	B67-10024	02
SILK Scribable coating for plastic films MSC-11194	B67-10409	03	Undercoat prevents blistering of silver plating at elevated temperatures M-FS-2049	B67-10096	05
SILOXANES Arylenesiloxane copolymers M-FS-1812	B67-10079	03	Evaluation of high temperature stranded hookup wire M-FS-2478	B67-10122	03
Advances in aluminum anodizing M-FS-14600	B69-10144	05	Silver plating ensures reliable diffusion bonding of dissimilar metals M-FS-1975	B67-10124	03
SILVER Improved molybdenum disulfide-silver motor brushes have extended life M-FS-64	B63-10479	03	Technique eliminates high voltage arcing at electrode-insulator contact area LEWIS-10133	B67-10470	01
Connector for thermocouple leads saves costly wire, makes reliable connectors LANGLEY-26	B63-10529	01	Improved cavity-type absolute total-radiation radiometer JPL-807	B67-10557	01
Metals plated on fluorocarbon polymers JPL-544	B63-10612	03	High-voltage pulse generator developed for wide-gap spark chambers ARG-10136	B68-10283	01
Improved conductive paste secures biomedical electrodes MSC-107	B65-10015	03	Electromotive series established for metals used in aerospace technology M-FS-18327	B68-10385	03
New alloy brazes titanium to stainless steel MSC-102	B65-10060	05	Electrolytic silver ion cell sterilizes water supply MSC-11827	B68-10555	01
Carbon-arc rod holder has long life, reduces arc splatter MSC-144	B65-10095	03	Mass transport mechanism in porous fuel cell electrodes HQ-10343	B69-10135	01
Rugged pressed disk electrode has low contact potential MSC-158	B65-10320	01	Electrochemical sintering process for producing electrodes from cadmium felt and a nickel or silver grid GSFC-10764	B69-10227	05
Plated nickel wire mesh makes superior catalyst bed MSC-216	B65-10321	03	Metallic diffusion measured by a modified Knudsen technique HQ-10145	B69-10309	03
Regenerative fuel cell combines high efficiency with low cost WOO-090	B65-10363	01	SILVER ALLOYS New brazing alloy eliminates metal-stress cracking WOO-249	B65-10397	03
Gelatin coated electrodes allow prolonged bioelectronic measurements MSC-153	B66-10088	01	Silver-base ternary alloy proves superior for slip ring lead wires M-FS-1540	B66-10540	03
Telescoping of instrumentation tubing eliminates swaging M-FS-546	B66-10116	05	Silver-palladium braze alloy recovered from masking materials M-FS-1845	B66-10631	03
Compound improves thermal interface between thermocouple and sensed surface NU-0028	B66-10121	02	Cryogenic seal remains leaktight during thermal displacement ARG-96	B67-10134	02
Submicron metal powders produced by ball milling with grinding aids LEWIS-188	B66-10221	03	Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique ARG-277	B67-10324	03
Brazing process using Al-Si filler alloy reliably bonds aluminum parts MSC-448	B66-10241	05	Device for obtaining separation of oxygen LANGLEY-11007	B69-10477	01
Differential expansion provides pressure for diffusion bonding of large diameter rings M-FS-588	B66-10269	05			

SUBJECT INDEX

SINE SERIES

Device separates hydrogen from solution in water at ambient temperatures MSC-13335	B69-10635	03	of specimens NUC-10075	B67-10266	03
SILVER CADMIUM BATTERIES			Tool simplifies machining of pipe ends for precision welding KSC-10361	B69-10231	05
Auxiliary-silver electrode eliminates two-step voltage discharge characteristic of silver-zinc cells GSFC-169	B64-10114	01	SIMULATION		
Hermetically sealed cells protected from internal gas pressure GSFC-555	B66-10692	01	Optical projectors simulate human eyes to establish operator's field of view WOO-250	B66-10010	02
SILVER CHLORIDES			GREHEX-A new management training concept GSFC-574	B67-10092	01
Cesium iodide crystals fused to vacuum tube faceplates GSFC-67	B63-10476	03	Computer program uses Monte Carlo techniques for statistical system performance analysis M-FS-2234	B67-10306	06
Improved electrode gives high-quality biological recordings MSC-17	B64-10025	04	Experiments to investigate particulate materials in reduced gravity fields M-FS-13308	B67-10394	02
Rugged pressed disk electrode has low contact potential MSC-158	B65-10320	01	Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01
Ion exchange determines iodine-131 concentration in aqueous samples ARG-208	B67-10129	04	Algebraic Monte Carlo procedure reduces statistical analysis time and cost factors M-FS-1887	B67-10434	01
SILVER COMPOUNDS			Simulated hailstone fabrication and use in testing weatherability of structures NPO-10783	B68-10552	03
New energy storage concept uses tapes LEWIS-239	B66-10098	02	Electronic visualization of gas bearing behavior LEWIS-10711	B69-10073	01
Preparation of silver-activated zinc sulfide thin films GSFC-10687	B68-10271	03	SIMULATORS		
SILVER IODIDES			Analog device simulates physiological waveforms MSC-51	B64-10109	01
Ion exchange determines iodine-131 concentration in aqueous samples ARG-208	B67-10129	04	Electronic device simulates respiration rate and depth MSC-89	B64-10255	01
SILVER NITRATES			Simulator produces physiological waveforms MSC-94	B65-10091	01
Preparation of silver-activated zinc sulfide thin films GSFC-10687	B68-10271	03	Antenna simulator permits preinstallation system checkout GSFC-522	B66-10518	01
SILVER OXIDES			Pump simulator provides variable pressure-flow characteristics LEWIS-10122	B67-10453	05
Auxiliary silver electrode eliminates two-step voltage discharge characteristic of silver-zinc cells GSFC-169	B64-10114	01	Fully automatic telemetry data processor GSFC-10576	B68-10336	01
Regenerative fuel cell combines high efficiency with low cost WOO-090	B65-10363	01	Exploding bridgewire detonator simulator M-FS-02191	B69-10782	01
SILVER ZINC BATTERIES			SIMULTANEOUS EQUATIONS		
Auxiliary silver electrode eliminates two-step voltage discharge characteristic of silver-zinc cells GSFC-169	B64-10114	01	Computer program simulates physical systems by solving the simultaneous differential equations describing the systems NPO-10019	B67-10193	06
Device removes hydrogen gas from enclosed spaces GSFC-495	B66-10340	03	CINDA - Chrysler Improved Numerical Differencing Analyzer computer program M-FS-2298	B67-10278	06
Hermetically sealed cells protected from internal gas pressure GSFC-555	B66-10692	01	Computer program provides linear sampled-data analysis for high order systems M-FS-12821	B67-10287	06
Separator for alkaline batteries GSFC-10173	B68-10557	03	Computer subroutine ISUDS accurately solves large system of simultaneous linear algebraic equations NUC-10051	B67-10344	06
High-energy, high-power, long-life battery LEWIS-10724	B69-10131	01	SINE SERIES		
SIMPLIFICATION			Measurement technique for the determination of antenna directivity M-FS-12799	B69-10677	01
Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter NUC-10044	B67-10222	06			
A simplified PERT system M-FS-2267	B67-10241	05			
Simplified method measures changes in tensile yield strength using least number					

SINE WAVES

SUBJECT INDEX

SINE WAVES

Metal diaphragm used to calibrate miniature transducers
M-FS-207 B65-10059 01

Field effect transistor presents high input impedance in ac amplifier
JPL-500 B65-10232 01

Pressure transducers dynamically tested with sinusoidal pressure generator
LEWIS-268 B66-10031 01

Circuit operates as sine function generator
MSC-255 B66-10038 01

Feedback loop compensates for rectifier nonlinearity
M-FS-384 B66-10382 01

Edge-type connectors evaluated by electrical noise measurement
M-FS-2243 B67-10125 01

A modal combination computer program for dynamic analysis of structures
NPO-10129 B67-10217 06

Glow discharge density sensor probe life is extended
M-FS-1707 B67-10229 01

System precisely controls oscillation of vibrating mass
M-FS-1875 B67-10276 01

Improved circuit for measuring capacitive and inductive reactances
M-FS-13083 B67-10513 01

Circuit measures hysteresis loop areas at 30 Hz
M-FS-13069 B67-10519 01

Analysis of dynamic systems with DAP4H computer program
M-FS-13999 B67-10523 06

Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles
LANGLEY-10093 B67-10531 06

Pneumatic pressure wave generator provides economical, simple testing of pressure transducers
NUC-10024 B67-10664 05

Vibration testing and dynamic studies of relays
M-FS-14542 B68-10268 01

Modified sine bar device measures small angles with high accuracy
GSFC-438 B68-10322 02

Flow angle sensor and readout system
LEWIS-90298 B69-10050 01

An unconventional magnetically-coupled multivibrator
HQ-10226 B69-10480 01

Conditioning of pulses from aerosol-particle detectors
ERC-10250 B69-10691 01

SINGLE CRYSTALS

Single-crystal semiconductor films grown on foreign substrates
WOO-076 B66-10225 01

Indium adhesion provides quantitative measure of surface cleanliness
SAN-10024 B68-10342 01

Improved method of dicing integrated circuit wafers into chips
ERC-10138 B69-10441 01

SINGLE SIDEBAND TRANSMISSION

Single-sideband modulator accurately reproduces phase information in 2-Mc signals
M-FS-664 B66-10437 01

SINKING

Wall-thickness changes predicted in hollow-drawn tubing
ARG-10425 B69-10428 02

SINKS

Circuit detects errors in address currents for magnetic core arrays
M-FS-234 B65-10047 01

Improved compression molding process
LANGLEY-10027 B67-10302 03

SINTERING

Improved molybdenum disulfide-silver motor brushes have extended life
M-FS-64 B63-10479 03

New sintering process adjusts magnetic value of ferrite cores
GSFC-129 B63-10606 01

Electron beam seals outer surfaces of porous bodies
M-FS-562 B66-10033 03

Process reduces pore diameters to produce superior filters
WCO-093 B66-10037 03

Fibers of newly developed refractory ceramics produced by improved process
WOO-169 B66-10196 03

Fiber length and orientation prevent migration in fluid filters
M-FS-541 B66-10319 05

Concept for passive system to control gas flow independently of temperature
M-FS-982 B66-10343 05

Combustion chamber struts can be effectively transpiration cooled
M-FS-1830 B66-10643 03

Porous mandrels provide uniform deformation in hydrostatic powder metallurgy
M-FS-1972 B67-10209 03

Fuel cell life improved by metallic sinter activation after electrode assembly
MSC-10965 B67-10436 03

Electron beam selectively seals porous metal filters
LEWIS-10162 B68-10331 05

Grain growth inhibitor for porous tungsten materials
LEWIS-10535 B68-10527 03

Method for controlling density and permeability of sintered powdered metals
LEWIS-10393 B68-10528 03

Sintering characteristics and properties of PuS and PuP are determined
ARG-10228 B69-10058 03

Electrochemical sintering process for producing electrodes from cadmium felt and a nickel or silver grid
GSFC-10764 B69-10227 05

Improved high-temperature silicide coatings
LEWIS-10817 B69-10266 03

Improved inorganic ion exchange membranes
LEWIS-10737 B69-10451 03

Improved retort for cleaning metal powders

SUBJECT INDEX

SLEEVES

with hydrogen LEWIS-10718	B69-10468	03	MSC-299	B66-10118	04
Niobium-uranium alloys with voids of predetermined size and total volume ARG-10490	B69-10641	03	Spray-on electrodes enable EKG monitoring of physically active subjects FRC-36	B66-10649	04
Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06	SKIN (STRUCTURAL MEMBER) Flexible fastener allows thermal expansion LANGLEY-40	B64-10145	05
SITES Site survey for optimum location of Optical Communication Experimental Facility M-FS-13155	B68-10050	06	Application of distorted models in developing scaled structural models M-FS-2540	B67-10321	05
SIZE (DIMENSIONS) Packaging of electronic modules JPL-801	B66-10664	01	SKIN RESISTANCE Improved electrode paste provides reliable measurement of galvanic skin response MSC-146	B66-10049	04
High-torque power wrench, a concept M-FS-18194	B68-10299	05	SLABS Computer simulation of high-frequency combustion instability and its suppression HQ-10391	B69-10368	06
SIZE DETERMINATION Apparatus of small size can be extended into long, rigid boom JPL-305	B63-10200	05	SLEEVES Self sealing disconnect for tubing forms metal seal after breakaway JPL-354	B63-10226	05
System enables dimensional inspection of very large structures M-FS-2477	B67-10214	05	Sleeve and cutter simplify disconnecting welded joint in tubing JPL-384	B63-10240	05
Flare angles measured with ball gage M-FS-14690	B68-10030	01	New coupling compensates for shaft misalignment NU-0013	B65-10077	05
Direct indication of particle size in fluidized beds ARG-10130	B69-10083	05	New nut and sleeve improve flared connections M-FS-194	B65-10180	05
Integrated circuit with multiple collector current source M-FS-20177	B69-10126	01	Electrical probe ensures reliable contact in socket M-FS-315	B65-10215	01
Ion-retarding lens improves the abundance sensitivity of tandem mass spectrometers ARG-10365	B69-10166	02	Shrinkable sleeve eliminates shielding gap in RF cable WOO-207	B65-10387	01
Hydraulic calipers M-FS-18052	B69-10399	05	Noncontacting transducer measures shaft torque M-FS-474	B66-10048	01
SIZE SEPARATION A comparison of two methods of measuring particle size of Al2O3 produced by a small rocket motor NFO-11198	B69-10572	03	Single connector provides safety fuses for multiple lines MSC-199	B66-10050	01
SIZING (SHAPING) Hand tool permits shrink sizing of assembled tubing MSC-504	B66-10239	05	Tool provides constant purge during tube welding M-FS-547	B66-10093	05
SIZING (SURFACE TREATMENT) Degreasing of titanium to minimize stress corrosion LEWIS-382	B67-10147	03	Hand drill adapter limits holes to desired depth MSC-346	B66-10123	05
SIZING SCREENS Fiber length and orientation prevent migration in fluid filters M-FS-541	B66-10319	05	Expandable insert serves as screw anchor MSC-301	B66-10132	05
Electroformed screens with uniform hole size LEWIS-10117	B68-10107	05	Mounting facilitates removal and installation of flame-detector rods M-FS-555	B66-10150	05
SKIN (ANATOMY) Improved electrode gives high-quality biological recordings MSC-17	B64-10025	04	Special tool seals conductors with combination of plastic sleeves M-FS-579	B66-10209	05
Improved conductive paste secures biomedical electrodes MSC-107	B65-10015	03	Insert sleeve prevents tube soldering contamination MSC-552	B66-10238	05
Gelatin coated electrodes allow prolonged bioelectronic measurements MSC-153	B66-10088	01	Tool separates sleeve-type unions without heat MSC-497	B66-10253	05
Integral skin electrode for electrocardiography is expendable			High pressure tube coupling requires no threads or flares MSC-600	B66-10285	05
			Pipe joints reinforced in place with fitted aluminum sleeves MSC-11109	B67-10271	05

SLENDER CONES

SUBJECT INDEX

Braze joint quality tested electromagnetically M-FS-12795	B67-10333	01	
Ultrasonic wrench produces leaktight connections M-FS-12561	B67-10353	05	
Extrusion of small-diameter, thin-wall tungsten tubing LEWIS-90335	B67-10355	05	
Use of color-coded sleeve shutters accelerates oscillograph channel selection KSC-10092	B67-10382	01	
Combined actuator and latch for cartridge powered actuator MSC-11242	B67-10488	05	
Eutectic fuse provides current and thermal protection under high vibration M-FS-13664	B67-10535	01	
Tube swaging device uses explosive force LANGLEY-10092	B68-10235	05	
Dual rate pressure relief valve MSC-11606	B68-10237	05	
Fabrication techniques developed for small-diameter, thin-wall tungsten and tungsten alloy tubing ARG-10100	B68-10284	05	
Between-bearing shaft seal, a concept M-FS-18179	B68-10286	05	
Compressible sleeve provides automatic centering for grinding or turning of cylinders SIN-10021	B68-10318	05	
Fluid sample collection and storage device MSC-10962	B69-10816	05	
SLENDER CONES			
Thin-film gage measures low heat-transfer rates LANGLEY 205	B66-10180	01	
SLEWING			
Developmental instrument supplies accurate attitude and attitude-rate data HQ-57	B66-10607	01	
SLIDING			
Quick-acting clutch disengages idle drive motor GSFC-143	B64-10028	05	
Lifting clamp positively grips structural shapes M-FS-593	B66-10176	05	
Teflon sheet permits valve and valve operator to move as a single unit in a cryogenic pipe line NU-0077	B66-10702	05	
Carriage system remotely moves drawer over extended distance NU-0092	B66-10711	05	
Swing-out rail system separates overhead crane rails NU-0094	B66-10713	05	
Dual rate pressure relief valve MSC-11606	B68-10237	05	
Mechanical properties of a lap joint under uniform clamping pressure M-FS-14538	B69-10141	05	
SLIDING CONTACT			
Gapped toroid provides infinite resolution of delay-line pickup GSFC-370	B65-10258	01	
SLIDING FRICTION			
Fluoride coatings make effective lubricants in molten sodium environment LEWIS-229	B66-10005	03	
Solid-film lubricant is effective at high temperatures in vacuum LEWIS-228	B66-10087	03	
Polymer deformation gage measures thickness change in tensile tests JPL-745	B66-10147	01	
Gallium alloy films investigated for use as boundary lubricants LEWIS-245	B66-10165	03	
Dry film lubricant is effective at extreme loads M-FS-628	B66-10256	03	
Environmental study of miniature slip rings M-FS-2443	B67-10210	05	
Machine tests slow-speed sliding friction in high vacuum M-FS-12341	B67-10379	05	
Solenoid valve design minimizes vibration and sliding wear problem M-FS-14079	B67-10667	05	
Capacitance-coupled wiper increases potentiometer life ARC-10060	B68-10175	01	
A new solid lubricant LEWIS-10812	B69-10250	03	
Breakaway electrical connector NPO-11140	B69-10474	01	
SLIP CASTING			
Refractory ceramic has wide usage, low fabrication cost M-FS-67	B63-10481	03	
Tungsten fiber-reinforced nickel superalloy LEWIS-10424	B68-10369	03	
SLITS			
Slit feeds reduce unbalanced torques in gas-lubricated bearings JPL-264	B65-10099	05	
Electron beam parallel X-ray generator MSC-11022	B67-10372	02	
Improved circularly polarized planar-array antenna NPO-10301	B69-10382	01	
SLOPES			
Composite filter steepens rejection slopes in microwave application GSFC-480	B66-10393	01	
Simplified system displays complex curves corresponding to input data HQ-10073	B69-10247	01	
Improved first order interpolator MSC-11085	B69-10291	02	
Maximum RMS error comparison of several redundancy techniques M-FS-15075	B69-10297	01	
Simple quasi-exponential slope generator NPO-11130	B69-10439	01	
SLOTS			
V-slotted screw head and matching driving tool facilitate insertion and removal of screw fasteners FRC-16	B63-10023	05	
Mill profiler machines soft materials accurately			

SUBJECT INDEX

SODIUM COMPOUNDS

M-FS-692	B66-10254	05	SOAPS		
Gas diffuser facilitates withdrawal of cryogenic liquids from tanks			Instrument calibrates low gas-rate flowmeters		
M-FS-915	B66-10342	05	MSC-134	B65-10137	01
Versatile machine mills, saws light materials			Scribable coating for plastic films		
M-FS-827	B66-10364	05	MSC-11194	B67-10409	03
Mechanism facilitates coating of inner surfaces of metal cylinders			SODIUM		
GSFC-515	B66-10698	05	Metals plated on fluorocarbon polymers		
Tensile testing grips ensure uniform loading of bimetal tubing specimens			JPL-544	B63-10612	03
LEWIS-10267	B68-10248	05	Scribable coating for plastic films		
Gimbal angle sensor			MSC-11194	B67-10409	03
GSFC-10305	B68-10315	01	Proposed gas generation assembly would recover deeply submerged objects		
Adjustable wrench for electronic connectors			SAN-10007	B68-10211	05
M-FS-18547	B69-10184	05	Technical report on galvanic cells with fused-salt electrolytes		
SLUDGE			ARG-10297	B69-10155	01
High-temperature bearing lubricants			Separation of traces of metal ions from sodium matrices		
LEWIS-10408	B68-10249	05	ARG-10341	B69-10168	03
SLURRIES			Thermophysical properties of sodium		
Vacuum forming of thermoplastic sheet results in low-cost investment casting patterns			ARG-10363	B69-10240	03
ARC-7	B63-10008	05	Zone purification of potassium chloride		
Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons			ARG-10377	B69-10241	03
LEWIS-263	B66-10104	03	Analysis of cell performance and thermal regeneration of a lithium-tin cell having an immobilized fused-salt electrolyte		
Storage-stable foamable polyurethane is activated by heat			ARG-10453	B69-10627	03
LANGLEY-187	B66-10111	03	SODIUM ALLOYS		
Freon provides heat transfer for solid CO2 calibration standard			New bimetallic EMF cell shows promise in direct energy conversion		
M-FS-644	B66-10257	02	ARG-10183	B68-10415	01
Process produces chlorinated aromatic isocyanate in high yield			SODIUM AZIDES		
M-FS-1658	B66-10646	03	Process produces chlorinated aromatic isocyanate in high yield		
Valve effectively controls amount of contaminant in flow stream			M-FS-1658	B66-10646	03
M-FS-1771	B66-10683	05	SODIUM CHLORIDES		
Coating protects magnesium-lithium alloys against corrosion			Study of stress corrosion in aluminum alloys		
M-FS-2446	B67-10149	03	M-FS-13906	B67-10533	03
Tungsten fiber-reinforced nickel superalloy			Preparation of silver-activated zinc sulfide thin films		
LEWIS-10424	B68-10369	03	GSFC-10687	B68-10271	03
Hydrostatic testing of porous assemblies			Electromotive series established for metals used in aerospace technology		
M-FS-18298	B68-10439	05	M-FS-18327	B68-10385	03
Improved high-temperature silicide coatings			A rapid stress-corrosion test for aluminum alloys		
LEWIS-10817	B69-10266	03	M-FS-20175	B68-10536	03
SLUSH			Production of metals and compounds by radiation chemistry		
Study of hydrogen slush-hydrogen gel utilization			LEWIS-10231	B69-10123	03
M-FS-13068	B67-10413	02	Calibration of a resistance thermometer down to 0.04 degrees K		
SHEAR			ARG-10318	B69-10149	01
Concept for modifying drafting instruments to minimize smearing			SODIUM CHROMITES		
KSC-10056	B67-10283	05	Vibration damping composition has flush-away feature		
SMOOTHING			M-FS-597	B67-10432	03
Device spot-laps spheres to very close tolerances			SODIUM COMPOUNDS		
JPL-SC-119	B66-10175	05	Crack detection method is safe in presence of liquid oxygen		
Improved method facilitates debulking and curing of phenolic impregnated asbestos			M-FS-236	B65-10107	03
MSC-949	B66-10459	05	Submicron metal powders produced by ball milling with grinding aids		
SOAKING			LEWIS-188	B66-10221	03
A method for precision anodize stripping			Chemical milling solution produces smooth surface finish on aluminum		
MSC-15040	B69-10581	03	MSC-549	B66-10312	03

SODIUM FLUORIDES

SUBJECT INDEX

Sea dye marker provides visibility for 20 hours MSC-714	B66-10313	03	NPO-11171	B69-10304	04
Dispersion of borax in plastic is excellent fire-retardant heat insulator ARG-5	B67-10016	03	Life detection NPO-10510	B69-10475	04
Improved chlorate candle provides concentrated oxygen source MSC-1137	B67-10095	03	Desert soil collection at the JPL soil science laboratory NPO-11206	B69-10571	04
Self-balancing line-reversal pyrometer automatically measures gas temperatures LEWIS-348	B67-10268	01	SOILS Microorganisms detected by enzyme-catalyzed reaction JPL-782	B66-10117	04
Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination ARG-262	B67-10421	03	Extendable mast used in one shot soil penetrometer JPL-685	B66-10146	05
Spectrophotometric technique quantitatively determines NaMBT inhibitor in ethylene glycol-water solutions MSC-11496	B67-10573	03	Post-stressed concrete foundation may reduce machinery vibration ARG-130	B67-10237	05
Improved process for making thin-film sodium niobate capacitors MSC-11231	B68-10163	01	Tool samples subsurface soil free of surface contaminants MSC-10988	B67-10473	05
Detection sensitivities in 3-8 MeV neutron activation ARG-10210	B68-10298	02	Sampling and handling of desert soils NPO-11171	B69-10304	04
Improved pH buffering agent for sodium hypochlorite MSC-15443	B69-10084	03	Desert soil collection at the JPL soil science laboratory NPO-11206	B69-10571	04
Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01	SOLAR ATMOSPHERE Design of multilayer insulation systems ARC-10166	B69-10615	05
SODIUM FLUORIDES Pure xenon hexafluoride prepared for thermal properties studies ARG-10056	B67-10577	03	SOLAR CELLS Cuprous selenide and sulfide form improved photovoltaic barriers WOO-212	B66-10025	01
SODIUM HYDRIDES Quantitative determination of flavin nucleotide using the bacterial bioluminescent reaction GSFC-10565	B69-10715	04	Assembly jig assures reliable solar cell modules GSFC-455	B66-10040	05
SODIUM IODIDES Radioactive method enables determination of surface areas rapidly and accurately NU-0088	B66-10710	03	Aluminum doping improves silicon solar cells LEWIS-206	B66-10181	02
SODIUM SALICYLATES Plastic scintillator converts standard photomultiplier to ultraviolet range ERC-9	B66-10108	02	Tool permits damage-free removal of solar cell GSFC-467	B66-10219	05
SODIUM VAPOR Performance of low-pressure thermionic converters is evaluated ARG-10276	B69-10090	01	Solar cell submodule design facilitates assembly of lightweight arrays JPL-728	B66-10231	02
SOFTNESS Adjustable knife cuts honeycomb material to specified depth MSC-475	B66-10237	05	Low input voltage converter/regulator minimizes external disturbances GSFC-527	B66-10689	01
Mill profiler machines soft materials accurately M-FS-692	B66-10254	05	Control circuit ensures solar cell operation at maximum power GSFC-432	B67-10061	01
Environmental study of miniature slip rings M-FS-2443	B67-10210	05	Simplified method introduces drift fields into cells GSFC-572	B67-10102	03
SOIL MECHANICS Extendible column can be stowed on drum JPL-686	B65-10191	05	Process controls introduction of selected impurities into semiconductor wafers GSFC-523	B67-10303	01
SOIL SCIENCE Extendable mast used in one shot soil penetrometer JPL-685	B66-10146	05	Converter provides constant electrical power at various output voltages GSFC-519	B67-10481	01
Sampling and handling of desert soils			Composite solar cell matrix is reliable, lightweight and flexible NPO-10821	B67-10503	01
			Areas of irregular, discontinuous patterns rapidly and accurately measured GSFC-10184	B67-10674	01
			Silicon solar cell monitors high temperature furnace operation NUC-10163	B68-10148	01
			Automatic solar lamp intensity control		

SUBJECT INDEX

SOLDERED JOINTS

system XGS-10017	B68-10399	01	Structural thermal-control coatings NPO-10785	B68-10553	03
Electron beam recrystallization of amorphous semiconductor materials LEWIS-10443	B68-10556	02	Dewpoint temperature inversions analyzed ARG-10316	B69-10057	02
The Quantasyn, an improved quantum detector ERC-10148	B69-10443	01	SOLAR SENSORS Solar-angle sensor has no moving parts JPL-418	B63-10260	02
Optimizing solar-cell grid geometry HQ-10417	B69-10460	01	Telescope dcme control system automatically tracks sun MSC-10966	B68-10521	02
Magnetic field mapper LEWIS-10782	B69-10476	01	A polar graphic method for determining the attitude of rocket vehicles GSFC-10860	B69-10591	02
SOLAR COLLECTORS Wide-aperture solar energy collector is light in weight JPL-SC-055	B65-10046	02	SOLAR SIMULATION Water cooled anode increases life of high temperature arc lamp NPO-10180	B67-10247	02
Cone and column solar energy concentrator LANGLEY-210	B67-10517	01	SOLAR SIMULATORS Ellipsoidal optical reflectors reproduced by electroforming GSFC-92	B63-10547	05
SOLAR ENERGY Wide-aperture solar energy collector is light in weight JPL-SC-055	B65-10046	02	Automatic solar lamp intensity control system XGS-10017	B68-10399	01
Modular thermoelectric cell is easily packaged in various arrays GSFC-339	B65-10199	01	SOLAR SPECTRA Airborne Fraunhofer Line Discriminator MSC-13146	B69-10594	02
Emergency solar still desalts seawater MSC-135	B65-10214	03	SOLAR SYSTEM Analog solar system model relates celestial bodies spatially JPL-195	B66-10413	01
Cone and column solar energy concentrator LANGLEY-210	B67-10517	01	Electronic shutter gates image orthicon on and off HQ-96	B67-10270	01
Electrochemical cell has internal resistive heater element GSFC-10358	B68-10325	01	SOLAR WIND Miniaturized high-resolution mass/charge spectrograph /design study/ MSC-13279	B69-10554	02
Balloon batteries, charged and heated by solar energy GSFC-10769	B69-10585	01	SOLAR X-RAYS Solar X-ray spectrum reproduced in vacuum MSC-228	B67-10164	02
Gamma radiation characteristics of plutonium dioxide fuel NPO-11220	B69-10733	02	SOLDERED JOINTS Improved solderless connector is easily disconnected JPL-SC-060	B65-10197	01
SOLAR FLARES Solar activity history model M-FS-20529	B69-10776	01	Soldering tool heats workpieces and applies solder in one operation LEWIS-247	B66-10115	05
SOLAR ORBITS Computer program for interplanetary conic patching M-FS-14296	B68-10033	06	Telescoping of instrumentation tubing eliminates swaging M-FS-546	B66-10116	05
SOLAR RADIATION Simple control device senses solar position JPL-638	B65-10061	01	Bismuth alloy potting seals aluminum connector in cryogenic application WOO-260	B66-10138	03
Multiple element soft X-ray source produces wide range of radiation GSFC-286	B65-10082	02	Solar cell submodule design facilitates assembly of lightweight arrays JPL-728	B66-10231	02
Optical device enables small detector to see large field of view WOO-253	B66-10263	02	Insert sleeve prevents tube soldering contamination MSC-552	B66-10238	05
Hydrogen fire detection system features sharp discrimination M-FS-643	B66-10368	01	Pipe joints reinforced in place with fitted aluminum sleeves MSC-11109	B67-10271	05
Dielectrometer design permits measurement in vacuum under irradiation M-FS-359	B66-10401	01	Reparable, high-density microelectronic module provides effective heat sink M-FS-13075	B67-10356	01
Special purpose reflectometer uses modified ulbright sphere MSC-1135	B67-10109	02	Inspection criteria ensure quality control of parallel gap soldering		
Multichannel pulse height analyzer is inexpensive, features low power requirements HQN-10020	B67-10258	01			

SOLDERING

SUBJECT INDEX

M-FS-14530	B68-10257	05	ARC-57	B66-10203	01
Breakaway electrical connector NPO-11140	B69-10474	01	Tool permits damage-free removal of solar cell GSFC-467	B66-10219	05
Investigation of the development of cracks in solder joints M-FS-20444	B69-10807	01	Insert sleeve prevents tube soldering contamination MSC-552	B66-10238	05
SOLDERING			Modified soldering iron speeds cutting of synthetic materials M-FS-725	B66-10246	05
Improved variable-reluctance transducer measures transient pressures LANGLEY-10	B63-10321	01	Copper wire plated with nickel and silver resists corrosion M-FS-761	B66-10421	03
Flexible honeycomb structure can bend to fit compound curves M-FS-13	B63-10385	05	Substituting gold for silver improves electrical connections M-FS-2390	B67-10228	03
Cesium iodide crystals fused to vacuum tube faceplates GSFC-67	B63-10476	03	Polarized light reveals stress in machined laminated plastics LEWIS-10018	B67-10383	03
Hot-air soldering technique prevents overheating of electrical components GSFC-91	B63-10536	01	Composite solar cell matrix is reliable, lightweight and flexible NPO-10821	B67-10503	01
Metals plated on fluorocarbon polymers JPL-544	B63-10612	03	Thermal resistances of solder-boss/potting compound combinations MSC-12074	B68-10157	01
Circuit reliability boosted by soldering pins of disconnect plugs to sockets JPL-447	B64-10002	01	Miniature pressure transducer for stressed member application MSC-11869	B68-10246	01
Modified RF coaxial connector ends vacuum chamber wiring problem GSFC-150	B64-10010	01	Inspection criteria ensure quality control of parallel gap soldering M-FS-14530	B68-10257	05
Compact coaxial connector for printed circuit adds reliability MSC-57	B64-10016	01	Standards for compatibility of printed circuit and component lead materials M-FS-14531	B68-10310	01
Molded elastomer provides compact ferrite-core holder, simplifies assembly JPL-584	B64-10084	05	Fixture facilitates soldering operations M-FS-14456	B68-10573	05
High-pass RF coaxial filter rejects dc and low frequency signals GSFC-73	B64-10173	01	Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04
Solder flux leaves corrosion-resistant coating on metal JPL-611	B64-10206	03	Novel terminal strips for transformers NPO-10842	B69-10246	01
Mounting for diodes provides efficient heat sink M-FS-197	B64-10283	01	Welding, brazing, and soldering handbook M-FS-20504	B69-10264	05
Optical arrangement increases useful light output of semiconductor diodes JPL-SC-064	B65-10020	05	SOLDERS		
Thermistor connector assembly increases accuracy of measurements LANGLEY-62	B65-10045	01	Modular thermoelectric cell is easily packaged in various arrays GSFC-339	B65-10199	01
Feed-through has polyterminal feature M-FS-25	B65-10057	01	Telescoping of instrumentation tubing eliminates swaging M-FS-546	B66-10116	05
Probe tests microweld strength WOO-118	B65-10111	05	Braze alloys used as temperature indicators NU-0063	B66-10274	01
High permeability semiconductors permit close-tolerance soldering GSFC-319	B65-10134	05	Solubility data are compiled for metals in liquid zinc ARG-149	B67-10191	03
Assembly jig assures reliable solar cell modules GSFC-455	B66-10040	05	Device for reflowing electrodeposited solder on terminals M-FS-13821	B69-10670	01
Soldering tool heats workpieces and applies solder in one operation LEWIS-247	B66-10115	05	SOLENOID VALVES		
Fixture aids soldering of electronic components on circuit board ARC-56	B66-10162	01	Circuit exhibits power efficiency greater than 75 percent MSC-254	B66-10034	01
Soldering iron temperature is automatically reduced			High-pressure, low temperature electrical connector makes no-leak seal MSC-276	B66-10079	02
			Radioactive tracer system detects oil contaminants in fluid lines		

SUBJECT INDEX

SOLENOIDS

M-FS-512	B66-10090	03	Electromechanically operated camera shutter provides uniform exposure	JPL-357	B63-10227	01	
System proportions fluid-flow in response to demand signals	GSFC-457	B66-10094	01	Camera shutter is actuated by electric signal	ARC-20	B63-10560	05
Economical and maintenance-free gas system operates railroad switches	NU-0045	B66-10124	05	Improved magnetometer uses toroidal gating coil	GSFC-249	B65-10103	01
Flow ring valve is simple, quick-acting	M-FS-752	B66-10255	05	System measures unidirectional forces, excludes extraneous forces	LEWIS-170	B65-10154	05
Modified hydraulic braking system limits angular deceleration to safe values	GSFC-476	B66-10310	05	Device disconnects several couplings simultaneously	JPL-226	B65-10163	05
Automatic protective vent has fail-safe feature	LANGLEY-218	B66-10369	05	Force controlled solenoid drives microweld tester	WOO-125	B65-10182	01
Monitoring circuit accurately measures movement of solenoid valve	M-FS-1829	B66-10568	01	Gapped toroid provides infinite resolution of delay-line pickup	GSFC-370	B65-10258	01
Cryogenic fluid sampling device permits testing under hazardous conditions	M-FS-1927	B66-10654	02	Multiple test chamber exposes materials to various environments	MSC-179	B65-10268	01
Variable-pulse switching circuit accurately controls solenoid-valve actuations	M-FS-1895	B67-10022	01	Optical output enhances flowmeter accuracy	M-FS-482	B65-10395	02
High speed blowdown system provides rapid pressure loss	LEWIS-375	B67-10043	05	Pneumatic binary encoder replaces multiple solenoid system	M-FS-665	B66-10374	01
Solenoid valve design has one moving part	NPO-10039	B67-10219	05	Solenoid magnetic fields calculated from superposed semi-infinite solenoids	LEWIS-184	B66-10490	01
Dual photochemical replenisher system reduces chemical losses	KSC-67-111	B67-10485	02	A continuously operating source of vacuum ultraviolet below 500 angstrom	GSFC-545	B66-10576	01
Automatic transducer switching provides accurate wide range measurement of pressure differential	NUC-10001	B67-10540	01	Power arc welder touch-started with consumable electrode	M-FS-1485	B66-10641	05
Continuous microbial cultures maintained by electronically-controlled device	ARG-177	B67-10556	04	Fuel and oxidizer valve assembly employs single solenoid actuator	MSC-1046	B66-10648	05
Test system accurately determines tensile properties of irradiated metals at cryogenic temperatures	NUC-10521	B67-10617	02	Simple technique determines ac properties of hard superconductive materials	M-FS-1818	B66-10657	02
Environmental control system for cryogenic testing of tensile specimens	NUC-10523	B67-10618	02	Logic circuitry used to automatically test shielded cables	HQ-60	B66-10659	01
Fire extinguisher control system provides reliable cold weather operation	M-FS-13031	B67-10622	05	Residual magnetism holds solenoid armature in desired position	LEWIS-343	B67-10038	01
Ferromagnetic core valve gives rapid action on minimum energy	LEWIS-10135	B67-10623	05	Simple pump maintains liquid helium level in cryostat	M-FS-1763	B67-10039	05
Solenoid hammer valve developed for quick-opening requirements	LEWIS-10134	B67-10639	05	High-torque power wrench, a concept	M-FS-18194	B68-10299	05
Solenoid valve design minimizes vibration and sliding wear problem	M-FS-14079	B67-10667	05	High-speed pulse camera	MSC-11353	B68-10329	02
Calibratable solid-state pressure switch	M-FS-20474	B69-10437	05	Temperature or pressure controller	LEWIS-10297	B68-10337	01
SOLENOIDS				Propagation of density disturbances in air-water flow	ARG-10260	B69-10043	02
Solenoid permits remote control of stop watch and assures restarting	FRC-17	B63-10024	01	Continuous analysis of nitrogen dioxide in gas streams of plants	ARG-10356	B69-10254	03
Stepping switch with simple actuator provides many contacts in small space	JEL-122	B63-10118	01	Separation simulator	KSC-67-15	B69-10315	01

SOLID LUBRICANTS

SUBJECT INDEX

Automatic filter-blowback systems used with sintered-metal filters ARG-10324	B69-10342	05	Study of actinide chemistry in saturated potassium fluoride solution ARG-10204	B69-10004	03
Testing the flammability of materials exposed to arcs MSC-15225	B69-10531	03	Flow properties of suspensions rich in solids ARG-10481	B69-10622	02
Improved solenoid valve design GSFC-10607	B69-10704	05	SOLID STATE Thoriated nickel bonded by solid-state diffusion method LANGLEY-116	B65-10220	03
SOLID LUBRICANTS Fluoride coatings make effective lubricants in molten sodium environment LEWIS-229	B66-10005	03	Primary cells utilize halogen-organic charge transfer complex JPL-926	B66-10682	02
Friction device damps linear motion of rotating shaft WOO-214	B66-10030	05	Electronic aperture control devised for solid state imaging system M-FS-12428	B68-10028	01
Polytetrafluoroethylene lubricates ball bearings in vacuum environment M-FS-379	B66-10081	03	Welding, brazing, and soldering handbook M-FS-20504	B69-10264	05
Solid-film lubricant is effective at high temperatures in vacuum LEWIS-228	B66-10087	03	Metallic diffusion measured by a modified Knudsen technique HQ-10145	B69-10309	03
Dry film lubricant is effective at extreme loads M-FS-628	B66-10256	03	Epitaxial crystalline growth upon cold substrates MSC-11196	B69-10494	01
Composites of porous metal and solid lubricants increase bearing life LEWIS-307	B67-10007	03	SOLID STATE DEVICES High efficient square-wave oscillator operator at high power levels GSFC-112	B63-10554	01
Environmental study of miniature slip rings M-FS-2443	B67-10210	05	Digital cardiometer computes and displays heartbeat rate MSC-93	B64-10258	01
Development of lunar drill to take core samples to 100-foot depths M-FS-13015	B67-10529	05	Logarithmic amplifier uses field effect transistors JPL-509	B65-10145	01
Bearings use dry self-lubricating cage materials LEWIS-10432	B68-10165	05	Analog-to-digital converter has increased reliability and reduced power consumption GSFC-246	B65-10194	01
Application of the solid lubricant molybdenum disulfide by sputtering LEWIS-10544	B68-10340	03	Tiny biomedical amplifier combines high performance, low power drain ARC-41	B65-10203	01
Evaluation of lubricants for ball bearings at high temperatures LEWIS-10578	B69-10025	03	Thin-film resistors used in functional electronic blocks GSFC-380	B65-10305	01
Self-lubricating gear M-FS-14971	B69-10408	05	Electronic ampere-hour integrator is accurate to one percent GSFC-203	B65-10308	01
SOLID PHASES Solubility data are compiled for metals in liquid zinc ARG-149	B67-10191	03	Threshold detector produces narrow pulses at high repetition rates GSFC-383	B65-10310	01
SOLID PROPELLANT ROCKET ENGINES Study of vortex valve for medium temperature solid propellants LANGLEY-204	B66-10524	01	Hybrid circuit achieves pulse regeneration with low power drain GSFC-382	B65-10314	01
Cold solid propellant motor has stop-restart capability JPL-836	B66-10673	03	Instrument performs nondestructive chemical analysis, data can be telemetered JPL-SC-078	B65-10317	01
SOLID SOLUTIONS Brazing method produces solid-solution bond between refractory metals LEWIS-212	B65-10370	05	Ring counter circuit switches multiphase motor direction of rotation JPL-SC-166	B66-10101	01
Braze alloy holds bonding strength over wide temperature range LEWIS-337	B66-10519	03	Optical gyro pickoff operates at cryogenic temperatures M-FS-407	B66-10128	01
New tungsten alloy has high strength at elevated temperatures LEWIS-336	B66-10551	03	Solid state thermostat has integral probe and circuitry M-FS-434	B66-10193	01
Tantalum alloys resist creep deformation at elevated temperatures LEWIS-350	B66-10558	03	Circuit provides accurate four-quadrant multiplication WOO-272	B66-10331	02

SUBJECT INDEX

SOLIDS

Solid-state switch increases switching speed WOO-298	B66-10430	01	A 35 GHz solid state transmitter/driver M-FS-20152	B68-10545	01
Single-sideband modulator accurately reproduces phase information in 2-Mc signals M-FS-664	B66-10437	01	Isolated, multiple-output voltage dc-to-dc converter M-FS-14976	B69-10014	01
Instrument automatically selects peak acceleration signal from several accelerometers JPL-816	B66-10462	01	Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01
Solid state circuit switches ac load JPL-798	B66-10465	01	Radiation tolerant silicon nitride insulated gate field effect transistors GSFC-10581	B69-10253	01
Solid state circuit controls direction, speed, and braking of dc motor JPL-757	B66-10486	01	Semiautomatic inspection of microfilm records M-FS-20240	B69-10301	02
Solid state annunciator facilitates complex system troubleshooting M-FS-1258	B66-10505	01	Foot-operated cell-counter ARG-10315	B69-10351	01
A fast-neutron spectrometer of advanced design M-FS-1664	B66-10555	01	Improved dc voltage regulator IKS-06467	B69-10369	01
Miniature telemetry system accurately measures pressure ARC-74	B66-10624	01	Technique for improving solid state mosaic images M-FS-20532	B69-10676	01
Solid-state recoverable fuse functions as circuit breaker GSFC-560	B66-10691	01	SOLID STATE LASERS Solid-state laser transmitter is amplitude modulated MSC-121	B65-10238	01
Variable-pulse switching circuit accurately controls solenoid-valve actuations M-FS-1895	B67-10022	01	SOLID SURFACES Electron beam seals outer surfaces of porous bodies M-FS-562	B66-10033	03
Solid-state time-to-pulse-height converter developed ARG-170	B67-10053	01	Surface profilometer for examining grain-boundary grooves ARG-10290	B69-10345	05
Hybrid solid state switch replaces motor- driven power switch JPL-931	B67-10165	01	SOLID SUSPENSIONS Colloidal suspension simulates linear dynamic pressure profile WOO-266	B66-10214	05
Low speed, long term tracking electric drive system has zero backlash NPO-10173	B67-10220	01	Standards for electron probe microanalysis of silicates prepared by convenient method GSFC-469	B66-10234	03
Laboratory pulse modulator uses minority carrier storage diodes M-FS-2442	B67-10226	01	Flow properties of suspensions rich in solids ARG-10481	B69-10622	02
Solid state circuit averages multiple signals and rejects those varying significantly from the average NUC-10066	B67-10262	01	SOLIDIFICATION Single-crystal semiconductor films grown on foreign substrates WOO-076	B66-10225	01
Primary cell uses neither liquid nor fused electrolytes NPO-10001	B67-10275	01	Study made of ductility limitations of aluminum-silicon alloys M-FS-12524	B67-10392	03
Solid state single-ended switching dc-to-dc converter M-FS-13598	B67-10558	01	Nickel-base superalloy's excellent properties promote its service to 2200 degrees F LEWIS-10355	B68-10380	03
Solid state zero-bias bilateral switch GSFC-532	B67-10559	01	Levitation-melting technique for metals and alloys ARG-10240	B69-10006	03
Teleprinter uses thermal printing technique MSC-11327	B67-10572	01	Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03
Cardiotachometer with linear beat-to-beat frequency response ARC-10033	B67-10598	01	SOLIDIFIED GASES Development of dual solid cryogens for high reliability refrigeration system GSFC-10188	B67-10644	02
Concept for sleeve induction motor with 1-msec mechanical time constant ARG-10124	B68-10185	01	SOLIDS Computer program calculates steady-state temperature distribution within plane or axisymmetric solids NUC-10049	B67-10224	06
Solid state high-voltage pulser operates with low supply voltage M-FS-14034	B68-10308	01			
Temperature or pressure controller LEWIS-10297	B68-10337	01			

SOLUBILITY

SUBJECT INDEX

Computer program MCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid NUC-10042	B67-10456	06	Self-sealing closure enables access to several fluid containers NPO-10123	B67-10207	04
Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid NUC-10043	B67-10457	06	Trace hydrazines in aqueous solutions accurately determined by gas chromatography MSC-11222	B67-10290	03
Bimetal sensor averages temperature of nonuniform profile LEWIS-10362	B68-10007	01	Sensitive bridge circuit measures conductance of low-conductivity electrolyte solutions ARG-147	B67-10294	01
Thermal conductivity and dielectric constant of silicate materials M-FS-14856	B68-10351	03	Chemical milling solution reveals stress corrosion cracks in titanium alloy LANGLEY-10077	B67-10322	03
A new solid lubricant LEWIS-10812	B69-10250	03	Large volume continuous counterflow dialyzer has high efficiency HQ-10055	B67-10395	04
Spiral-flow apparatus for measuring permeation of solids by gases M-FS-16517	B69-10357	03	Study of stress corrosion in aluminum alloys M-FS-13906	B67-10533	03
SOLUBILITY			Electromotive series established for metals used in aerospace technology M-FS-18327	B68-10385	03
Combustion chamber inlet manifold separates vapor from liquid M-FS-531	B66-10052	05	Primary radical yields in pulse irradiated alkaline aqueous solution ARG-10322	B69-10167	02
Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys ARG-199	B66-10594	03	Method for copper staining of germanium crystals ARG-10403	B69-10257	03
Effects of helium and nitrogen as pressurants in nitrogen tetroxide transfer MSC-924	B67-10083	03	A method for precision anodize stripping MSC-15040	B69-10581	03
New class of compounds have very low vapor pressures ARG-115	B67-10184	03	SOLVENT EXTRACTION		
Solubility data are compiled for metals in liquid zinc ARG-149	B67-10191	03	Silver-palladium braze alloy recovered from masking materials M-FS-1845	B66-10631	03
Metabolic and toxicological effects of water-soluble xenon compounds are studied ARG-90239	B68-10076	04	SOLVENTS		
Study of actinide chemistry in saturated potassium fluoride solution ARG-10204	B69-10004	03	Method of welding joint in closed vessel improves quality of seam JPL-170	B63-10139	05
Spectrographic analysis of bismuth-tin eutectic alloys by spark-ignited low-voltage ac-arc excitation ARG-10288	B69-10081	03	Fine-mesh screen made by simplified method WOO-104	B64-10282	03
Direct measurement of carbon-14 in carbon dioxide by liquid scintillation counting ARG-10237	B69-10092	03	Modification increases light output of injection-luminescent diodes M-FS-192	B65-10006	01
Technique for highly efficient recovery of microbiological contaminants MSC-13250	B69-10273	04	Miniature bearings lubricated by sonic dispersion method M-FS-202	B65-10106	03
Water-glycol system volume calculation MSC-15193	B69-10563	02	Soluble undercoating facilitates removal of foamed-in-place insulation LEWIS-193	B65-10344	03
Electrolytic separation of crystals of transition-metal oxides ARG-10506	B69-10642	03	Surfactant for dye-penetrant inspection is insensitive to liquid oxygen M-FS-475	B66-10131	03
SOLUTION			Solvent residue content measured by light scattering technique M-FS-850	B66-10320	01
Solution of differential equations by application of transformation groups M-FS-14802	B68-10276	02	Sprayable birefringent coating enables strain measurements on large surfaces M-FS-1484	B66-10578	03
SOLUTIONS			Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys ARG-199	B66-10594	03
Solubility data are compiled for metals in liquid zinc ARG-149	B67-10191	03	Degreasing of titanium to minimize stress corrosion LEWIS-382	B67-10147	03
Electronic circuitry used to automate paper chromatography JPL-840	B67-10201	01	Liquid oxygen dicting cleaned by falling film method M-FS-11816	B67-10299	03

SUBJECT INDEX

SPACE EXPLORATION

Adhesives for laminating polyimide insulated flat conductor cable M-FS-12066	B67-10429	03	MSC-11026	B68-10010	02
Solvent permits solid curing agents to be used at room temperatures M-FS-13434	B67-10593	03	SOUND WAVES Small foamed polystyrene shield protects low-frequency microphones from wind noise M-FS-123	B63-10579	01
Effects of surface preparation on quality of aluminum alloy weldments M-FS-13152	B68-10302	03	Ultrasonic emission method enables testing of adhesive bonds M-FS-799	B66-10341	01
Welded repairs of punctured thin-walled aluminum pressure vessels M-FS-14836	B69-10051	05	Study of random process theory aids digital data processing M-FS-1475	B67-10309	06
Induction probe determines levels of liquid metals ARG-10348	B69-10256	03	Noise study of single stage compressor rotor-stator interaction LANGLEY-137	B67-10516	02
Apparatus automatically measures soluble residue content of volatile solvents SAN-10032	B69-10292	03	Acoustic wave analysis M-FS-18076	B68-10265	02
Coordination chemistry in fused-salt solutions ARG-10469	B69-10423	03	An ultrasonic method for studying elastic moduli as a function of temperature ARG-10187	B69-10082	02
Freon, T-B1 cutting fluid MSC-11486	B69-10485	05	Experimental design for research on shock-turbulence interaction M-FS-20031	B69-10604	02
Technique for ultrasonic cleaning with volatile solvents eliminates need for hoods or condensers MSC-15611	B69-10552	03	SOUNDING Tracer of electrical conduit or pipes MSC-15223	B69-10347	01
SONAR System locates randomly placed remote objects LANGLEY-209	B66-10315	01	SOUNDING ROCKETS Rocket sonde measurements of ozone in the upper atmosphere GSFC-10580	B69-10077	02
SONIC BOOMS Computer program calculates sonic-boom pressure signatures LANGLEY-10096	B67-10489	06	SOURCES Circuit detects errors in address currents for magnetic core arrays M-FS-234	B65-10047	01
Sonic boom propagation in stratified atmosphere LANGLEY-10480	B69-10391	06	SPACE CHARGE Potassium plasma cell facilitates thermionic energy conversion process ARG-10010	B67-10399	01
SORPTION Comparative chromatography of chloroplast pigment ARG-10415	B69-10425	03	Thin film thermal detector JPL-943	B67-10505	01
SOUND AMPLIFICATION Noise figure measurement concept for acoustic amplifiers GSFC-10066	B68-10272	01	SPACE COMMUNICATION Personal communication system combines high performance with miniaturization MSC-720	B67-10119	01
Power consumption in acoustic amplifiers under conditions of maximum stable gain GSFC-10067	B68-10327	01	Deep space FM system, a concept MSC-11825	B68-10289	01
SOUND FIELDS Study made of interaction between sound fields and structural vibrations HQ-26	B67-10068	02	A positive taper traveling-wave tube LANGLEY-10263	B69-10407	01
SOUND GENERATORS Device detects unbonded areas in plastic laminates WOO-206	B65-10380	01	Estimation of signal-to-noise ratios XNP-05254	B69-10557	01
System enables more complete calibrations of dynamic-pressure transducers M-FS-2063	B67-10099	01	SPACE DETECTION AND TRACKING SYSTEM An investigation of phase-lock loop swept-frequency synchronization M-FS-656	B66-10423	01
SOUND INTENSITY Device enables calibration of microphones at high sound pressure levels M-FS-11980	B67-10336	01	SPACE ENVIRONMENT SIMULATION Mechanical properties of wire insulation automatically determined MSC-10983	B67-10370	01
SOUND PRESSURE Electronic dummy for acoustical testing MSC-206	B67-10298	01	Concept for cryogenic liquid reclamation system NPO-10322	B67-10420	02
SOUND TRANSMISSION Flow tube used to cool solar-pumped laser			SPACE EXPLORATION Solid-state switching used to speed up capacitive integrator LANGLEY-104	B65-10159	01
			Computer program for interplanetary conic patching M-FS-14296	B68-10033	06

SUBJECT INDEX

I-612

SUBJECT INDEX

SPACECRAFT MANEUVERS

Development of dual solid cryogens for high reliability refrigeration system GSFC-10188	B67-10644	02	Evaluation of high temperature stranded hookup wire M-FS-2478	B67-10122	03
Improved phase-shift-keyed detector M-FS-20064	B69-10101	01	Hybrid solid state switch replaces motor-driven power switch JPL-931	B67-10165	01
SPACECRAFT COMPONENTS			Bacteriostatic conformal coating for electronic components GSFC-10007	B67-10599	03
Improved sensor counts micrometeoroid penetrations LEWIS-76	B63-10443	01	Gamma radiation characteristics of plutonium dioxide fuel NPO-11220	B69-10733	02
Apparatus alters position of objects to facilitate demagnetization GSFC-234	B64-10277	05	SPACECRAFT ENVIRONMENTS		
Titanium treatment improves brazed joints MSC-127	B65-10153	05	Liquid switch is remotely operated by low dc voltage GSFC-119	B63-10599	01
Computer program uses Monte Carlo techniques for statistical system performance analysis M-FS-2234	B67-10306	06	Phonocardiograph system monitors heart sounds MSC-185	B66-10154	04
Tube swaging device uses explosive force LANGLEY-10092	B68-10235	05	Method for X-ray study under extreme temperature and pressure conditions MSC-11232	B67-10474	02
LM lookangle program MSC-13179	B69-10370	06	Food products for space applications MSC-11697	B68-10324	04
SPACECRAFT CONFIGURATIONS			Helical recorder GSFC-10614	B69-10340	01
Conceptual nonorthogonal gyro configuration for guidance and navigation MSC-11363	B67-10433	01	Spacecraft Thermal Radiation Environment Computer Program M-FS-15054	B69-10574	06
SPACECRAFT CONSTRUCTION MATERIALS			SPACECRAFT GUIDANCE		
Investigation of spacecraft coatings M-FS-20458	B69-10181	06	Star/horizon simulator used to test space guidance system MSC-407	B67-10110	02
Replacement of fluid-filter elements without interruption of flow MSC-15499	B69-10245	05	Hydrogen maser as a highly stable frequency reference M-FS-2437	B67-10146	01
Improved high-temperature silicide coatings LEWIS-10817	B69-10266	03	Study indicates fluid digital computation systems are feasible M-FS-520	B67-10181	01
Handbook for design of containers of fluids and gases for spacecraft M-FS-20502	B69-10279	05	Advanced mission analysis programs GSFC-10575	B69-10171	06
SPACECRAFT CONTROL			SPACECRAFT INSTRUMENTS		
Knob linkage permits one-hand control of several operations MSC-30	B65-10022	05	Rectilinear display gives acceleration load factor and velocity information MSC-1045	B67-10248	01
Plated nickel wire mesh makes superior catalyst bed MSC-216	B65-10321	03	IR vidicon scanner monitors many test points M-FS-1937	B67-10277	01
A modal combination computer program for dynamic analysis of structures NPO-10129	B67-10217	06	Improved calorimeter provides accurate thermal measurements of space batteries GSFC-10003A	B67-10615	01
Control jet placement on spacecraft MSC-13365	B69-10671	01	SPACECRAFT LANDING		
SPACECRAFT DESIGN			Break-up of metal tube makes one-time shock absorber, bars rebound LANGLEY-1A	B63-10304	05
Technique for measuring magnetic tape interlayer adhesion NPO-10011	B67-10417	03	Kinetic-energy absorber employs frictional force between mating cylinders LEWIS-75	B63-10442	05
A new method for fabrication of flexible vacuum purge jackets M-FS-12646	B69-10564	03	Land landing couch dynamics computer program MSC-1210	B67-10233	06
SPACECRAFT DOCKING			A sterilizable high-impact antenna NPO-10231	B69-10697	01
Visual attitude orientation and alignment system MSC-647	B67-10120	02	SPACECRAFT LUBRICATION		
Fuel transfer system permits rapid coupling M-FS-91326	B68-10039	05	Unique gear design provides self-lubrication JPL-SC-079	B65-10366	03
SPACECRAFT ELECTRONIC EQUIPMENT			SPACECRAFT MANEUVERS		
Modular Porous Plate Sublimator /MPPS/ requires only water supply for coolant M-FS-1374	B66-10409	01	Stable ac phase and amplitude comparator M-FS-13086	B67-10459	01

SPACECRAFT MODELS

SUBJECT INDEX

Midcourse maneuver operations program NPO-10735	B69-10105	06	Microbiological aspects of sterilization development laboratories NPO-11197	B69-10593	04
SPACECRAFT MODELS			SPACECRAFT STRUCTURES		
High-torque precision stepping drive M-FS-14772	B68-10549	05	Automatic fluid separator supplies own driving power WOO-085	B66-10008	02
SPACECRAFT ORBITS			System automatically provides dynamic launch decision criteria M-FS-13063	B67-10363	01
Oceanborne transponder platform has good stability M-FS-171	B65-10035	05	Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles LANGLEY-10093	B67-10531	06
Sextant measures spacecraft altitude without gravitational reference MSC-200	B66-10143	02	SPACECRAFT TELEVISION		
Computer program determines thermal environment and temperature history of lunar orbiting space vehicles M-FS-12916	B67-10307	06	Computer program for Video Data Processing System /VDPS/ NPO-10042	B67-10630	06
SPACECRAFT POSITION INDICATORS			Isolated, multiple-output voltage dc-to-dc converter M-FS-14976	B69-10014	01
Improved electro-optical tracking system M-FS-14791	B68-10311	01	SPACECRAFT TRACKING		
SPACECRAFT POWER SUPPLIES			Oceanborne transponder platform has good stability M-FS-171	B65-10035	05
Modular Porous Plate Sublimator /MPPS/ requires only water supply for coolant M-FS-1374	B66-10409	01	Frequency offset in linear FM/CW transponder eliminates clutter M-FS-249	B65-10146	01
Zinc-oxygen primary cell yields high energy density M-FS-14661	B68-10218	01	Hydrogen maser as a highly stable frequency reference M-FS-2437	B67-10146	01
Spiral-grooved shaft seals substantially reduce leakage and wear LEWIS-10397	B68-10270	05	Low speed, long term tracking electric drive system has zero backlash NPO-10173	B67-10220	01
SPACECRAFT PROPULSION			Communication system features dual mode range acquisition plus time delay measurement M-FS-14323	B68-10306	01
Segmented electrode increases operating pressure of MHD accelerator LANGLEY-95	B65-10356	02	ABTRAJ on-site tracking prediction program NPO-10836	B69-10103	06
High temperature alloy LEWIS-10377	B68-10253	03	Midcourse maneuver operations program NPO-10735	B69-10105	06
SPACECRAFT RADIATORS			SPACECRAFT TRAJECTORIES		
A design procedure for the weight optimization of straight finned radiators GSFC-547	B66-10618	05	Internal velocity factors MSC-15002	B68-10403	06
SPACECRAFT RECOVERY			Midcourse maneuver operations program NPO-10735	B69-10105	06
Threading hook facilitates safe recovery of heavy loads MSC-46	B64-10185	05	Combination ranging system and mapping radar NPO-11001	B69-10325	01
System locates randomly placed remote objects LANGLEY-209	B66-10315	01	Fast Fourier Transform Spectral Analysis Program M-FS-15062	B69-10434	06
SPACECRAFT RELIABILITY			SPACERS		
New method for critical failure prediction of complex systems M-FS-14133	B68-10252	02	Thermally conductive metal wool-silicone rubber material can be used as shock and vibration damper JPL-321	B63-10207	03
SPACECRAFT SHIELDING			Modular thermoelectric cell is easily packaged in various arrays GSFC-339	B65-10199	01
Fire retardant foams developed to suppress fuel fires ARC-10098	B68-10358	03	Electropneumatic rheostat regulates high current ARC-44	B65-10299	01
SPACECRAFT STABILITY			Insulator-holder protects transistors in dense electronic assemblies MSC-214	B65-10389	01
Land landing couch dynamics computer program MSC-1210	B67-10233	06			
Electronic analog equalization for vibrational testing NPO-10544	B69-10472	01			
SPACECRAFT STERILIZATION					
SPAN C - Terminal sterilization process analysis program NPO-10805	B69-10039	06			
SPAN - Terminal sterilization process analysis program NPO-10804	B69-10104	06			
Sterilization training manual M-FS-20437	B69-10277	04			

SUBJECT INDEX

SPECIFICATIONS

Aluminized fiberglass insulation conforms to curved surfaces M-FS-477	B66-10024	03	checkout of exploding bridge wire device HQ-62	B66-10561	01
Rectilinear accelerometer possesses self-calibration feature M-FS-1480	B66-10452	01	Ultrasonic wrench produces leaktight connections M-FS-12561	B67-10353	05
Combination spacer and gasket provides effective static seal M-FS-1397	B66-10485	05	High-voltage pulse generator developed for wide-gap spark chambers ARG-10136	B68-10283	01
Gas leak detector is simple and inexpensive M-FS-1206	B66-10669	01	Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time ARG-10110	B68-10328	01
Square tubing reduces cost of telescoping bridge crane hoist ARG-13	B67-10293	05	Burn-rate testing apparatus MSC-10947	B69-10740	03
Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations ARG-251	B67-10305	04	Exploding bridgewire detonator simulator M-FS-02191	B69-10782	01
Large volume continuous counterflow dialyzer has high efficiency HQ-10055	B67-10395	04	SPARK IGNITION		
Aluminum heat sink enables power transistors to be mounted integrally with printed circuit board M-FS-13663	B67-10426	01	Oxygen-hydrogen torch is a small-scale steam generator NU-0042	B66-10120	03
Tube-to-header joint for bimetallic construction LEWIS-10282	B67-10464	05	Electric arc heater is self starting LANGLEY-208	B66-10230	03
Thermal radiation shields for piping in vacuum environments LEWIS-10899	B69-10262	03	Evaluation of ignition mechanisms in selected nonmetallic materials MSC-11645	B68-10167	03
Flexible rivet-set M-FS-20317	B69-10459	05	Spectrographic analysis of bismuth-tin eutectic alloys by spark-ignited low-voltage ac-arc excitation ARG-10288	B69-10081	03
Glass fabric fire barrier for silicone rubber parts MSC-15555	B69-10629	03	SPARK MACHINING		
SPACING			Vibrator improves spark erosion cutting process NU-0071	B66-10333	01
Modified interelement spacing improves Yagi antenna array LANGLEY-130	B65-10183	01	Traveling wire electrode increases productivity of Electrical Discharge Machining /EDM/ equipment ARG-136	B67-10238	05
Mounting method improves electrical and vibrational characteristics of screen electrodes M-FS-20169	B69-10097	01	SPATIAL DISTRIBUTION		
Active frequency control system for argon FM laser M-FS-14988	B69-10099	02	System for measuring spatial distribution of ejected droplets, a concept NUO-10185	B68-10402	01
Novel terminal strips for transformers NPO-10842	B69-10246	01	Laser microprobe facility used in the elemental analysis of small feature of a sample ARG-10359	B69-10165	02
Design of a strain-gage probe ARG-10338	B69-10343	05	SPECIFIC HEAT		
Checking flat conductor cable spacing by means of a moire pattern M-FS-20426	B69-10456	05	Pure xenon hexafluoride prepared for thermal properties studies ARG-10056	B67-10577	03
SPALLING			Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06
Testing the flammability of materials exposed to arcs MSC-15225	B69-10531	03	Computer program calculates the effective temperature for a crystalline solid /DETS/ NUC-10161	B69-10036	06
SPARK CHAMBERS			Calibration of a resistance thermometer down to 0.04 degrees K ARG-10318	B69-10149	01
Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456	B69-10192	03	SPECIFIC IMPULSE		
SPARK GAPS			Addition of solid oxidizer increases liquid fuel specific impulse JPL-861	B67-10058	03
Trisphere spark gap actuates overvoltage relay ARC-68	B66-10557	01	SPECIFICATIONS		
Pulse technique provides more accurate			Stainless-steel elbows formed by spin forging M-FS-122	B63-10590	05
			Workmanship standards for fusion welding NUC-10050	B67-10200	05
			Structural thermal-control coatings		

SPECIMENS

SUBJECT INDEX

NPO-10785	B68-10553	03	Investigation of spacecraft coatings M-FS-20458	B69-10181	06
Programmed schedule holds for improving launch vehicle holds M-FS-14502	B69-10602	03	SPECTRAL RESOLUTION Electrodeless discharge lamp is easily started, has high stability WOO-030	B66-10015	01
SPECIMENS A technique for making animal restraints ARC-25	B63-10564	05	Multichannel analyzers at high rates of input ARG-10355	B69-10214	02
New electron microscope employs new video display technique ARG-158	B67-10312	03	Multilayer infrared beamsplitter film system XGS-11036	B69-10260	02
Study made of procedures for externally loading and corrosion testing stress corrosion specimens M-FS-12064	B67-10451	03	Airborne Fraunhofer Line Discriminator MSC-13146	B69-10594	02
Precision trimmer aids in preparing biomedical specimen blocks for ultrathin sectioning ARG-242	B67-10541	05	SPECTROMETERS Simple optical system used to align spectrograph LANGLEY-92	B65-10071	02
Thick transducers used for generating short-duration stress pulses in thin specimens ARG-10232	B69-10045	01	System selects framing rate for spectrograph camera LANGLEY-55	B65-10086	01
Coatings decrease metal fatigue failure ARC-10015	B69-10176	03	Multiple test chamber exposes materials to various environments MSC-179	B65-10268	01
SPECTRA Detection sensitivities in 3-8 Mev neutron activation ARG-10210	B68-10298	02	Trace levels of metallic corrosion in water determined by emission spectrography MSC-1193	B66-10701	03
Silicon carbide diode for increased light output M-FS-20063	B69-10096	01	An improved nuclear magnetic resonance spectrometer JPL-762	B67-10234	01
Recent development in organic scintillators ARG-10344	B69-10198	03	Analytical technique characterizes all trace contaminants in water MSC-11032	B67-10243	03
A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voigt line profile ARC-10221	B69-10232	06	Self-balancing line-reversal pyrometer automatically measures gas temperatures LEWIS-348	B67-10268	01
Multichannel spectroscopy guide HQ-10441	B69-10550	01	Electronic shutter gates image orthicon on and off HQ-96	B67-10270	01
SPECTRAL BANDS On the bound of first excursion probability NPO-11158	B69-10334	06	Portable spectrometer monitors inert gas shield in welding process M-FS-12144	B67-10326	02
SPECTRAL EMISSION Aluminum doping improves silicon solar cells LEWIS-206	B66-10181	02	Modified blackbody device emits high-density radiation M-FS-12744	B67-10388	02
Calculation of infrared spectral transmittances of inhomogeneous gases M-FS-1563	B66-10554	02	Control apparatus for spectral energy source LEWIS-391	B67-10404	01
Control apparatus for spectral energy source LEWIS-391	B67-10404	01	Low scatter lightweight fission spectrometer constructed for biological research ARG-10094	B68-10174	02
Infrared spectroradiometer for rocket exhaust analysis M-FS-14357	B68-10081	02	High resolution Ge/Li/ spectrometer reduces rate-dependent distortions at high counting rates ARG-10144	B68-10420	01
Occulting-filter method for obtaining flashing-light visibility data MSC-13097	B69-10107	02	Nitric acid-organic mixtures surveyed for use in separation by anion exchange methods ARG-10065	B68-10425	03
SPECTRAL ENERGY DISTRIBUTION Imaging slitless spectrometer for X-ray astronomy M-FS-14309	B68-10546	02	Imaging slitless spectrometer for X-ray astronomy M-FS-14309	B68-10546	02
SPECTRAL REFLECTANCE Cone and column solar energy concentrator LANGLEY-210	B67-10517	01	Ge-diode detector combined with crystal-diffraction spectrometer permits high-resolution gamma ray spectroscopy ARG-10190	B69-10005	02
Effects of surface preparation on quality of aluminum alloy weldments M-FS-13152	B68-10302	03	Mossbauer-effect data-collection system ARG-10282	B69-10027	01

SUBJECT INDEX

SPECTROSCOPY

Mossbauer vibration calibration systems evaluated M-FS-20014	B69-10125	01	trace contaminants in water MSC-11032	B67-10243	03
Preparation of high purity copper fluoride by fluorinating copper hydroxyfluoride LEWIS-10794	B69-10136	03	Blood oxygen saturation determined by transmission spectrophotometry of hemolyzed blood samples MSC-11018	B67-10252	04
Calibration of a resistance thermometer down to 0.04 degrees K ARG-10318	B69-10149	01	Sodium perxenate permits rapid oxidation of manganese for easy spectrophotometric determination ARG-262	B67-10421	03
Detection of molecular infrared spectra HQ-10377	B69-10172	02	Spectrophotometric technique quantitatively determines NaMBT inhibitor in ethylene glycol-water solutions MSC-11496	B67-10573	03
Magnetically coupled emission regulator GSFC-10056	B69-10213	01	Reduction by monovalent zinc, cadmium, and nickel cations ARG-10328	B69-10170	03
Multichannel analyzers at high rates of input ARG-10355	B69-10214	02	SPECTORADIOMETERS A radiometer-pyrometer LEWIS-284	B66-10606	01
A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voigt line profile ARG-10221	B69-10232	06	Improved relay optical element for spectroradiometer using cryogenically cooled detector MSC-11688	B68-10245	02
Multilayer infrared beamsplitter film system XGS-11036	B69-10260	02	SPECTROSCOPIC ANALYSIS Highly sensitive solids mass spectrometer uses inert-gas ion source ERC-11	B66-10114	02
New shield for gamma-ray spectrometry ARG-10388	B69-10344	02	Thin-film ferrites vapor deposited by one-step process in vacuum MSC-259	B66-10398	03
Separation of the rare earths by anion-exchange in the presence of lactic acid ARG-10436	B69-10377	03	Neutron activation analysis traces copper artifacts to geographical point of origin ARG-119	B67-10036	02
Miniaturized high-resolution mass/charge spectrograph /design study/ MSC-13279	B69-10554	02	Spectrographic analysis of bismuth-tin eutectic alloys by spark-ignited low-voltage ac-arc excitation ARG-10288	B69-10081	03
Pulse-height defect due to electron interaction in dead layers of Ge/Li/ gamma-ray detectors ARG-10362	B69-10767	02	Mass spectograph analysis MSC-13239	B69-10134	06
SPECTROPHOTOMETERS Micromachining produces optical apertures to micron dimensions GSFC-206	B64-10211	05	Laser microprobe facility used in the elemental analysis of small feature of a sample ARG-10359	B69-10165	02
Improved sample capsule for determination of oxygen in hemolyzed blood MSC-11017	B67-10408	04	Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456	B69-10192	03
High-speed pulse camera MSC-11353	B68-10329	02	SPECTROSCOPY Beam splitter used in dual filming technique M-FS-501	B66-10072	02
Rapid and precise analysis for calcium in blood serum ARG-10246	B69-10160	04	Blackbody cavity radiometer has rapid response JPL-521	B66-10679	01
Continuous analysis of nitrogen dioxide in gas streams of plants ARG-10356	B69-10254	03	Hydrogen maser as a highly stable frequency reference M-FS-2437	B67-10146	01
Coordination chemistry in fused-salt solutions ARG-10469	B69-10423	03	Analytical technique characterizes all trace contaminants in water MSC-11032	B67-10243	03
A comparison of two methods of measuring particle size of Al2O3 produced by a small rocket motor NPO-11198	B69-10572	03	Numerical least-square method for resolving complex pulse height spectra GSFC-10142	B67-10480	06
Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01	Miniaturized King furnace permits absorption spectroscopy of small samples ARG-10177	B68-10418	02
SPECTROPHOTOMETRY Uranium isotopes quantitatively determined by modified method of atomic absorption spectrophotometry ARG-210	B67-10236	03	Ge-diode detector combined with crystal-diffraction spectrometer permits high-resolution gamma ray spectroscopy ARG-10190	B69-10005	02
Analytical technique characterizes all					

SPECTRUM ANALYSIS

SUBJECT INDEX

The response of monoenergetic gamma rays in finite media are investigated ARG-10295	B69-10080	02	M-FS-12955	B67-10595	01
Conditioning of pulses from aerosol-particle detectors ERC-10250	B69-10691	01	Automatic contour welder incorporates speed control system M-FS-14574	B68-10091	01
SPECTRUM ANALYSIS			SPEED INDICATORS		
Highly sensitive solids mass spectrometer uses inert-gas ion source ERC-11	B66-10114	02	Speed-sensing device aids crane operators WS-4	B64-10006	05
Computer programs perform spectral analyses of up to seven time series M-FS-1133	B66-10539	01	SPHERES		
Parametric up-converter increases flexibility of maser KSC-67-98	B67-10104	01	Fresnel cup reflector directs maximum energy from light source JPL-424	B63-10263	03
A calibration means for spectrum analyzers MSC-10987	B67-10254	01	Spherical model provides visual aid for cubic crystal study LEWIS-108	B65-10065	03
New technique for determination of cross-power spectral density with damped oscillators M-FS-14022	B67-10602	02	Device spot-laps spheres to very close tolerances JPL-SC-119	B66-10175	05
Improved optical diffractometer MSC-12055	B68-10071	02	Submicron holes in thin films increase sampling range of mass spectrometers JPL-SC-097	B66-10380	03
Procedure developed for reporting fast-neutron exposure ARG-10035	B68-10190	02	Special purpose reflectometer uses modified ulbricht sphere MSC-1135	B67-10109	02
Improved relay optical element for spectroradiometer using cryogenically cooled detector MSC-11688	B68-10245	02	Improved compression molding process LANGLEY-10027	B67-10302	03
Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02	Optical integrating sphere operates at visible and infrared wavelengths M-FS-14248	B68-10126	02
Nondispersive X-ray emission analysis for geochemical exploration GSFC-10568	B69-10011	02	LM lookangle program MSC-13179	B69-10370	06
Selective vignetting of Type 1 X-ray telescopes GSFC-10682	B69-10075	02	SPHERICAL SHELLS		
Sweep frequency detector NPO-10669	B69-10289	01	Modified gas bearing is adjustable to optimum stiffness ratio M-FS-145	B64-10050	05
Fast Fourier Transform Spectral Analysis Program M-FS-15062	B69-10434	06	Pneumatic power is transmitted through air bearing MSC-8	B64-10141	05
Nondestructive determination of cohesive strength of adhesive-bonded composites M-FS-20397	B69-10464	03	Segmented ball valve is easy to open and close WOO-248	B66-10195	05
Data processing method for a weak, moving telemetry signal NPO-11003	B69-10639	01	Hollow spherical rotors fabricated by electroplating JPL-SC-117	B66-10366	05
SPEED CONTROL			One-piece transparent shell improves design of helmet assembly MSC-187	B66-10390	05
Speed-sensing device aids crane operators WS-4	B64-10006	05	Computer program for determination of natural frequencies of closed spherical sandwich shells MSC-1246	B67-10279	06
Compact cartridge drives coded tape at constant readout speed JPL-472	B64-10222	01	SPIKE POTENTIALS		
Electronic phase-locked-loop speed control system is stable JPL-SC-084	B66-10232	01	Inductor flyback characteristic gives voltage regulator fast response GSFC-361	B65-10257	01
Solid state circuit controls direction, speed, and braking of dc motor JPL-757	B66-10486	01	SPIN DYNAMICS		
Design concept to decrease relative speed of ball bearings M-FS-2003	B67-10212	05	Study of dynamic response of elastic space stations NPO-10124	B67-10169	06
Conceptual servo technique for controlling tape drivers			SPIN STABILIZATION		
			Interference effects eliminated in random oriented space station antenna system MSC-11004	B67-10435	01
			SPINDLES		
			Machining heavy plastic sections M-FS-12720	B67-10381	03
			An improved magnetic tape recorder GSFC-08259	B67-10646	01
			Insertion device for pressure testing		

SUBJECT INDEX

SPRAYED COATINGS

MSC-15185	B69-10061	03	SPOT WELDS		
Technique for abrasive cutting of thick-film conductors for hybrid circuits			Welded pressure transducer made as small as 1/8th-inch in diameter		
MSC-13242	B69-10235	03	ARC-11	B63-10429	03
SPIRAL WRAPPING			Insulated weld tooling permits uniform, high quality weld		
Spiral heater coils hand-formed with fixture			MSC-42	B64-10058	05
LEWIS-208	B65-10192	05	Welding procedures improves quality of welds, offers other advantages		
SPIRALS			M-FS-32	B64-10309	01
High frequency wide-band transformer uses coax to achieve high turn ratio and flat response			Insulator-holder protects transistors in dense electronic assemblies		
ARG-107	B66-10600	01	MSC-214	B65-10389	01
Spiral-grooved shaft seals substantially reduce leakage and wear			Spray-on technique simplifies fabrication of complex thermal insulation blanket		
LEWIS-10397	B68-10270	05	M-FS-497	B66-10053	03
SPLICING			Shoulder adapter steadies spot welding gun		
Splice plate design assures structural separation by mild explosive			M-FS-321	B66-10076	05
MSC-137	B65-10166	05	Ultrasonic hand tool allows convenient scanning of spot welds		
Metal boot permits fabrication of hermetically sealed splices in metal sheathed instrumentation cables			M-FS-539	B66-10289	02
NU-0083	B66-10704	05	Quality control criteria for acceptance testing of cross-wire welds		
SPLINE FUNCTIONS			MSC-627	B66-10587	05
Indexing device ensures proper mating of electrical connectors			Power arc welder touch-started with consumable electrode		
MSC-155	B65-10263	01	M-FS-1485	B66-10641	05
SPLINES			Micromanipulation tool is easily adapted to many uses		
New coupling compensates for shaft misalignment			JPL-129	B67-10004	05
NU-0013	B65-10077	05	Metal flame spray coating protects electrical cables in extreme environment		
Flexible coiled spline securely joins mating cylinders			NUC-10077	B67-10351	03
WOO-270	B66-10172	05	Miniature pressure transducer for stressed member application		
SPONGES (MATERIALS)			MSC-11869	B68-10246	01
Two systems developed for purifying inert atmospheres			Cooled miniature pressure transducers effective at high temperatures		
ARG-10234	B69-10026	03	LEWIS-10401	B68-10370	01
SPONTANEOUS COMBUSTION			SPRAY NOZZLES		
Evaluation of ignition mechanisms in selected nonmetallic materials			Quick-hardening problems are eliminated with spray gun modification which mixes resin and accelerator liquids during application		
MSC-11645	B68-10167	03	LANGLEY-6A	B63-10318	03
Saran film is fire-retardant in oxygen atmosphere			Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons		
MSC-11604	B68-10177	03	LEWIS-263	B66-10104	03
SPOOLS			Dispenser leak-tests and sterilizes rubber gloves		
Flow control valve is independent of pressure drop			MSC-285	B66-10166	03
JPL-WOO-039	B65-10121	05	Miniature paint-spray gun for recessed areas		
Pneumatic shutoff and time-delay valve operates at controlled rate			MSC-13060	B68-10387	05
M-FS-602	B66-10189	05	SPRAYED COATINGS		
Rotary valve controls multiple hydraulic leveling cylinders			Gate valve with ceramic-coated base operates at high temperatures		
M-FS-361	B66-10402	05	ARC-23	B63-10562	03
Remotely operated high pressure valve protects test personnel			Copper-acrylic enamel serves as lubricant for cold drawing of refractory metals		
MSC-11010	B67-10291	05	ARG-54	B66-10471	05
Technique for measuring magnetic tape interlayer adhesion			Miniature paint-spray gun for recessed areas		
NFO-10011	B67-10417	03	MSC-13060	B68-10387	05
Tape reading fixture			Renewal of corrosion protection of coated aluminum after welding		
M-FS-14146	B69-10008	05	M-FS-20361	B69-10150	05
Geometry and design point performance of axial flow turbines			Improved primer for bonding polyurethane adhesives to metals		
LEWIS-10471	B69-10111	06			
A concept for magazine Bimat processor					
KSC-06786	B69-10275	02			

SPRAYERS

SUBJECT INDEX

M-FS-90591	B69-10540	03	expandable GSFC-265	B65-10126	05
SPRAYERS			Coiled spring makes self-locking device for threaded fasteners	MSC-149	B65-10135 05
Quick-hardening problems are eliminated with spray gun modification which mixes resin and accelerator liquids during application	LANGLEY-6A	B63-10318 03	Bidirectional torque filter eliminates backlash	GSFC-335	B65-10148 05
Lead oxide ceramic makes excellent high-temperature lubricant	LEWIS-144	B64-10116 03	Extendible column can be stowed on drum	JPL-686	B65-10191 05
Inert gas spraying device aids in repair of hazardous systems	LEWIS-8B	B65-10115 05	Spiral heater coils hand-formed with fixture	LEWIS-208	B65-10192 05
Multilayer refractory nozzles produced by plasma-spray process	WOO-318	B66-10611 05	Fluid check valve has fail-safe feature	JPL-0019	B65-10207 05
Spray-on electrodes enable EKG monitoring of physically active subjects	PRC-36	B66-10649 04	Simple device produces accelerometer calibration pulse	M-FS-363	B65-10269 01
Scribble coating for plastic films	MSC-11194	B67-10409 03	Coiled sheet metal strip opens into tubular configuration	GSFC-425	B66-10009 03
System for measuring spatial distribution of ejected droplets, a concept	NPO-10185	B68-10402 01	Lamp automatically switches to new filament on burnout	M-FS-498	B66-10046 01
Single-element coaxial injector for rocket fuel	NPO-11095	B69-10547 05	Bench vise adapter grips tubing securely and safely	MSC-279	B66-10056 05
Modified cryogenic storage tank subsystem	KSC-10380	B69-10556 02	Calibrated clamp facilitates pressure application	MSC-298	B66-10059 05
SPRAYING			T-handle wrench has torque-limiting action	MSC-280	B66-10065 05
Spray-on technique simplifies fabrication of complex thermal insulation blanket	M-FS-497	B66-10053 03	Fingertip current control facilitates use of arc welding gun	MSC-289	B66-10092 05
Dispenser leak-tests and sterilizes rubber gloves	MSC-285	B66-10166 03	Soldering tool heats workpieces and applies solder in one operation	LEWIS-247	B66-10115 05
Standards for electron probe microanalysis of silicates prepared by convenient method	GSFC-469	B66-10234 03	Mounting improves heat-sink contact with beryllia washer	MSC-194	B66-10144 01
Sprayable birefringent coating enables strain measurements on large surfaces	M-FS-1484	B66-10578 03	Portable power tool machines weld joints in field	M-FS-258	B66-10145 05
Liquid oxygen dicting cleaned by falling film method	M-FS-11816	B67-10299 03	Fixture aids soldering of electronic components on circuit board	ARC-56	B66-10162 01
Acid spray technique mills aluminum alloy materials without immersion	M-FS-12500	B67-10463 03	Pneumatic shutoff and time-delay valve operates at controlled rate	M-FS-602	B66-10189 05
Fire retardant foams developed to suppress fuel fires	ARC-10098	B68-10358 03	Bellows design features low spring rate and long life	MSC-521	B66-10190 05
High-emittance coatings on metal substrates	LEWIS-10325	B68-10381 03	Torque wrench allows readings from inaccessible locations	M-FS-598	B66-10204 05
SPREADING			Cylindrical claw clamp has quick release feature	M-FS-513	B66-10213 05
Discrimination of fish oil and mineral oil slicks on sea water	HQ-10412	B69-10673 01	Lathe chuck key incorporates safety feature	MSC-506	B66-10243 05
SPRINGS (ELASTIC)			Seal surfaces protected during assembly	NU-0067	B66-10266 05
Solenoid permits remote control of stop watch and assures restarting	PRC-17	B63-10024 01	Device facilitates centering of workpieces in lathe chuck	M-FS-685	B66-10277 05
New package for Belleville spring permits rate change, easy disassembly	JPL-392	B63-10247 05			
Leaf-spring suspension provides accurate parallel displacements	JPL-480	B65-10104 05			
Collapsible truss structure is automatically					

SUBJECT INDEX

SPUTTERING

Extensometer automatically measures elongation in elastomers M-FS-517	B66-10284	05	GSFC-08259	B67-10646	01
Diaphragm spring gives clutch over-center toggle effect GSFC-499	B66-10297	05	Sleeved damper limits spring surging MSC-12071	B68-10111	05
Tool pre-tensions covers prior to lacing MSC-631	B66-10301	05	Dual rate pressure relief valve MSC-11606	B68-10237	05
Modified hydraulic braking system limits angular deceleration to safe values GSFC-476	B66-10310	05	Dynamically stable check valve concept for wide flow range M-FS-14579	B68-10247	05
Bellows joint absorbs torsional deflections in duct system M-FS-882	B66-10332	04	Quick-attach clamp XFR-05421	B68-10250	05
Shock-operated valve would automatically protect fluid systems M-FS-801	B66-10335	03	Vibration testing and dynamic studies of relays M-FS-14542	B68-10268	01
Braking mechanism is self actuating and bidirectional M-FS-1299	B66-10484	05	Contact-spring forming machine for flat conductor cable receptacles M-FS-20126	B68-10550	05
Spiral spring/strain gage combination accurately measures shock induced deflection MSC-789	B66-10488	01	Computer program analyzes whirl critical speeds and bearing loads for shafts coupled by nonlinear springs to machine housing NUC-10308	B69-10034	06
Hole saw drill attachment has zero force reaction MSC-543	B66-10604	05	Countersunk headscrew retainer M-FS-16481	B69-10282	05
Friction brake cushions acceleration and vibration loads MSC-715	B66-10608	05	Precision mounting for instrument optical elements provided by polyimide bonding M-FS-20293	B69-10310	05
Fuel and oxidizer valve assembly employs single solenoid actuator MSC-1046	B66-10648	05	Shock-absorbent mountings for bearings NPO-10626	B69-10331	05
Resonant frequency can be adjusted on vibration mount JPL-SC-134	B66-10672	05	Helical recorder GSFC-10614	B69-10340	01
Gage accurately controls force for placing chips on substrates M-FS-1941	B66-10675	01	Design of a strain-gage probe ARG-10338	B69-10343	05
Actuator device schedules rate of valve closure M-FS-1556	B66-10686	05	Removal of retaining washers of the waffle-spring type MSC-15531	B69-10350	05
Combination double door high-vacuum valve provides access to vacuum chamber JPL-849	B66-10697	05	Calibratable solid-state pressure switch M-FS-20474	B69-10437	05
Elastic guides reduce hysteresis effect in Belleville spring package JPL-910	B67-10011	05	Temperature-controlled resistor NPO-10713	B69-10440	01
Aspirator increases relief valve poppet stroke HQ-77	B67-10154	05	A new method for fabrication of flexible vacuum purge jackets M-FS-12646	B69-10564	03
Solenoid valve design has one moving part NPO-10039	B67-10219	05	An electrical connector pin protector MSC-15660	B69-10742	01
Line adapter provides quick disconnect under moderate side loading M-FS-2159	B67-10256	05	SPUTTERING Improved carbon electrode reduces arc sputtering MSC-219	B66-10026	01
Excellent spring properties developed in two nickel alloys for use at cryogenic temperatures NUC-10084	B67-10349	03	Complex surfaces plated by thin-film deposition in one operation LEWIS-292	B67-10006	05
Test device prevents weld joint damage by eliminating axial pin forces on unpotted modules LEWIS-10201	B67-10359	01	Thin film process forms effective electrical contacts on semiconductor crystals M-FS-2343	B67-10142	01
Coaxial cable stripping device facilitates RF cabling fabrication NPO-10315	B67-10419	05	Application of the solid lubricant molybdenum disulfide by sputtering LEWIS-10544	B68-10340	03
An improved magnetic tape recorder			Electron beam recrystallization of amorphous semiconductor materials LEWIS-10443	B68-10556	02
			Preparation of superconducting thin films of transition-metal interstitial compounds HQ-10445	B69-10470	01
			Epitaxial crystalline growth upon cold substrates MSC-11196	B69-10494	01

SQUARE WAVES

SUBJECT INDEX

Pulsed high-voltage dc RF sputtering LEWIS-10920	B69-10699	01	SQUARES (MATHEMATICS) Root-cubing and general root-powering methods for finding the zeros of polynomials ARG-10444	B69-10424	02
SQUARE WAVES Frequency-shift-keyer circuit improves PCM conversion for radio transmission GSFC-80	B63-10511	01	SQUIBS Quick-closing valve is actuated by explosive discharge ARC-55	B66-10233	05
High efficient square-wave oscillator operator at high power levels GSFC-112	B63-10554	01	STABILITY Computer determines high-frequency phase stability GSFC-113	B63-10555	01
Transistorized converter provides nondissipative regulation GSFC-238	B64-10305	01	Irradiation improves properties of an aromatic polyester LANGLEY-115	B65-10164	03
Inexpensive, stable circuit measures heart rate MSC-95	B65-10010	01	Refractory oxides evaluated for high-temperature use LANGLEY-121	B65-10167	03
Stepping motor drive circuit designed for low power drain GSFC-198	B65-10026	01	Electrometer has automatic zero bias control GSFC-350	B65-10242	01
Simulator produces physiological waveforms MSC-94	B65-10091	01	Cuprous selenide and sulfide form improved photovoltaic barriers WOO-212	B66-10025	01
Simple circuit functions as frequency discriminator for PFM signals GSFC-267	B65-10102	01	Binary fluid amplifier solves stability and load problems ERC-15	B66-10177	01
Variable frequency magnetic multivibrator generates stable square-wave output GSFC-AE-21	B65-10124	01	Remote preamplifier circuit maintains stability over wide temperature range WOO-278	B66-10432	01
Instrument calibrates low gas-rate flowmeters MSC-134	B65-10137	01	Electronic circuit delivers pulse of high interval stability MSC-673	B66-10501	01
High-speed square-wave current limiter operates efficiently JPL-SC-073	B65-10233	01	Electron multiplier has improved performance and stability GSFC-546	B67-10060	01
Inductor flyback characteristic gives voltage regulator fast response GSFC-361	B65-10257	01	Computer program uses Monte Carlo techniques for statistical system performance analysis M-FS-2234	B67-10306	06
Electronic ohmmeter provides direct digital output GSFC-363	B65-10274	01	Precision capacitor has improved temperature and operational stability ARG-189	B67-10313	01
Electronic ampere-hour integrator is accurate to one percent GSFC-203	B65-10308	01	Field effect transistors improve buffer amplifier M-FS-916	B67-10334	01
PCM magnetic tape system efficiently records and reproduces data GSFC-375	B65-10311	01	Analysis of stability-critical orthotropic cylinders subjected to axial compression M-FS-12869	B67-10375	03
Linear signal noise summer accurately determines and controls S/N ratio JPL-SC-152	B66-10433	01	Stabilizing stainless steel components for cryogenic service M-FS-13127	B67-10377	05
Glow discharge density sensor probe life is extended M-FS-1707	B67-10229	01	Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06
A phonocardiogram simulator KSC-67-94	B67-10239	01	Instabilities encountered during heat transfer to a supercritical fluid ARG-10266	B69-10042	02
Oscilloscope used as X-Y plotter or two-dimensional analyzer LEWIS-311	B67-10269	01	Analysis of magnetically-controlled processes in pulse-modulation systems GSFC-10241	B69-10070	01
Sensitive bridge circuit measures conductance of low-conductivity electrolyte solutions ARG-147	B67-10294	01	Tunable bandpass filter with variable selectivity ARC-10191	B69-10130	01
Improved circuit for measuring capacitive and inductive reactances M-FS-13083	B67-10513	01	Mixing weld gases offers advantages M-FS-16413	B69-10145	05
Simple, accurate automatic frequency control circuit KSC-10393	B69-10323	01	Substitution of stable isotopes in Chlorella ARG-10258	B69-10197	04
Phase-locked-loop phase modulator with high modulation index, low distortion MSC-12247	B69-10487	01			

SUBJECT INDEX

STAINLESS STEELS

Compensation of pulse-rebalanced inertial instruments MSC-13098	B69-10216	01	stacks of material MSC-321	B66-10210	05
Method for determining properties of microinstabilities of a magnetized plasma HQ-10447	B69-10462	02	Temperature-controlled resistor NPO-10713	B69-10440	01
A new method for producing optical mirrors HQ-10227	B69-10529	02	STAGE SEPARATION Self sealing disconnect for tubing forms metal seal after breakaway JPL-354	B63-10226	05
Cryogenic fluid flow instabilities in heat exchangers M-FS-20438	B69-10541	02	Computer program uses Monte Carlo techniques for statistical system performance analysis M-FS-2234	B67-10306	06
Miniature backward-diode pressure sensor features stability and low power consumption ERC-10229	B69-10690	01	Separation simulator KSC-67-15	B69-10315	01
STABILITY DERIVATIVES Computer program determines system stability /DIGSTA/ LEWIS-10395	B68-10216	06	STAGGERING Superconductor magnets used for stagger-tuning traveling-wave maser GSFC-292	B65-10165	01
STABILITY TESTS Elastic orifice automatically regulates gas bearings JPL-135	B63-10123	05	STAGNATION FLOW Computer program determines gas flow rates in piping systems M-FS-443	B66-10300	01
Emission tester for high-power vacuum tubes JPL-628	B64-10158	01	STAGNATION POINT Program computes equilibrium normal shock and stagnation point solutions for arbitrary gas mixtures LANGLEY-10090	B67-10509	06
Control apparatus for spectral energy source LEWIS-391	B67-10404	01	STAGNATION PRESSURE Computer program determines gas flow rates in piping systems M-FS-443	B66-10300	01
Computer program analyzes Buckling Of Shells Of Revolution with various wall construction, BOSOR LANGLEY-10290	B68-10226	06	STAINING Method for copper staining of germanium crystals ARG-10403	B69-10257	03
Report on a cryogenic gyroscope NPO-11200	B69-10504	02	STAINLESS STEELS Method of welding joint in closed vessel improves quality of seam JPL-170	B63-10139	05
STABILIZATION Thermal and bias cycling stabilizes planar silicon devices ERC-48	B67-10176	01	Improved variable-reluctance transducer measures transient pressures LANGLEY-10	B63-10321	01
An improved nuclear magnetic resonance spectrometer JPL-762	B67-10234	01	Apparatus facilitates high-temperature tensile testing in vacuum LEWIS-42	B63-10345	03
SiC/Si diode trigger circuit provides automatic range switching for log amplifier M-FS-1879	B67-10314	01	Connector for vacuum-jacketed lines cuts tubing system cost LEWIS-66	B63-10367	05
ELAS - A general purpose computer program for the equilibrium problems of linear structures NPO-10598	B68-10187	06	Novel clamps align large rocket cases, eliminate back-up bars M-FS-1	B63-10376	05
Active frequency control system for argon FM laser M-FS-14988	B69-10099	02	Vacuum-type backup bar speeds weld repairs M-FS-12	B63-10384	05
STABILIZERS (FLUID DYNAMICS) Improved gyro-flotation /damping/ fluids MSC-13217	B69-10360	03	Flexible honeycomb structure can bend to fit compound curves M-FS-13	B63-10385	05
STABLE OSCILLATIONS Electronic phase-locked-loop speed control system is stable JPL-SC-084	B66-10232	01	Ellipsoidal optical reflectors reproduced by electroforming GSFC-92	B63-10547	05
Oscillator circuit operates as digitally controlled frequency synthesizer GSFC-570	B67-10447	01	Lathe converted for grinding aspheric surfaces GSFC-115	B63-10556	05
Digital voltage-controlled oscillator GSFC-512	B67-10449	01	New inflatable liferaft is nontippable MSC-4A	B64-10001	05
STACKS Resilient clamp holds fuel cell stack through resilient clamp holds fuel cell stack through thermal cycle MSC-313	B66-10035	05	Improved technique for localizing electropolishing features novel nozzles WOO-101	B64-10271	01
Adjustable cutting guide aligns and positions			Screening technique makes reliable bond at room temperature		

STAINLESS STEELS CONT

SUBJECT INDEX

M-FS-227	B65-10004	03	milling with grinding aids LEWIS-188	B66-10221	03
Oceanborne transponder platform has good stability M-FS-171	B65-10035	05	Electric arc heater is self starting LANGLEY-208	B66-10230	03
New alloy brazes titanium to stainless steel MSC-102	B65-10060	05	Modified soldering iron speeds cutting of synthetic materials M-FS-725	B66-10246	05
Automatic thermal switch accelerates cooling-down of cryogenic system JPL-655	B65-10068	01	Pressure-welded flange assembly provides leaktight seal at reduced bolt loads M-FS-640	B66-10247	05
Low-cost seal compensates for surface irregularities NU-0016	B65-10160	05	Differential expansion provides pressure for diffusion bonding of large diameter rings M-FS-588	B66-10269	05
New nut and sleeve improve flared connections M-FS-194	B65-10180	05	Electrolytic etching process provides effective bonding surface on stainless steel GSPC-484	B66-10299	03
Coating method enables low-temperature brazing of stainless steel NU-0030	B65-10250	03	System locates randomly placed remote objects LANGLEY-209	B66-10315	01
Plated nickel wire mesh makes superior catalyst bed MSC-216	B65-10321	03	Fiber length and orientation prevent migration in fluid filters M-FS-541	B66-10319	05
Plastic plus stainless-steel fibers make resilient, impermeable material WOO-246	B65-10374	03	Bimetallic devices help maintain constant sealing forces down to cryogenic temperatures M-FS-800	B66-10325	02
New brazing alloy eliminates metal-stress cracking WOO-249	B65-10397	03	Inspection of fine wires simplified by capillary tube wire holder MSC-358	B66-10329	01
Flexible protective coatings made from silicon-nitrogen materials M-FS-528	B66-10027	03	Gas diffuser facilitates withdrawal of cryogenic liquids from tanks M-FS-915	B66-10342	05
Cold cathode ionization gage has rigid metal housing GSPC-445	B66-10041	01	Brazing process provides high-strength bond between aluminum and stainless steel M-FS-803	B66-10352	05
Polytetrafluoroethylene lubricates ball bearings in vacuum environment M-FS-379	B66-10081	03	Electrochemical milling removes burrs and solder from tubing ends M-FS-714	B66-10358	03
Cryostat modified to aid rotating beam fatigue test M-FS-435	B66-10083	03	Nonhazardous acid etches weld samples M-FS-975	B66-10378	05
Soldering tool heats workpieces and applies solder in one operation LEWIS-247	B66-10115	05	Electroless nickel plating on stainless steels and aluminum GSPC-533	B66-10479	03
Telescoping of instrumentation tubing eliminates swaging M-FS-546	B66-10116	05	Braze alloy holds bonding strength over wide temperature range LEWIS-337	B66-10519	03
Small, high-intensity flasher permits continuous close-in photography NU-0043	B66-10119	03	Gas chromatographic column enables analysis of propellant hydrazines MSC-1161	B66-10586	03
Oxygen-hydrogen torch is a small-scale steam generator NU-0042	B66-10120	03	Multilayer refractory nozzles produced by plasma-spray process WOO-318	B66-10611	05
Improved system measures output energy of pyrotechnic devices WOO-256	B66-10159	01	Improved rolling element bearings provide low torque and small temperature rise in ultrahigh vacuum environment LEWIS-359	B66-10678	05
Gallium alloy films investigated for use as boundary lubricants LEWIS-245	B66-10165	03	Metal boot permits fabrication of hermetically sealed splices in metal sheathed instrumentation cables NU-0083	B66-10704	05
Multisurface fixture permits easy grinding of tool bit angles M-FS-586	B66-10171	05	Glass formulation has high coefficient of thermal expansion NU-0084	B66-10705	03
Wide-range instrument monitors flow rates of chemically active fluids MSC-186	B66-10205	01	Study made of corrosion resistance of stainless steel and nickel alloys in nuclear reactor superheaters ARG-230	B67-10051	03
Soft-seal valve holds hazardous fluids safely LEWIS-275	B66-10216	05	Materials data handbooks prepared for aluminum alloys 2014, 2219, and 5456, and		
Submicron metal powders produced by ball					

SUBJECT INDEX

STAINLESS STEELS CONT

stainless steel alloy 301 M-FS-1959	B67-10089	03	NUC-10010	B67-10542	02
Ultrasonics permits brazing complex stainless steel assembly without flux NU-0115	B67-10094	05	Study made of resistance of stainless steels to zinc-vapor corrosion ARG-10055	B67-10582	03
Silver plating ensures reliable diffusion bonding of dissimilar metals M-FS-1975	B67-10124	03	Improved calorimeter provides accurate thermal measurements of space batteries GSFC-10003A	B67-10615	01
Clamp provides efficient connection for high-density currents M-FS-2417	B67-10140	01	Decomposition vessel GSFC-10343	B68-10104	03
Closed circuit TV system monitors welding operations MSC-11002	B67-10162	01	Miniature pressure transducer for stressed member application MSC-11869	B68-10246	01
Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations ARG-251	B67-10305	04	Conceptual hermetically sealed elbow actuator M-FS-14710	B68-10300	05
Jacketed cryogenic piping is stress relieved M-FS-985	B67-10308	05	Application of the solid lubricant molybdenum disulfide by sputtering LEWIS-10544	B68-10340	03
Hand-held instrument should relieve hematoma pressure MSC-599	B67-10332	04	Indium adhesion provides quantitative measure of surface cleanliness SAN-10024	B68-10342	01
Low-energy gamma ray inspection of brazed aluminum joints MSC-1189	B67-10337	02	High-emittance coatings on metal substrates LEWIS-10325	B68-10381	03
Soft metal plating enables hard metal seal to operate successfully in low temperature, high pressure environment NUC-10083	B67-10350	03	Inverted grounding technique for electron beam heating LEWIS-10543	B68-10411	01
Steel test panel helps control additives in pyrophosphate copper plating LEWIS-10101	B67-10358	05	Refractory oxide insulated thermocouple designed and analyzed for high temperature applications ARG-10202	B69-10053	03
Transducer measures embedment stresses in electronic modules M-FS-13486	B67-10367	01	Spectrographic analysis of bismuth-tin eutectic alloys by spark-ignited low-voltage ac-arc excitation ARG-10288	B69-10081	03
Electron beam parallel X-ray generator MSC-11022	B67-10372	02	Tube welding and brazing M-FS-20348	B69-10085	05
Stabilizing stainless steel components for cryogenic service M-FS-13127	B67-10377	05	Corrosion protection of aluminum alloys in contact with other metals M-FS-18526	B69-10098	03
Crack growth measured on flat and curved surfaces at cryogenic temperatures LEWIS-389	B67-10384	01	Battery case shear GSFC-10783	B69-10127	05
Standard surface grinder for precision machining of thin-wall tubing ARG-10014	B67-10400	05	Protective clothing for workers with 5-kW and 20-kW short-arc lamps NPO-11155	B69-10218	01
Metal tube reducer is inexpensive and simple to operate ARG-49	B67-10401	05	J-beveling of pipe ends with a hand-held tool KSC-10356	B69-10229	05
Protected, high-temperature connecting cable LEWIS-10149	B67-10461	01	Tool simplifies machining of pipe ends for precision welding KSC-10361	B69-10231	05
Tube-to-header joint for bimetallic construction LEWIS-10282	B67-10464	05	A new solid lubricant LEWIS-10812	B69-10250	03
Aluminum and stainless steel tubes joined by simple ring and welding process M-FS-13120	B67-10472	05	Induction probe determines levels of liquid metals ARG-10348	B69-10256	03
Tool samples subsurface soil free of surface contaminants MSC-10988	B67-10473	05	A concept for magazine Bimat processor KSC-06786	B69-10275	02
Method for X-ray study under extreme temperature and pressure conditions MSC-11232	B67-10474	02	Repair of weld defects in thin-walled stainless steel tubes M-FS-16293	B69-10305	05
Plastic shoe facilitates ultrasonic inspection of thin wall metal tubing			New shield for gamma-ray spectrometry ARG-10388	B69-10344	02
			Quick-release hook-and-loop fastener MSC-10950	B69-10388	05
			Magnetic forming of resistive materials		

STAMPING

SUBJECT INDEX

M-FS-20417	B69-10397	03	ulbricht sphere MSC-1135	B67-10109	02
Possible correlation between work-hardening and fatigue-failure ARG-10371	B69-10414	03	Improved electro-optical tracking system M-FS-14791	B68-10311	01
Flared-tube fittings with replaceable seat inserts MSC-15372	B69-10519	05	Telescope dcme control system automatically tracks sun MSC-10966	B68-10521	02
Liquid oxygen-compatible insulation system M-FS-16113	B69-10599	03	Precisely repeatable rotary mechanism NPO-10679	B69-10696	05
Explosive bonding of metal-matrix composites M-FS-20657	B69-10804	05	Image position sensor M-FS-14101	B69-10783	02
STAMPING			STARCHES		
Vacuum forming of thermoplastic sheet results in low-cost investment casting patterns ARC-7	B63-10008	05	Quick don-doff electrode pastes MSC-13249	B69-10598	04
STANDARD DEVIATION			STARS		
Computer program reduces calculation time of normal response functions M-FS-1517	B67-10108	01	Star/horizon simulator used to test space guidance system MSC-407	B67-10110	02
Estimation of signal-to-noise ratios KNP-05254	B69-10557	01	Automatic star-horizon angle measurement system MSC-11585	B69-10597	01
STANDARDIZATION			STARTERS		
Electrometer has automatic zero bias control GSFC-350	B65-10242	01	Compact SCR trigger circuit for ignitron switch operates efficiently M-FS-371	B65-10347	01
Standards for electron probe microanalysis of silicates prepared by convenient method GSFC-469	B66-10234	03	Electric arc heater is self starting LANGLEY-208	B66-10230	03
Structural Analysis and Matrix Interpretive System /SAMIS/ NPO-10130	B67-10171	01	Versatile impact hand tool M-FS-20140	B68-10371	05
Structural Analysis and Matrix Interpretive System /SAMIS/ NPO-10839	B69-10093	01	STARTING		
STANDARDS			Temperature-stabilized, triggerable microelectronic astable multivibrator starts reliably MSC-1173	B67-10624	01
Multiple port pressure scanner valve features greater accuracy, quicker data JPL-555	B64-10031	05	STATE VECTORS		
Standards for electron probe microanalysis of silicates prepared by convenient method GSFC-469	B66-10234	03	Study of optimum discrete estimators in measurement analysis M-FS-14915	B68-10348	02
Workmanship standards for fusion welding NUC-10050	B67-10200	05	STATIC ALTERNATORS		
Analytical technique characterizes all trace contaminants in water MSC-11032	B67-10243	03	Semiconductor ac static power switch LEWIS-10344	B68-10224	01
Checking flat conductor cable spacing by means of a moire pattern M-FS-20426	B69-10456	05	STATIC ELECTRICITY		
System converts slow-scan to standard fast-scan TV signals MSC-90534	B69-10748	01	Static electricity of polymers reduced by treatment with iodine NPO-10062	B67-10132	03
STANDING WAVES			Test instrumentation evaluates electrostatic hazards in fluid system M-FS-2277	B67-10145	01
Improved ultrasonic TV images achieved by use of Lamb-wave orientation technique ARG-203	B67-10295	02	An overview of electromagnetic interference problems in spacecraft NPO-11170	B69-10362	01
STAR DISTRIBUTION			STATIC FRICTION		
Electronic shutter gates image orthicon on and off HQ-96	B67-10270	01	Friction device damps linear motion of rotating shaft WOO-214	B66-10030	05
STAR TRACKERS			Machine tests slow-speed sliding friction in high vacuum M-FS-12341	B67-10379	05
Instrument quickly transposes ground reference target to eye level MSC-275	B66-10061	05	Device measures static friction of magnetic tape GSFC-10360	B67-10586	03
Point-source light sensor circuit is insensitive to background light JPL-778	B66-10502	01	STATIC INVERTERS		
Special purpose reflectometer uses modified			Evaluation of magnetic materials for static inverters and converters LEWIS-10343	B69-10306	01
			An unconventional magnetically-coupled multivibrator HQ-10226	B69-10480	01

SUBJECT INDEX

STATORS

STATIC LOADS

Lightweight load support serves as vibration damper
JPL-661 B65-10144 05

Refractory oxides evaluated for high-temperature use
LANGLEY-121 B65-10167 03

Pressure responsive seal handles static and dynamic loads
GSFC-441 B65-10327 05

Mechanism continuously measures static and dynamic cable loads
MSC-217 B66-10107 05

Transducer measures force in vacuum environment
LEWIS-218 B66-10161 01

Conceptual dead weight device to provide pressure calibration
M-FS-14672 B68-10264 01

STATIC PRESSURE

Averaging probe reduces static-pressure sensing errors
LANGLEY-36 B65-10114 05

Computer program determines gas flow rates in piping systems
M-FS-443 B66-10300 01

Combination spacer and gasket provides effective static seal
M-FS-1397 B66-10485 05

Pressure probe compensates for dimensional tolerance variations
LEWIS-302 B66-10599 01

Experimental design for research on shock-turbulence interaction
M-FS-20031 B69-10604 02

STATIC TESTS

Materials physically tested in variable-environment chamber
JPL-789 B66-10130 01

Effects of high frequency current in welding aluminum alloy 6061
M-FS-18337 B68-10383 05

STATICS

Static seal concept to accommodate seat tolerances
M-FS-1854 B67-10285 05

Cryogenic seal concept for static and dynamic conditions
M-FS-12986 B67-10673 05

STATIONS

Concept for automatic Doppler compensation in two-way communication systems
GSFC-10213 B67-10643 01

STATISTICAL ANALYSIS

Computer program performs statistical analysis for random processes
M-FS-723 B66-10525 01

Computer programs perform spectral analyses of up to seven time series
M-FS-1133 B66-10539 01

Welding of AM350 and AM355 steel
M-FS-2314 B67-10292 05

Computer program uses Monte Carlo techniques for statistical system performance analysis
M-FS-2234 B67-10306 06

Algebraic Monte Carlo procedure reduces statistical analysis time and cost factors
M-FS-1887 B67-10434 01

Study made of thin-walled pipe response to turbulent fluids
M-FS-1321 B67-10518 05

New method for critical failure prediction of complex systems
M-FS-14133 B68-10252 02

Study of optimum discrete estimators in measurement analysis
M-FS-14915 B68-10348 02

Performance analysis of electrical circuits
/PANE/
M-FS-15001 B68-10448 06

Microscopes and computers combined for analysis of chromosomes
ARG-10256 B69-10088 04

Numerical inversion of finite Toeplitz matrices and vector Toeplitz matrices
ARG-10445 B69-10415 02

A theoretical study of radar backscatter from distributed targets with emphasis on polarization dependence
M-FS-13775 B69-10560 02

Live-timer method of automatic dead-time correction for precision counting
ARG-10478 B69-10612 01

STATISTICAL CORRELATION

The X square statistic and goodness of fit test
GSFC-10547 B68-10136 02

STATISTICAL DISTRIBUTIONS

Design reliability goal developed from small sample
M-FS-403 B66-10405 05

Computer program calculates monotonic maximum likelihood estimates using method of reversals
M-FS-1516 B67-10136 01

Probabilistic approach to long range planning of manpower
MSC-11524 B67-10510 06

Study made of mechanics of deformation and fracture of fibrous composites
HQ-10035 B67-10660 03

STATISTICAL MECHANICS

Computer program for calculation of ideal gas thermodynamic data
LEWIS-10254 B68-10025 06

STATISTICS

GERT EXCLUSIVE-OR combining paths and loops of electrical networks
ERC-10206 B68-10435 06

GERT simulation program for GERT network analysis
ERC-10209 B68-10457 06

Failure rates for accelerated acceptance testing of silicon transistors
ERC-10198 B68-10541 01

STATOR BLADES

Noise study of single stage compressor rotor-stator interaction
LANGLEY-137 B67-10516 02

Acoustic wave analysis
M-FS-18076 B68-10265 02

Computer programs for axial flow compressor design
LEWIS-10765 B69-10174 06

STATORS

Brushless dc motor uses electron beam switching tube as commutator

STEADY FLOW

SUBJECT INDEX

GSFC-345	B65-10237	01	Flexible magnetic planning boards are easily transported M-FS-340	B65-10219	05
Variable-capacitance tachometer eliminates troublesome magnetic fields GSFC-435	B66-10126	01	Computer program simplifies selection of structural steel columns NU-0044	B66-10097	01
Shaft encoder presents digital output JPL-SC-191	B66-10436	01	Combination spacer and gasket provides effective static seal M-FS-1397	B66-10485	05
High-reluctance rotor rings improve homopolar generator performance ARG-104	B66-10543	01	Nondestructive test method accurately sorts mixed bolts M-FS-1426	B66-10574	01
Cryogenic seal concept for static and dynamic conditions M-FS-12986	B67-10673	05	Effects of heat input rates on T-1 and T-1A steel welds M-FS-2475	B67-10163	03
Design eliminates radial thermal expansion in turbine stator components M-FS-18146	B68-10531	05	Modified sine bar device measures small angles with high accuracy GSFC-438	B68-10322	02
Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03	Helical tape forming device GSFC-10830	B69-10137	05
STEADY FLOW			A magnifying scratch-gage force transducer LANGLEY-10496	B69-10212	01
Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates ARG-151	B66-10601	05	Improved table for cutting and welding MSC-15537	B69-10346	05
Problem of oscillating cone in supersonic flow is solved by small perturbation techniques M-FS-869	B66-10700	02	STEELS		
Computer program MCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid NUC-10042	B67-10456	06	Gallium useful bearing lubricant in high-vacuum environment LEWIS-12	B63-10337	03
Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid NUC-10043	B67-10457	06	Pressure molding of powdered materials improved by rubber mold insert WOO-100	B64-10270	03
Program computes equilibrium normal shock and stagnation point solutions for arbitrary gas mixtures LANGLEY-10090	B67-10509	06	Forming blocks speed production of strain gage grids LEWIS-182	B65-10009	05
Experimental program to investigate transonic flow around protuberances M-FS-20037	B69-10609	05	Spring loaded beaded cable makes efficient wire puller WOO-108	B65-10031	05
STEAM			Etching process mills PH 14-8 Mo alloy steel to precise tolerances MSC-270	B66-10110	03
Zirconium alloys with small amounts of iron and copper or nickel show improved corrosion resistance in superheated steam ARG-226	B67-10050	03	Critical parts are stored and shipped in environmentally controlled reusable container M-FS-703	B66-10258	05
Study made of corrosion resistance of stainless steel and nickel alloys in nuclear reactor superheaters ARG-230	B67-10051	03	Friction loading device enables accurate testing of brittle materials NU-0051	B66-10345	05
New class of compounds have very low vapor pressures ARG-115	B67-10184	03	Impact and puncture resistant material protects parts from damage MSC-747	B66-10375	05
Potassium plasma cell facilitates thermionic energy conversion process ARG-10010	B67-10399	01	Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys ARG-199	B66-10594	03
STEAM FLOW			Grit blasting nozzle fabricated from mild tool steel proves satisfactory M-FS-1420	B66-10597	05
Reaction of steam with molybdenum is studied ARG-295	B67-10502	03	Controlled ferrite content improves weldability of corrosion-resistant steel M-FS-568	B67-10069	03
Reaction studied of steam with niobium and tantalum ARG-10051	B68-10189	03	Effects of heat input rates on T-1 and T-1A steel welds M-FS-2475	B67-10163	03
STEEL STRUCTURES			High-strength braze joints between copper and steel M-FS-2519	B67-10211	05
Frictional wedge shock mount is inexpensive, has good damping characteristics JPL-IT-1001	B63-10289	05	Welding of AM350 and AM355 steel M-FS-2314	B67-10292	05

SUBJECT INDEX

STIFFNESS

Steel test panel helps control additives in pyrophosphate copper plating LEWIS-10101	B67-10358	05	Compensation of pulse-rebalanced inertial instruments MSC-13098	B69-10216	01
Flowmeter determines mix ratio for viscous adhesives M-FS-2308	B67-10378	01	Maximum RMS error comparison of several redundancy techniques M-FS-15075	B69-10297	01
Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133	B67-10437	03	STEREOPHOTOGRAPHY Stereo photomacrography system LANGLEY-10176	B68-10141	01
Development of helical seal for high temperature /2000 degrees F/ application M-FS-13304	B67-10655	05	Camera mount for close-up stereo photographs LANGLEY-10442	B69-10226	02
High-temperature bearing-cage materials LEWIS-10403	B68-10176	05	STEREOSCOPIC VISION Study made of application of stereoscopic display system to analog computer simulation M-FS-1263	B66-10590	01
Susceptibility of irradiated steels to hydrogen embrittlement ARG-10115	B68-10194	03	STEREOTELEVISION Screen of cylindrical lenses produces stereoscopic television pictures M-FS-273	B66-10086	02
Astronaut space suit communication antenna MSC-12101	B68-10238	01	Stereo TV enhancement study M-FS-14805	B69-10497	01
High-temperature bearing lubricants LEWIS-10408	B68-10249	05	STERILIZATION Filter for high-pressure gases has easy take-down, assembly JPL-373	B63-10234	03
Hydrodynamics of a new concept of primary containment by energy absorption ARG-10242	B69-10046	05	Encapsulation process sterilizes and preserves surgical instruments JPL-484	B64-10066	05
Design and testing of liquid hydrogen-cooled, ultrahigh-speed ball bearings M-FS-18453	B69-10178	05	Dispenser leak-tests and sterilizes rubber gloves MSC-285	B66-10166	03
Diffusion bond method of joining steel and a TFE-bronze composite M-FS-20482	B69-10237	03	Fiberglass container shells form contamination-free storage units WOO-275	B66-10217	05
Evaluation of magnetic materials for static inverters and converters LEWIS-10343	B69-10306	01	Hand-held instrument should relieve hematoma pressure MSC-599	B67-10332	04
One-handed hammer-spanner for chucks M-FS-18581	B69-10398	05	Electrolytic silver ion cell sterilizes water supply MSC-11827	B68-10555	01
Self-lubricating gear M-FS-14971	B69-10408	05	Internal and ancestral controls of cell-generation times ARG-10326	B69-10205	04
Literature review on pickling inhibitors and cadmium electroplating processes M-FS-14421	B69-10606	03	Technique for highly efficient recovery of microbiological contaminants MSC-13250	B69-10273	04
Retention of ductility in high-strength steels ARG-10497	B69-10616	03	Sterilization training manual M-FS-20437	B69-10277	04
Effects of high-pressure hydrogen on storage vessel materials M-FS-18605	B69-10730	03	Sampling and handling of desert soils NPO-11171	B69-10304	04
STEEPEST DESCENT METHOD Computer program for mass optional solutions of some endpoint trajectory problems M-FS-12976	B67-10310	06	Effects of sterilization on the energy-dissipating properties of balsa wood NPO-11207	B69-10592	03
STEERING Current steering commutator offers versatility JPL-812	B67-10410	01	Microbiological aspects of sterilization development laboratories NPO-11197	B69-10593	04
STELLAR RADIATION Image position sensor M-FS-14101	B69-10783	02	A sterilizable high-impact antenna NPO-10231	B69-10697	01
STEP FUNCTIONS Transistorized circuit clamps voltage with 0.1 percent error GSFC-196	B65-10118	01	STEROIDS Study of behavior of sterols at interfaces ARG-10085	B68-10281	03
Alpha particle backscattering measurements used for chemical analysis of surfaces ARG-116	B67-10186	03	STIFFNESS Modified gas bearing is adjustable to optimum stiffness ratio M-FS-145	B64-10050	05
Computer program provides linear sampled-data analysis for high order systems M-FS-12821	B67-10287	06	Noncontacting transducer measures shaft torque		

STIMULI

SUBJECT INDEX

M-FS-474	B66-10048	01	JPL-686	B65-10191	05
Rubber-coated bellows improves vibration damping in vacuum lines			Fiberglass container shells form contamination-free storage units		
LEWIS-273	B66-10187	02	WOO-275	B66-10217	05
Preformed stiffeners used to fabricate structural components for pressurized tanks			Critical parts are stored and shipped in environmentally controlled reusable container		
M-FS-1796	B66-10688	05	M-FS-703	B66-10258	05
Improved computer program for elastic analysis of highly redundant structural configurations			Tool pre-tensions covers prior to lacing		
M-FS-13087	B67-10330	06	MSC-631	B66-10301	05
Analysis of stability-critical orthotropic cylinders subjected to axial compression			New electron microscope employs new video display technique		
M-FS-12869	B67-10375	03	ARG-158	B67-10312	03
Heavy-gage bonded honeycomb sandwich as primary load-bearing structure			Technique increases storage capacity in camera tube target		
M-FS-12060	B67-10427	05	MSC-11599	B68-10213	01
Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles			STORAGE BATTERIES		
LANGLEY-10093	B67-10531	06	Primary cell uses neither liquid nor fused electrolytes		
Computer program performs stiffness matrix structural analysis			NPO-10001	B67-10275	01
NPO-10502	B68-10096	06	Development of low temperature battery		
STIMULI			LEWIS-10326	B67-10546	01
Subminiature biotelemetry unit permits remote physiological investigations			Balloon batteries, charged and heated by solar energy		
ARC-39	B64-10171	01	GSFC-10769	B69-10585	01
STIRLING CYCLE			Battery charge-discharge controller		
Improved cryogenic refrigeration system			MSC-11836	B69-10747	01
JPL-731	B67-10128	02	STORAGE STABILITY		
STIRRING			Storage-stable foamable polyurethane is activated by heat		
Multiple test tubes stirred mechanically			LANGLEY-187	B66-10111	03
ARC-42	B65-10120	01	Study made of Raney nickel technology		
STOCHASTIC PROCESSES			M-FS-2054	B67-10208	03
Design techniques - Stochastic controllers			Computer magnetic tape rehabilitation study		
MSC-11554	B68-10234	02	GSFC-10283	B68-10035	05
STOICHIOMETRY			Helical recorder		
Improved fuel-cell-type hydrogen sensor			GSFC-10614	B69-10340	01
M-FS-14656	B68-10263	01	STORAGE TANKS		
Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide			Helium tube separates nitrogen gas from liquid nitrogen		
ARG-10154	B68-10293	02	JPL-398	B63-10251	05
The thermodynamic properties of the wustite phase are studied			Integral coolant channels supply made by melt-out method		
ARG-10200	B68-10408	03	M-FS-91	B63-10497	05
Niobium-uranium alloys with voids of predetermined size and total volume			Control system maintains selected liquid level		
ARG-10490	B69-10641	03	M-FS-470	B66-10039	01
Electrolytic separation of crystals of transition-metal oxides			High-pressure, low temperature electrical connector makes no-leak seal		
ARG-10506	B69-10642	03	MSC-276	B66-10079	02
STOPPING			Capacitive system detects and locates fluid leaks		
Combined actuator and latch for cartridge powered actuator			M-FS-478	B66-10099	01
MSC-11242	B67-10488	05	Insulation for cryogenic tanks has reduced thickness and weight		
Electromechanical rotary actuator operates over wide temperature range			M-FS-326	B66-10183	02
M-FS-18402	B69-10100	05	Special tool seals conductors with combination of plastic sleeves		
STORAGE			M-FS-579	B66-10209	05
Metal strip forms 21 foot boom, rolls up for compact storage			Gas diffuser facilitates withdrawal of cryogenic liquids from tanks		
GSFC-151	B64-10011	05	M-FS-915	B66-10342	05
Dispensing system eliminates torsion in deployed hoses			Closed loop operation eliminates need for auxiliary gas in high pressure pumping station		
MSC-80	B65-10185	05	M-FS-893	B66-10408	05
Extendible column can be stowed on drum			Large diameter metal ring seal prevents gas leakage at 5000 psi		

SUBJECT INDEX

STRAIN GAGES

M-FS-1064	B66-10422	05	Bismuth alloy potting seals aluminum connector in cryogenic application	B66-10138	03
Interior servicing platform simplifies maintenance of storage tanks					
M-FS-1300	B66-10425	05	Improved system measures output energy of pyrotechnic devices	B66-10159	01
Preformed stiffeners used to fabricate structural components for pressurized tanks					
M-FS-1796	B66-10688	05	Transducer measures force in vacuum environment	B66-10161	01
Nonwoven glass fiber mat reinforces polyurethane adhesive					
M-FS-2309	B67-10113	03	Radiation used to temperature compensate semiconductor strain gages	B66-10186	02
Portable fixture facilitates pressure testing of instrumentation fittings					
M-FS-2032	B67-10121	03	Coating permits use of strain gage in water and liquid hydrogen	B66-10192	01
Test instrumentation evaluates electrostatic hazards in fluid system					
M-FS-2277	B67-10145	01	Colloidal suspension simulates linear dynamic pressure profile	B66-10214	05
Glass bead shot peening retards stress corrosion failure of titanium tanks					
LANGLEY-319	B67-10198	05	Strain gage network distinguishes between thermal and mechanical deformations	B66-10280	01
Computer program provides steady state analysis for liquid propellant propulsion systems					
MSC-10064	B67-10414	06	Minimum permissible leakage resistance established for instrumentation systems	B66-10397	01
Study made of pneumatic high pressure piping materials /10,000 psi/					
KSC-10133	B67-10437	03	Spiral spring/strain gage combination accurately measures shock induced deflection	B66-10488	01
Calibrated water tank facilitates proof-loading of cranes and derricks					
M-FS-15059	B69-10109	05	Miniature telemetry system accurately measures pressure	B66-10624	01
Effects of hydrogen on metals					
M-FS-20364	B69-10372	03	Metal boot permits fabrication of hermetically sealed splices in metal sheathed instrumentation cables	B66-10704	05
Control for maintaining constant level of a cryogenic liquid					
NPO-11177	B69-10573	05	Multipurpose instrumentation cable provides integral thermocouple circuit	B67-10046	01
STRAIN ENERGY METHODS					
Analysis of stability-critical orthotropic cylinders subjected to axial compression					
M-FS-12869	B67-10375	03	Strain gage circuitry provides fatigue testing machine with accurate cycle count	B67-10093	01
STRAIN GAGE ACCELEROMETERS					
Angular acceleration measured by deflection in sensing ring					
MSC-250	B66-10105	01	Stress calculator speedily converts strain data	B67-10182	03
STRAIN GAGES					
New anemometer has fast response, measures dynamic pressure directly					
LANGLEY-28	B63-10530	05	Web belt load measuring instrument has excellent stability	B67-10242	01
Rapid helium-air analyzer can measure other binary gas mixtures					
LANGLEY-16	B63-10557	03	Transducer measures embedment stresses in electronic modules	B67-10367	01
Forming blocks speed production of strain gage grids					
LEWIS-182	B65-10009	05	Flowmeter determines mix ratio for viscous adhesives	B67-10378	01
Interferometer combines laser light source and digital counting system					
MSC-151	B65-10161	01	Machine tests slow-speed sliding friction in high vacuum	B67-10379	05
Differential pressure gauge has fast response					
M-FS-358	B65-10285	05	Ultrasonics used to measure residual stress	B67-10428	02
Improved strain-wire flowmeter has fast response time					
LEWIS-241	B65-10304	01	Device measures static friction of magnetic tape	B67-10586	03
Direct force-measuring transducer used in blood pressure research					
ARC-53	B65-10325	01	Improved control system power unit for large parachutes	B67-10677	05
Mechanism continuously measures static and dynamic cable loads					
MSC-217	B66-10107	05	Miniature pressure transducer for stressed member application	B68-10246	01
			Silicon strain sensors enable pressure		

STRAIN HARDENING

SUBJECT INDEX

measurement at cryogenic temperatures M-FS-14703	B68-10262	01	STRATOSPHERE Rocket sonde measurements of ozone in the upper atmosphere GSFC-10580	B69-10077	02
Indium adhesion provides quantitative measure of surface cleanliness SAN-10024	B68-10342	01	STREAM FUNCTIONS (FLUIDS) MAGNTY - Program for calculating velocities in magnified region of turbomachines LEWIS-10789	B69-10132	06
Nondestructive method for measuring residual stresses in metals, a concept KSC-10237	B68-10378	03	FORTAN 4 program calculates velocities and streamlines in a tandem blade turbomachine LEWIS-10743	B69-10219	06
Temperature controlled strain gaged extensometer LEWIS-10353	B68-10543	01	STREAMLINING Computer program performs flow analysis through turbines LEWIS-236	B66-10496	01
Ratio matching of half-bridge weldable strain gages, computer program PRC-10032	B69-10040	06	STRENGTH Compact coaxial connector for printed circuit adds reliability MSC-57	B64-10016	01
A magnifying scratch-gage force transducer LANGLEY-10496	B69-10212	01	Upsetting butt edge increases weld-joint strength M-FS-175	B64-10164	05
Design of a strain-gage probe ARG-10338	B69-10343	05	Tests show that aluminum welds are improved by bead removal M-FS-1817	B67-10023	05
Pressure transducer NPO-10853	B69-10364	01	Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03
STRAIN HARDENING Possible correlation between work-hardening and fatigue-failure ARG-10371	B69-10414	03	Fabrication techniques developed for small- diameter, thin-wall tungsten and tungsten alloy tubing ARG-10100	B68-10284	05
Retention of ductility in high-strength steels ARG-10497	B69-10616	03	Improved method of producing oxide-dispersion-strengthened alloys HQ-10461	B69-10536	03
STRAIN RATE Mechanical properties of plastics predetermined by empirical method ARC-28	B64-10068	03	STRESS (PHYSIOLOGY) Helmet system broadcasts electroencephalograms of wearer ARC-70	B66-10536	01
Tensile-strength apparatus applies high strain-rate loading with minimum shock JPL-28	B66-10063	05	STRESS ANALYSIS Servo system facilitates photoelastic strain measurements on resins JPL-504	B64-10280	01
Study made of ductility limitations of aluminum-silicon alloys M-FS-12524	B67-10392	03	Computer program simplifies selection of structural steel columns NU-0044	B66-10097	01
Study of stress corrosion in aluminum alloys M-FS-13906	B67-10533	03	Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates ARG-151	B66-10601	05
Evaluation of a fluorocarbon plastic used in cryogenic valve seals M-FS-18189	B68-10523	03	Stress calculator speedily converts strain data M-FS-2021	B67-10182	03
STRANDS Tester automatically checks insulation of individual conductors in multiple-strand cables NUC-10068	B67-10260	01	A modal combination computer program for dynamic analysis of structures NPO-10129	B67-10217	06
Coaxial cable stripping device facilitates RF cabling fabrication NFO-10315	B67-10419	05	Computer program calculates steady-state temperature distribution within plane or axisymmetric solids NUC-10049	B67-10224	06
STRAPS Buckle joins web straps quickly, adjusts easily LANGLEY-21	B64-10119	05	Computer program simplifies design of rotating components of turbomachinery NUC-10046	B67-10235	06
Web belt load measuring instrument has excellent stability MSC-921	B67-10242	01	Simplified method measures changes in tensile yield strength using least number of specimens NUC-10075	B67-10266	03
STRATIFICATION Improved compression molding process LANGLEY-10027	B67-10302	03	Improved computer program for elastic analysis of highly redundant structural		
Stratification of centrifuged amoeba nuclei investigated by electron microscopy ARG-10161	B68-10366	04			
STRATIFIED FLOW Ultra-high-flux heat exchanger M-FS-18135	B69-10201	02			

SUBJECT INDEX

STRESS CORROSION

configurations M-FS-13087	B67-10330	06	Study made of mechanics of deformation and fracture of fibrous composites HQ-10035	B67-10660	03
Analysis of stability-critical orthotropic cylinders subjected to axial compression M-FS-12869	B67-10375	03	Tensile testing grips ensure uniform loading of bimetal tubing specimens LEWIS-10267	B68-10248	05
Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01	Manual of typical low temperature mechanical properties of several materials M-FS-18331	B69-10179	03
Circuit measures hysteresis loop areas at 30 Hz M-FS-13069	B67-10519	01	Literature review on pickling inhibitors and cadmium electroplating processes M-FS-14421	B69-10606	03
Computer program performs rectangular fitting stress analysis M-FS-13010	B67-10520	06	STRESS CORROSION		
Digital computer program predicts effects of local pressure transients on deformation and stresses in cylindrical ducts M-FS-13058	B67-10631	06	Aluminum alloys protected against stress-corrosion cracking M-FS-235	B65-10172	03
Development of biaxial test fixture includes cryogenic application M-FS-14185	B68-10070	01	New brazing alloy eliminates metal-stress cracking WOO-249	B65-10397	03
Experiments with ceramic coatings M-FS-18150	B68-10355	03	Electrolytic etching process provides effective bonding surface on stainless steel GSPC-484	B66-10299	03
Nondestructive method for measuring residual stresses in metals, a concept KSC-10237	B68-10378	03	Weldable aluminum alloy has improved mechanical properties M-FS-295	B66-10445	03
General series solution technique for bending of irregular laterally loaded flat plates NUC-10170	B69-10035	06	Thermal stress-relief treatments for 2219 aluminum alloy are evaluated M-FS-1213	B66-10448	03
Torsion system for creep testing with multiple stress reversals HQ-10039	B69-10147	03	Treatment increases stress-corrosion resistance of aluminum alloys M-FS-1840	B66-10595	05
Stress-testing of the throat of a rocket* nozzle NFO-10311	B69-10358	05	New weldable high strength aluminum alloy developed for cryogenic service M-FS-737	B66-10613	05
Root-cubing and general root-powering methods for finding the zeros of polynomials ARG-10444	B69-10424	02	Beryllium fluoride film protects beryllium against corrosion LEWIS-363	B67-10026	03
Determination of permissible applied load stress in structural elements M-FS-16556	B69-10823	02	Study to minimize hydrogen embrittlement of ultrahigh-strength steels M-FS-2455	B67-10141	03
STRESS CONCENTRATION			Degreasing of titanium to minimize stress corrosion LEWIS-382	B67-10147	03
Lightweight hinged bellows restraint has high load capacity WOO-151	B65-10341	03	Heat treatment study of aluminum casting alloy M45 M-FS-2397	B67-10159	03
Fastener distributes stress evenly from sandwich-panel-hung items MSC-236	B65-10358	05	Glass bead shot peening retards stress corrosion failure of titanium tanks LANGLEY-319	B67-10198	05
Resilient clamp holds fuel cell stack through resilient clamp holds fuel cell stack through thermal cycle MSC-313	B66-10035	05	Chemical milling solution reveals stress corrosion cracks in titanium alloy LANGLEY-10077	B67-10322	03
Aluminum/steel wire composite plates exhibit high tensile strength M-FS-401	B66-10262	05	Study made of procedures for externally loading and corrosion testing stress corrosion specimens M-FS-12064	B67-10451	03
Torus elements used in effective shock absorber WOO-114	B66-10318	05	Study of stress corrosion in aluminum alloys M-FS-13906	B67-10533	03
Post-stressed concrete foundation may reduce machinery vibration ARG-130	B67-10237	05	Study of crack initiation phenomena associated with stress corrosion of aluminum alloys M-FS-14283	B68-10153	03
Analysis of stability-critical orthotropic cylinders subjected to axial compression M-FS-12869	B67-10375	03	Stress-corrosion characteristics of aluminum casting alloy M-45 M-FS-14817	B68-10184	03
Heavy-gage bonded honeycomb sandwich as primary load-bearing structure M-FS-12060	B67-10427	05	A rapid stress-corrosion test for aluminum alloys		

STRESS FUNCTIONS

SUBJECT INDEX

M-FS-20175	B68-10536	03	M-FS-403	B66-10405	05
Stress-corrosion-induced property changes in aluminum alloys			Simplified method measures changes in tensile yield strength using least number of specimens		
M-FS-20209	B68-10568	03	NUC-10075	B67-10266	03
STRESS FUNCTIONS			Study made of mechanics of deformation and fracture of fibrous composites		
Finite element analysis of compressible solids with nonlinear material properties			HQ-10035	B67-10660	03
NUC-10342	B69-10238	06	Possible correlation between work-hardening and fatigue-failure		
STRESS MEASUREMENT			ARG-10371	B69-10414	03
Miniature stress transducer has directional capability			STRESS-STRAIN-TIME RELATIONS		
JPL-591	B65-10023	01	Circuit measures hysteresis loop areas at 30 Hz		
Angular acceleration measured by deflection in sensing ring			M-FS-13069	B67-10519	01
MSC-250	B66-10105	01	STRESS WAVES		
Polymer deformation gage measures thickness change in tensile tests			Lamb waves increase sensitivity in nondestructive testing		
JPL-745	B66-10147	01	ARG-10009	B67-10605	02
Colloidal suspension simulates linear dynamic pressure profile			Gage measures total radiation, including vacuum UV, from ionized high-temperature gases		
WOO-266	B66-10214	05	INP-09802	B69-10028	02
Ultrasonic emission method enables testing of adhesive bonds			STRESSES		
M-FS-799	B66-10341	01	Mechanical properties of plastics predetermined by empirical method		
Stress calculator speedily converts strain data			ARC-28	B64-10068	03
M-FS-2021	B67-10182	03	Contact stresses calculated for miniature slip rings		
Simple test for physical stability of cryogenic tank insulation			M-FS-280	B65-10098	05
M-FS-12547	B68-10048	03	Integral ribs formed in metal panels by cold-press extrusion		
STRESS RATIO			M-FS-230	B65-10141	05
Testing device subjects elastic materials to biaxial deformations			Improved fluid control valve extends diaphragm life		
JPL-616	B65-10189	03	JPL-345	B65-10147	05
STRESS RELAXATION			Unique construction makes interferometer insensitive to mechanical stresses		
Thermal stress-relief treatments for 2219 aluminum alloy are evaluated			JPL-725	B65-10295	02
M-FS-1213	B66-10448	03	Universal transloader moves delicate equipment without stress		
Machining heavy plastic sections			MSC-654	B66-10384	05
M-FS-12720	B67-10381	03	Polarized light reveals stress in machined laminated plastics		
STRESS RELIEVING			LEWIS-10018	B67-10383	03
Dispensing system eliminates torsion in deployed hoses			Development of reliability prediction technique for semiconductor diodes		
MSC-80	B65-10185	05	GSFC-10231	B67-10651	06
Insert sleeve prevents tube soldering contamination			Miniature pressure transducer for stressed member application		
MSC-552	B66-10238	05	MSC-11869	B68-10246	01
Large seals fabricated from small segments reduce procurement lead time			Design eliminates radial thermal expansion in turbine stator components		
M-FS-1117	B66-10464	05	M-FS-18146	B68-10531	05
Process yield Co-Fe alloys with superior high temperature magnetic properties			STRETCHERS		
LEWIS-333	B66-10535	03	Buoyant Stokes litter assembly used for sea rescue operations		
Heat-treatment of metal parts facilitated by sand embedment			MSC-131	B66-10019	05
M-FS-1543	B66-10616	03	Orthopedic stretcher with average-sized person can pass through 18-inch opening		
Jacketed cryogenic piping is stress relieved			M-FS-811	B66-10573	05
M-FS-985	B67-10308	05	STRETCHING		
Warpage eliminated in copper-clad microwave circuit laminates			Tool pre-tensions covers prior to lacing		
M-FS-13892	B67-10454	03	MSC-631	B66-10301	05
STRESS-STRAIN DIAGRAMS			Development of technology for hot-drape forming of large torus sections		
Extensometer automatically measures elongation in elastomers			M-FS-12141	B67-10341	05
M-FS-517	B66-10284	05			
Design reliability goal developed from small sample					

SUBJECT INDEX

STRUCTURAL FAILURE

STRIPPING

Cutter and stripper reduces coaxial cable connection time
ARC-40 B65-10094 05

Technique for stripping Teflon insulated wire
M-FS-1774 B67-10048 05

Tools for applying lead tape to flat conductor cabling for chemical stripping
M-FS-20429 B69-10190 05

STROBOSCOPES

Multicolor stroboscope pinpoints resonances in vibrating components
JPL-0033 B66-10223 01

STRONTIUM 90

Silicon surface barrier detectors used for liquid hydrogen density measurement
M-FS-14115 B68-10166 01

STRUCTURAL ANALYSIS

Computer program simplifies transient and steady-state temperature prediction for complex body shapes
MSC-989 B66-10619 01

Neutron diffractometer allows both magnetic and crystallographic analyses
ARG-191 B67-10131 02

Structural Analysis and Matrix Interpretive System /SAMIS/
NPO-10130 B67-10171 01

Improved computer program for elastic analysis of highly redundant structural configurations
M-FS-13087 B67-10330 06

Survey made of refractory metals
LEWIS-10380 B68-10032 03

Computer program performs stiffness matrix structural analysis
NPO-10502 B68-10096 06

Fatigue of reinforced concrete beams under dynamic loading
M-FS-14980 B68-10515 05

Fractography can be used to analyze failure modes in polytetrafluoroethylene
M-FS-20294 B69-10066 03

Fatigue failure in metal bellows due to flow-induced vibrations
M-FS-18383 B69-10071 05

Structural Analysis and Matrix Interpretive System /SAMIS/
NPO-10839 B69-10093 01

Mechanical properties of a lap joint under uniform clamping pressure
M-FS-14538 B69-10141 05

STRUCTURAL DESIGN

A conceptual design for squeeze film bearings
M-FS-573 B66-10226 05

Solar cell submodule design facilitates assembly of lightweight arrays
JPL-728 B66-10231 02

Integrated mobility measurement and notation system
MSC-726 B67-10114 04

Land landing couch dynamics computer program
MSC-1210 B67-10233 06

Computer program simplifies design of rotating components of turbomachinery
NUC-10046 B67-10235 06

Application of distorted models in

developing scaled structural models
M-FS-2540 B67-10321 05

Study made of large amplitude fuel sloshing
M-FS-12381 B67-10439 03

Computer programs for antenna feed system design and analysis
NPO-10359 B67-10504 06

Study of crack initiation phenomena associated with stress corrosion of aluminum alloys
M-FS-14283 B68-10153 03

Improved traveling wave maser amplifier
NPO-10548 B68-10244 01

Design of fluid-duct bends with low pressure loss
M-FS-20176 B68-10395 05

Analysis of filament reinforced metal-shell pressure vessels
LEWIS-10352 B68-10405 06

Improved mouse cage provides versatility and ease in handling laboratory mice
MSC-12250 B69-10124 04

Optimum structural design based on reliability and proof-load testing
NPO-11228 B69-10723 31

Determination of permissible applied load stress in structural elements
M-FS-16556 B69-10823 02

STRUCTURAL ENGINEERING

Computer program simplifies selection of structural steel columns
NU-0044 B66-10097 01

STRUCTURAL FAILURE

Refractory oxides evaluated for high-temperature use
LANGLEY-121 B65-10167 03

Plugged hollow shaft makes fatigue-resistant shear pin
LANGLEY-195 B66-10077 05

Rubber-coated bellows improves vibration damping in vacuum lines
LEWIS-273 B66-10187 02

Fluid damping reduces bellows seal fatigue failures
M-FS-565 B66-10249 05

Study to minimize hydrogen embrittlement of ultrahigh-strength steels
M-FS-2455 B67-10141 03

Glass bead shot peening retards stress corrosion failure of titanium tanks
LANGLEY-319 B67-10198 05

Computer program simplifies design of rotating components of turbomachinery
NUC-10046 B67-10235 06

Buckling strength of filament-wound cylinders under axial compression is investigated
HQ-10032 B67-10659 03

Study made of mechanics of deformation and fracture of fibrous composites
HQ-10035 B67-10660 03

Predicting fatigue life of metal bellows
M-FS-14096 B68-10026 05

Fractography can be used to analyze failure modes in polytetrafluoroethylene
M-FS-20294 B69-10066 03

Techniques for controlling warpage and

STRUCTURAL MEMBERS

SUBJECT INDEX

residual stresses in welded structures M-FS-20307	B69-10086	05	microwave circuit laminates M-FS-13892	B67-10454	03
STRUCTURAL MEMBERS			Tensile and fatigue properties of Inconel 718 at cryogenic temperatures M-FS-18192		
Threaded split ring connector separates structural sections LANGLEY-145	B65-10383	05	Adhesive for cryogenic temperature applications LEWIS-10264	B69-10068	03
Epoxy blanket protects milled part during explosive forming M-FS-307	B66-10029	03	Seismographic recording of large rocket engine operation M-FS-20545	B69-10074	03
Lifting clamp positively grips structural shapes M-FS-593	B66-10176	05	STRUCTURAL STABILITY		
Aluminum/steel wire composite plates exhibit high tensile strength M-FS-401	B66-10262	05	Modular chassis simplifies packaging and interconnecting of circuit boards JPL-236A	B63-10174	01
Instrument calculates moments of inertia of complex plane figures MSC-628	B66-10306	01	Radiant heater for vacuum furnaces offers high structural rigidity, low heat loss LEWIS-39	B63-10342	01
Modified hydraulic braking system limits angular deceleration to safe values GSFC-476	B66-10310	05	Flexible honeycomb structure can bend to fit compound curves M-FS-13	B63-10385	05
Metal tube can be folded for compact stowage, is self-erecting LEWIS-288	B66-10450	05	New inflatable liferaft is nontippable MSC-4A	B64-10001	05
Preformed stiffeners used to fabricate structural components for pressurized tanks M-FS-1796	B66-10688	05	Spring loaded beaded cable makes efficient wire puller WOO-108	B65-10031	05
Proposed method of rotary dynamic balancing by laser M-FS-12422	B67-10452	02	Nonresonant support facilitates vibration testing of structures M-FS-224	B65-10039	05
Miniature pressure transducer for stressed member application MSC-11869	B68-10246	01	Modular thermoelectric cell is easily packaged in various arrays GSFC-339	B65-10199	01
A magnifying scratch-gage force transducer LANGLEY-10496	B69-10212	01	Sheet metal strip unrolls to form circular boom GSFC-423	B66-10032	05
Boron fiber-reinforced aluminum alloy tubing /experimental/ MSC-15633	B69-10509	05	Bellows design features low spring rate and long life MSC-521	B66-10190	05
STRUCTURAL RELIABILITY			Heat treatment stabilizes welded aluminum jigs and tool structures MSC-800	B66-10458	03
Lightweight universal joint transmits both torque and thrust JPL-375	B63-10236	05	Reparable, high-density microelectronic module provides effective heat sink M-FS-13075	B67-10356	01
New method used to fabricate light-weight heat exchanger for rocket motor LEWIS-43	B63-10346	02	Heavy-gage bonded honeycomb sandwich as primary load-bearing structure M-FS-12060	B67-10427	05
High efficient square-wave oscillator operator at high power levels GSFC-112	B63-10554	01	Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles LANGLEY-10093	B67-10531	06
New method forms bond line free of voids LANGLEY-20	B63-10558	05	High temperature alloy LEWIS-10377	B68-10253	03
Leaf-spring suspension provides accurate parallel displacements JPL-480	B65-10104	05	Nickel-base superalloy*s excellent properties promote its service to 2200 degrees F LEWIS-10355	B68-10380	03
Low-cost tool minimizes damage to O-rings during installation MSC-140	B65-10116	05	Electronic analog equalization for vibrational testing NPO-10544	B69-10472	01
Intermediate rotating ring improves reliability of dynamic shaft seal M-FS-575	B66-10197	05	STRUCTURAL STRAIN		
Brazing process using Al-Si filler alloy reliably bonds aluminum parts MSC-448	B66-10241	05	Strain gage network distinguishes between thermal and mechanical deformations GSFC-478	B66-10280	01
Design reliability goal developed from small sample M-FS-403	B66-10405	05	Torus elements used in effective shock absorber WOO-114	B66-10318	05
Warpage eliminated in copper-clad					

SUBJECT INDEX

SUBMERGED BODIES

Universal transloader moves delicate equipment without stress MSC-654	B66-10384	05	Fiber glass reinforced structural materials for aerospace application M-FS-14806	B68-10360	03
IR vidicon scanner monitors many test points M-FS-1937	B67-10277	01	Air-cushion lift pad M-FS-14685	B69-10448	05
Analysis of stability-critical orthotropic cylinders subjected to axial compression M-FS-12869	B67-10375	03	STUDS (STRUCTURAL MEMBERS) Gun facilitates adhesive bonding of studs to surfaces M-FS-20299	B69-10009	05
Ratio matching of half-bridge weldable strain gages, computer program FRC-10032	B69-10040	06	Repair of honeycomb panels with welded breakaway studs MSC-15046	B69-10261	05
Four-bar linkage for thermal compensation in test mounts for structures NFO-11059	B69-10298	05	STYRENES Warpage eliminated in copper-clad microwave circuit laminates M-FS-13892	B67-10454	03
STRUCTURAL VIBRATION Viscous-pendulum damper suppresses structural vibrations LANGLEY-45	B64-10272	05	STYROFOAM (TRADEMARK) Mill profiler machines soft materials accurately M-FS-692	B66-10254	05
Seismic transducer measures small horizontal displacements M-FS-81	B65-10029	05	Fixed vacuum plate clamps styrofoam for machining M-FS-683	B66-10283	05
Noncontacting vibration transducer has constant sensitivity LANGLEY-99	B65-10392	01	SUBASSEMBLIES Computerized parts list system coordinates engineering releases, parts control, and manufacturing planning NUC-10073	B67-10348	06
Tensile-strength apparatus applies high strain-rate loading with minimum shock JPL-28	B66-10063	05	Replacement of fluid-filter elements without interruption of flow MSC-15499	B69-10245	05
Mechanism isolates load weighing cell during lifting of load MSC-297	B66-10071	05	SUBDIVISIONS Simple scale interpolator facilitates reading of graphs LEWIS-92	B66-10302	05
Multicolor stroboscope pinpoints resonances in vibrating components JPL-0033	B66-10223	01	SUBHARMONIC GENERATORS Experimental coherent fractional frequency multiplier at S-band M-FS-2427	B67-10250	01
Rugged microelectronic module package supports circuitry on heat sink MSC-81A	B66-10245	01	SUBLIMATION Freon provides heat transfer for solid CO2 calibration standard M-FS-644	B66-10257	02
Fluid damping reduces bellows seal fatigue failures M-FS-565	B66-10249	05	Auxiliary titanium sublimation pump produces ultrahigh /10 to the minus 11 torr/ vacuum LANGLEY-212	B66-10388	02
Study made of interaction between sound fields and structural vibrations HQ-26	B67-10068	02	Modular Porcus Plate Sublimator /MPPS/ requires only water supply for coolant M-FS-1374	B66-10409	01
Post-stressed concrete foundation may reduce machinery vibration ARG-130	B67-10237	05	Chemical regeneration of emitter surface increases thermionic diode life LEWIS-17	B66-10435	02
STRUCTURAL WEIGHT Pneumatic separator gives quick release to heavy loads KSC-66-10	B66-10294	05	Radioactive method enables determination of surface areas rapidly and accurately NU-0088	B66-10710	03
Lightweight heater generates high temperatures from low current SAN-10004	B68-10223	01	Development of dual solid cryogens for high reliability refrigeration system GSFC-10188	B67-10644	02
Weight Control System M-FS-15028	B69-10041	06	Measurement of gas flow at extremely low pressures MSC-13261	B69-10522	03
STRUCTURES Air-cured ceramic coating insulates against high heat fluxes M-FS-150	B65-10357	03	SUBMERGED BODIES System locates randomly placed remote objects LANGLEY-209	B66-10315	01
STRUTS Lightweight load support serves as vibration damper JPL-661	B65-10144	05	Ballast barge concept for underwater structures KSC-10196	B68-10168	05
Combustion chamber struts can be effectively transpiration cooled M-FS-1830	B66-10643	03	Proposed gas generation assembly would recover deeply submerged objects		
Land landing couch dynamics computer program MSC-1210	B67-10233	06			

SUBMERGING

SUBJECT INDEX

SAN-10007	B68-10211	05	Computer program analyzes generalized environmental control and life support systems	MSC-1157	B67-10415	06
SUBMERGING						
Internal cooling increases range of immersion-type temperature probe			Analysis of dynamic systems with DAP4H computer program	M-FS-13999	B67-10523	06
LEWIS-171	B65-10157	02	Computer program for Video Data Processing System /VDPS/	NPO-10042	B67-10630	06
Coating permits use of strain gage in water and liquid hydrogen	B66-10192	01	X-Y plotter adapter developed for SDS-930 computer	NPO-10220	B67-10654	06
M-FS-594	B66-10192	01	MOP /Matrix Operation Programs system/	NPO-10429	B68-10005	06
Sea dye marker provides visibility for 20 hours	B66-10313	03	HICOV - Newton-Raphson calculus of variation with automatic transversalities	M-FS-1446E	B68-10232	06
MSC-714	B66-10313	03	FORTTRAN optical lens design program	NPO-10603	B68-10354	06
SUBMILLIMETER WAVES			Encode/Decode facility for FORTTRAN 4	ARG-10335	B69-10169	06
Ferroelectric bolometer measures RF absolute power at submillimeter wavelengths	B66-10051	01	Thermophysical properties of sodium	ARG-10363	B69-10240	03
GSFC-422	B66-10051	01	GAMBIT program	NUC-10243	B69-10433	06
SUBMINIATURIZATION			IBM-1620 monitor 2-D disk-storage subroutines	ARG-10376	B69-10618	01
Subminiature biotelemetry unit permits remote physiological investigations	B64-10171	01	SUBSONIC FLOW			
ARC-39	B64-10171	01	Computer program calculates peripheral water injection cooling of axisymmetric subsonic diffuser	NUC-10541	B67-10543	06
Subminiaturized gas chromatograph gives fast, efficient analysis	B66-10182	01	Laser-Doppler gas-velocity instrument	M-FS-20039	B68-10349	02
JPL-735	B66-10182	01	Modified Multhopp mean camber computer program	LANGLEY-10376	B68-10446	06
SUBREFLECTORS			Modified Multhopp lifting surface loading program	LANGLEY-10375	B68-10452	06
Shortened horn-reflector antenna	B67-10017	01	SUBSONIC SPEED			
GSFC-502	B67-10017	01	Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds	LANGLEY-10191	B67-10666	06
Computer programs for antenna feed system design and analysis	B67-10504	06	SUBSTITUTES			
NFO-10359	B67-10504	06	Substitution of stable isotopes in Chlorella	ARG-10258	B69-10197	04
SUBROUTINE LIBRARIES (COMPUTERS)			SUBSTRATES			
Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes	B67-10665	06	Tantalum cathode improves electron-beam evaporation of tantalum	JPL-W00-021	B65-10175	03
NUC-10143	B67-10665	06	Thin transparent films formed from powdered glass	GSFC-352	B65-10217	03
SUBROUTINES			Porous glass makes effective substrate for ozone-sensing reagent	GSFC-388	B65-10364	03
Computer programs simplify optical system analysis	B65-10093	01	Thin-film semiconductor rectifier has improved properties	MSC-207	B66-10012	01
GSFC-306	B65-10093	01	Assembly jig assures reliable solar cell modules	GSFC-455	B66-10040	05
Subroutine allows easy computation in extended precision arithmetic	B66-10504	01				
M-FS-1136	B66-10504	01				
Computer routine adds plotting capabilities to existing programs	B66-10511	01				
GSFC-490	B66-10511	01				
Computer program simulates design, test, and analysis phases of sensitivity experiments	B67-10077	01				
M-FS-1496	B67-10077	01				
A power-spectral-density computer program	B67-10160	01				
NFO-10126	B67-10160	01				
Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter	B67-10222	06				
NUC-10044	B67-10222	06				
Computer program utilizes FORTTRAN 4 subroutines for contour plotting	B67-10323	06				
NFO-10127	B67-10323	06				
Computer subroutine ISUDS accurately solves large system of simultaneous linear algebraic equations	B67-10344	06				
NUC-10051	B67-10344	06				
Computerized parts list system coordinates engineering releases, parts control, and manufacturing planning	B67-10348	06				
NUC-10073	B67-10348	06				
Saturn S-2 Automatic Software System /SASS/	B67-10405	06				
M-FS-1741	B67-10405	06				
Computer program generates averaged value data tapes	B67-10411	06				
M-FS-12728	B67-10411	06				

SUBJECT INDEX

SULFIDES

Protective coating withstands high temperature in oxidizing atmosphere M-FS-529	B66-10044	03	fully deuterated enzymes ARG-10314	B69-10207	04
Storage-stable foamable polyurethane is activated by heat LANGLEY-187	B66-10111	03	Automated microorganism Sample Collection Module HQ-10421	B69-10223	04
Niobium thin films are superconductive in strong magnetic fields at low temperatures JPL-SC-174	B66-10122	02	Electrochemical sintering process for producing electrodes from cadmium felt and a nickel or silver grid GSFC-10764	B69-10227	05
Nylon bit removes cork insulation without damage to substrate MSC-381	B66-10152	05	Technique for abrasive cutting of thick-film conductors for hybrid circuits MSC-13242	B69-10235	03
Tool permits damage-free removal of solar cell GSFC-467	B66-10219	05	Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04
Single-crystal semiconductor films grown on foreign substrates WOO-076	B66-10225	01	Conceptual techniques for reducing parasitic current gain of lateral pnp transistors MSC-13199	B69-10244	01
Dry film lubricant is effective at extreme loads M-FS-628	B66-10256	03	Radiation tolerant silicon nitride insulated gate field effect transistors GSFC-10581	B69-10253	01
Dot patterns provide reproducible flaw areas for study of adhesive bonds M-FS-862	B66-10367	05	Multilayer infrared beamsplitter film system XGS-11036	B69-10260	02
Self-supported aluminum thin films produced by vacuum deposition process ARC-58	B66-10387	03	Pressure transducer NPO-10853	B69-10364	01
Thin-film ferrites vapor deposited by one-step process in vacuum MSC-259	B66-10398	03	Improved vacuum deposition apparatus NPO-11009	B69-10365	02
Uniform reflective films deposited on large surfaces GSFC-507	B66-10483	02	Epitaxial crystalline growth upon cold substrates MSC-11196	B69-10494	01
Detector measures power in 50 to 30,000 GHz radiation band BRC-26	B66-10581	01	Modification to improve self-isolating transistor arrays M-FS-20499	B69-10678	01
Oxide film on metal substrate reduced to form metal-oxide-metal layer structure ARG-48	B67-10187	03	SUCTION Magnetic field controls carbon arc tail flame MSC-139	B65-10108	01
Substituting gold for silver improves electrical connections M-FS-2390	B67-10228	03	Calibrated clamp facilitates pressure application MSC-298	B66-10059	05
Ion plating technique improves thin film deposition SAN-10006	B68-10212	03	Concept for cryogenic liquid reclamation system NPO-10322	B67-10420	02
Graphite cloth facilitates vacuum evaporation of silicon monoxide M-FS-14764	B68-10256	03	SUITS Rate of heat extraction controller for environmental control HQ-10318	B69-10516	01
Improved radiographic image amplifier panel M-FS-14522	B68-10363	02	SULFATES Surfactant for dye-penetrant inspection is insensitive to liquid oxygen M-FS-475	B66-10131	03
High-emittance coatings on metal substrates LEWIS-10325	B68-10381	03	Development of low temperature battery LEWIS-10326	B67-10546	01
Improved process for epitaxial deposition of silicon on prediffused substrates M-FS-14910	B68-10390	03	Ceric and ferrous dosimeters show precision for 50-5000 rad range ARG-10173	B68-10426	02
Evaluation of superconducting magnets, a study M-FS-14808	B68-10396	02	Coolants with selective optical filtering characteristics for ruby laser applications M-FS-20188	B68-10508	02
High dielectric thick films for screened circuit capacitors LANGLEY-10294	B68-10542	01	SULFIDES Chemical milling solution produces smooth surface finish on aluminum MSC-549	B66-10312	03
Electron beam recrystallization of amorphous semiconductor materials LEWIS-10443	B68-10556	02	Study of mechanical properties of uranium compounds ARG-10074	B68-10197	03
Detection of molecular infrared spectra HQ-10377	B69-10172	02			
Purification and characterization of two					

SULFONATES

SUBJECT INDEX

SULFONATES

Etching process mills PH 14-8 Mo alloy
steel to precise tolerances
MSC-270 B66-10110 03

Surfactant for dye-penetrant inspection is
insensitive to liquid oxygen
M-FS-475 B66-10131 03

Uranyl phthalocyanines show promise in the
treatment of brain tumors
ARG-100 B67-10188 04

Heparin insolubilized with crosslinking
agent
NPO-10834 B69-10299 03

SULFUR
Chemical milling solution produces smooth
surface finish on aluminum
MSC-549 B66-10312 03

Development of low temperature battery
LEWIS-10326 B67-10546 01

SULFUR COMPOUNDS
Sintering characteristics and properties
of PuS and PuP are determined
ARG-10228 B69-10058 03

Inhibition of browning in foodstuffs
HQ-10177 B69-10493 04

SULFURIC ACID
Fuel cell serves as oxygen level detector
JPL-SC-072 B65-10066 01

Electrochemical milling removes burrs and
solder from tubing ends
M-FS-714 B66-10358 03

Method for removing surface-damaged layers
from nickel alloys
M-FS-18151 B68-10522 03

Corrosion protection of aluminum alloys in
contact with other metals
M-FS-18526 B69-10098 03

SUNPS
Method for X-ray study under extreme
temperature and pressure conditions
MSC-11232 B67-10474 02

SUNLIGHT
Special coatings control temperature of
structures
GSFC-444 B65-10337 03

Pigmented coating resists thermal shock
JPL-SC-083 B65-10354 03

SUNSPOTS
Solar activity history model
M-FS-20529 B69-10776 01

SUPERCONDUCTING MAGNETS
Superconductor magnets used for stagger-tuning
traveling-wave maser
GSFC-292 B65-10165 01

Mechanisms of superconductivity
investigated by nuclear radiation
M-FS-1944 B67-10057 02

Evaluation of superconducting magnets, a
study
M-FS-14808 B68-10396 02

SUPERCONDUCTIVITY
Simple technique determines ac properties
of hard superconductive materials
M-FS-1818 B66-10657 02

Simple pump maintains liquid helium level in
cryostat
M-FS-1763 B67-10039 05

Superconducting switch permits measurement

of small voltages at cryogenic temperatures
ARG-90260 B68-10087 01

Superconductive thin film makes convenient
liquid helium level sensor
LANGLEY-10289 B68-10341 01

Superconductivity in zirconium-rhodium
alloys
ARG-10223 B69-10010 03

Report on a cryogenic gyroscope
NPO-11200 B69-10504 02

SUPERCONDUCTORS
Supercold technique duplicates magnetic field
in second superconductor
JPL-376 B63-10237 05

Shaped superconductor cylinder retains intense
magnetic field
JPL-381 B63-10238 01

Superconductor magnets used for stagger-tuning
traveling-wave maser
GSFC-292 B65-10165 01

Superconductor shields test chamber from
ambient magnetic fields
JPL-627 B65-10297 02

Compound improves thermal interface between
thermocouple and sensed surface
NU-0028 B66-10121 02

Niobium thin films are superconductive in
strong magnetic fields at low temperatures
JPL-SC-174 B66-10122 02

Rectangular configuration improves
superconducting cable
ARG-90088 B68-10098 02

One hundred angstrom niobium wire
LEWIS-10128 B68-10279 03

Evaluation of superconducting magnets, a
study
M-FS-14808 B68-10396 02

Experimental prediction of performance
by superconducting cables
ARG-10215 B69-10161 01

RF noise suppression using the
photodielectric effect in semiconductors
MSC-12259 B69-10225 01

Preparation of superconducting thin films
of transition-metal interstitial compounds
HQ-10445 B69-10470 01

SUPERCOOLING
Supercold technique duplicates magnetic field
in second superconductor
JPL-376 B63-10237 05

Complementary system vaporizes subcooled
liquid, improves transformer efficiency
M-FS-550 B66-10045 02

Study of hydrogen slush-hydrogen gel
utilization
M-FS-13068 B67-10413 02

Self-sustained hydrodynamic oscillations in
a natural-circulation two-phase-flow
boiling loop
ARG-10461 B69-10620 02

SUPERCRITICAL FLOW
Variable-mesh method of solving
differential equations
NPO-10515 B69-10017 02

SUPERCRITICAL PRESSURES
Instabilities encountered during heat
transfer to a supercritical fluid
ARG-10266 B69-10042 02

SUBJECT INDEX

SUPPORTS

Cryogenic fluid flow instabilities in heat exchangers M-FS-20438	B69-10541	02	supersonic stream LEWIS-10695	B68-10533	02
SUPERFLUIDITY			Bell nozzle kernel analysis program M-FS-18456	B69-10146	06
Cryogenic filter method produces super-pure helium and helium isotopes JPL-374	B63-10235	03	Aerodynamic forces of fluttering cylindrical and/or planar structures M-FS-20497	B69-10781	02
SUPERHEATING			SUPERSONIC INLETS		
Zirconium alloys with small amounts of iron and copper or nickel show improved corrosion resistance in superheated steam ARG-226	B67-10050	03	Perforations in jet engine supersonic inlet increase shock stability NEO-8	B66-10530	05
Study made of corrosion resistance of stainless steel and nickel alloys in nuclear reactor superheaters ARG-230	B67-10051	03	SUPERSONIC SPEEDS		
Self-sustained hydrodynamic oscillations in a natural-circulation two-phase-flow boiling loop ARG-10461	B69-10620	02	Pneumatic power is transmitted through air bearing MSC-8	B64-10141	05
SUPERHETERODYNE RECEIVERS			SUPERSONIC TEST APPARATUS		
Optical superheterodyne receiver uses laser for local oscillator M-FS-1605	B66-10584	01	Noise study of single stage compressor rotor-stator interaction LANGLEY-137	B67-10516	02
SUPERHIGH FREQUENCIES			SUPERSONIC TRANSPORTS		
Modified filter prevents conduction of microwave signals along high-voltage power supply leads JPL-63	B63-10091	01	Conceptual nonorthogonal gyro configuration for guidance and navigation MSC-11363	B67-10433	01
Study of yttrium iron garnet rods reveals new magnetostatic echo mode ERC-37	B67-10153	01	Computer program calculates sonic-boom pressure signatures LANGLEY-10096	B67-10489	06
Experimental coherent fractional frequency multiplier at S-band M-FS-2427	B67-10250	01	SUPPORT SYSTEMS		
Reflectometer for receiver input system NPO-10843	B67-10657	01	Nonresonant support facilitates vibration testing of structures M-FS-224	B65-10039	05
Improved traveling wave maser amplifier NPO-10548	B68-10244	01	Flexure support system protects thermally and dynamically loaded models LANGLEY-39	B65-10042	05
A positive taper traveling-wave tube LANGLEY-10263	B69-10407	01	Lightweight load support serves as vibration damper JPL-661	B65-10144	05
A sterilizable high-impact antenna NPO-10231	B69-10697	01	Heat exchanger tubes supported in high vibration environment M-FS-1401	B66-10567	05
SUPERPOSITION (MATHEMATICS)			Teflon sheet permits valve and valve operator to move as a single unit in a cryogenic pipe line NU-0077	B66-10702	05
Use of photographs speeds inspection of printed-circuit boards MSC-72	B64-10118	01	Air bearing provides friction-free support for shaker system slip table NU-0086	B66-10708	05
SUPERSONIC AIRCRAFT			Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456	B69-10192	03
Computer program analyzes and designs supersonic wing-body combinations ARC-10141	B68-10335	06	Four-bar linkage for thermal compensation in test mounts for structures NPO-11059	B69-10298	05
New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118	03	SUPPORTS		
Sonic boom propagation in stratified atmosphere LANGLEY-10480	B69-10391	06	Novel shock absorber features varying yield strengths MSC-63A	B64-10138	03
SUPERSONIC FLOW			Leaf-spring suspension provides accurate parallel displacements JPL-480	B65-10104	05
Study of hot wire techniques in low density flows with high turbulence levels M-FS-1269	B66-10687	01	Shock mount isolates pressure transducers from vibration JPL-631	B65-10113	05
Problem of oscillating cone in supersonic flow is solved by small perturbation techniques M-FS-869	B66-10700	02	Extendible column can be stowed on drum JPL-686	B65-10191	05
Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02	Spiral heater coils hand-formed with fixture LEWIS-208	B65-10192	05
A mass flux probe for measurement in a			Vacuum chamber provides improved insulation and support for cryostat		

SUPPRESSORS

SUBJECT INDEX

M-FS-415	B65-10368	02	Journal gas bearing for curved surfaces		
Extendable mast used in one shot soil penetrometer			M-FS-20423	B69-10182	05
JPL-685	B66-10146	05	Camera mount for close-up stereo photographs		
Mount enables precision adjustment of optical-instrumentation mirror			LANGLEY-10442	B69-10226	02
MSC-184	B66-10199	02	Automatic leveling and equalizing hoist device		
Rugged microelectronic module package supports circuitry on heat sink			M-FS-16549	B69-10514	05
MSC-81A	B66-10245	01	Hermetically sealed vibration damper		
Compact actuator converts rotary to linear motion			MSC-10959	B69-10634	05
JPL-786	B66-10265	05	Precisely repeatable rotary mechanism		
Inspection of fine wires simplified by capillary tube wire holder			NPO-10679	B69-10696	05
MSC-358	B66-10329	01	Burn-rate testing apparatus		
Simulator effects partial gravity conditions			MSC-10947	B69-10740	03
MSC-152	B66-10339	05	SUPPRESSORS		
Submicron holes in thin films increase sampling range of mass spectrometers			Suppressor plate eliminates undesired arcing during electron beam welding		
JPL-SC-097	B66-10380	03	M-FS-1126	B66-10357	05
Universal transloader moves delicate equipment without stress			Basic suppression techniques are evaluated		
MSC-654	B66-10384	05	M-FS-867	B66-10449	01
Interior servicing platform simplifies maintenance of storage tanks			High transients suppressed in electromagnetic devices		
M-FS-1300	B66-10425	05	KSC-66-13	B67-10031	01
Heat-treatment of metal parts facilitated by sand embedment			SURFACE CRACKS		
M-FS-1543	B66-10616	03	Aluminum alloys protected against stress-corrosion cracking		
Device measures reaction engine thrust vector deviations			M-FS-235	B65-10172	03
JPL-SC-163	B66-10642	05	Cracks in glass electrical connector headers removed by dry blasting with fine abrasive		
Packaging of electronic modules			LEWIS-381	B67-10148	03
JPL-801	B66-10664	01	Chemical milling solution reveals stress corrosion cracks in titanium alloy		
Work platform is supported by self-locking blades			LANGLEY-10077	B67-10322	03
M-FS-2297	B67-10180	05	Surface-crack detection by microwave methods		
Transducer measures embedment stresses in electronic modules			ARC-10009	B67-10482	01
M-FS-13486	B67-10367	01	Mechanical shielding reduces weld surface cracking in 6061 T6 aluminum		
Camera lens adapter magnifies image			MSC-11494	B68-10022	05
M-FS-11955	B67-10431	02	Effects of high frequency current in welding aluminum alloy 6061		
Vibration damping composition has flush-away feature			M-FS-18337	B68-10383	05
M-FS-597	B67-10432	03	Simple test indicates degree of cure of polyimide coatings		
Telescope mount with azimuth-only primary			MSC-15487	B69-10330	03
NPO-10468	B67-10671	02	Radiographic threshold detection levels of aluminum weld defects		
Broadband choke suppresses spurious currents in antenna structure			M-FS-20487	B69-10418	01
MSC-10013	B67-10675	01	Effects of high-pressure hydrogen on storage vessel materials		
Clamp for detonating fuze			M-FS-18605	B69-10730	03
M-FS-13399	B68-10072	05	SURFACE DEFECTS		
mm-wave power meter mount			Low-cost seal compensates for surface irregularities		
NPO-10348	B68-10152	01	NU-0016	B65-10160	05
Compressible sleeve provides automatic centering for grinding or turning of cylinders			Surfactant for dye-penetrant inspection is insensitive to liquid oxygen		
SAN-10021	B68-10318	05	M-FS-475	B66-10131	03
Fiber glass reinforced structural materials for aerospace application			Device spot-laps spheres to very close tolerances		
M-FS-14806	B68-10360	03	JPL-SC-119	B66-10175	05
Cooled miniature pressure transducers effective at high temperatures			Dot patterns provide reproducible flaw areas for study of adhesive bonds		
LEWIS-10401	B68-10370	01	M-FS-862	B66-10367	05
			Copper-acrylic enamel serves as lubricant for cold drawing of refractory metals		
			ARG-54	B66-10471	05

SUBJECT INDEX

SURFACE PROPERTIES

Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique ARG-277 B67-10324	03	M-FS-1366	B66-10400	03
Technique eliminates high voltage arcing at electrode-insulator contact area LEWIS-10133 B67-10470	01	Study shows effect of surface preparations on improving thermionic emission JPL-SC-140 B66-10493		01
Effect of surface irregularities on bellows fatigue life M-FS-14480 B68-10229	05	Mechanism facilitates coating of inner surfaces of metal cylinders GSFC-515 B66-10698		05
Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456 B69-10192	03	Composites of porous metal and solid lubricants increase bearing life LEWIS-307 B67-10007		03
High temperature coatings for gas bearings LEWIS-10793 B69-10200	03	Study made of corrosion resistance of stainless steel and nickel alloys in nuclear reactor superheaters ARG-230 B67-10051		03
Camera mount for close-up stereo photographs LANGLEY-10442 B69-10226	02	Materials data handbook, Inconel alloy 718 M-FS-2348 B67-10282		03
SURFACE DISTORTION Electromagnetic hammer removes weld distortions from aluminum tanks M-FS-287 B65-10342	05	Materials data handbook, aluminum alloy 7075 M-FS-2349 B67-10301		03
SURFACE ENERGY Study of behavior of sterols at interfaces ARG-10085 B68-10281	03	Precision capacitor has improved temperature and operational stability ARG-189 B67-10313		01
SURFACE FINISHING Insulated weld tooling permits uniform, high quality weld MSC-42 B64-10058	05	Effects of surface preparation on quality of aluminum alloy weldments M-FS-13152 B68-10302		03
Rotating holder permits accurate grinding of metallurgical microsamples LEWIS-131 B65-10262	05	Compressible sleeve provides automatic centering for grinding or turning of cylinders SAN-10021 B68-10318		05
Electron beam seals outer surfaces of porous bodies M-FS-562 B66-10033	03	Nondestructive method for measuring residual stresses in metals, a concept KSC-10237 B68-10378		03
Run-in with chemical additive protects gear surface M-FS-548 B66-10069	05	Welded repairs of punctured thin-walled aluminum pressure vessels M-FS-14836 B69-10051		05
Etching process mills PH 14-8 Mo alloy steel to precise tolerances MSC-270 B66-10110	03	Materials data handbook, aluminum alloy 6061 M-FS-20381 B69-10065		03
Device spot-laps spheres to very close tolerances JPL-SC-119 B66-10175	05	Automatic sample rotator for metallographic polishing NPO-11015 B69-10596		03
Portable sandblaster cleans small areas MSC-523 B66-10242	05	SURFACE GEOMETRY Multidimensional reaction kinetic ablation program /BEKAP/ MSC-10079 B67-10495		06
Dry film lubricant is effective at extreme loads M-FS-628 B66-10256	03	SURFACE IONIZATION Highly sensitive solids mass spectrometer uses inert-gas ion source ERC-11 B66-10114		02
Seal surfaces protected during assembly NU-0067 B66-10266	05	SURFACE LAYERS Process controls introduction of selected impurities into semiconductor wafers GSFC-523 B67-10303		01
Electrolytic etching process provides effective bonding surface on stainless steel GSFC-484 B66-10299	03	Method for removing surface-damaged layers from nickel alloys M-FS-18151 B68-10522		03
Chemical milling solution produces smooth surface finish on aluminum MSC-549 B66-10312	03	SURFACE PROPERTIES Reference black body is compact, convenient to use ARC-3 B63-10004		03
Valve seat pores sealed with thermosetting monomer M-FS-900 B66-10322	03	Instrument performs nondestructive chemical analysis, data can be telemetered JPL-SC-078 B65-10317		01
Cork is used to make tooling patterns and molds MSC-425 B66-10328	01	Apparatus presents visual display of semiconductor surface characteristics JPL-665 B66-10200		01
Strippable grid facilitates removal of grid-surfaced conical workpiece from die M-FS-716 B66-10334	01	Selective tube roughening increases heat transfer capability		
System for etching thick aluminum layers minimizes bridging and undercutting				

SURFACE REACTIONS

SUBJECT INDEX

M-FS-599 B66-10610 05
Special purpose reflectometer uses modified
ulbricht sphere
MSC-1135 B67-10109 02
Measuring coplanarity of surfaces
MSC-12044 B67-10371 02
Wear studies made of slip rings and gas
bearing components
M-FS-12882 B67-10403 05
Study made of large amplitude fuel sloshing
M-FS-12381 B67-10439 03
Tool samples subsurface soil free of
surface contaminants
MSC-10988 B67-10473 05
Damages in rolling element bearings may be
detected early
HQ-10031 B67-10658 01
Effects of surface preparation on quality
of aluminum alloy weldments
M-FS-13152 B68-10302 03
Indium adhesion provides quantitative
measure of surface cleanliness
SAN-10024 B68-10342 01
Nondispersive X-ray emission analysis
for geochemical exploration
GSFC-10568 B69-10011 02
SURFACE REACTIONS
Radioactive method enables determination of
surface areas rapidly and accurately
NU-0088 B66-10710 03
Characteristics of fluidized-packed beds
ARG-10049 B68-10278 03
Study of behavior of sterols at interfaces
ARG-10085 B68-10281 03
Electrochemical study of aluminum
corrosion in boiling high purity water
ARG-10306 B69-10033 03
Detection of molecular infrared spectra
HQ-10377 B69-10172 02
SURFACE ROUGHNESS
Device measures curved surface finish on
gear teeth
WOO-112 B65-10064 05
Rough surface improves stability of air-
sounding balloons
M-FS-320 B65-10326 05
Etching process mills PH 14-8 Mo alloy
steel to precise tolerances
MSC-270 B66-10110 03
Inflatable O-ring seal would ease closing of
hatch cover plate
MSC-740 B66-10385 05
Lateral ring metal elastic wheel absorbs
shock loading
M-FS-1312 B66-10663 05
Ronchi test applied to measurement of
surface roughness
M-FS-12583 B67-10636 02
Surface irregularities detected by flare
inspection instrument
M-FS-20157 B69-10152 01
Air-cushion lift pad
M-FS-14685 B69-10448 05
Gas Metal Arc /GMA/ weld torch
proximity control
M-FS-16327 B69-10533 01

SURFACE ROUGHNESS EFFECTS
Universal transloader moves delicate equipment
without stress
MSC-654 B66-10384 05
Selective tube roughening increases heat
transfer capability
M-FS-599 B66-10610 05
SURFACE STABILITY
Nondestructive method for measuring residual
stresses in metals, a concept
KSC-10237 B68-10378 03
Improved process for epitaxial deposition
of silicon on prediffused substrates
M-FS-14910 B68-10390 03
SURFACE TEMPERATURE
Photoelectric scanner makes detailed work
function maps of metal surface
JPL-SC-176 B66-10440 01
Pyrometry handbook describes practical
aspects of surface temperature measurements
of opaque materials
LEWIS-349 B66-10520 01
Instrument accurately measures small
temperature changes on test surface
LANGLEY-174 B66-10637 01
Computer program determines thermal
environment and temperature history of
lunar orbiting space vehicles
M-FS-12916 B67-10307 06
Liquid crystal calibrator
M-FS-14151 B68-10221 03
Surface temperature mapping with infrared
photographic pyrometry
LEWIS-10763 B69-10113 01
SURFACE WAVES
Ultrasonics used to measure residual stress
M-FS-12449 B67-10428 02
Study of stress corrosion in aluminum
alloys
M-FS-13906 B67-10533 03
SURFACES
Portable flooring protects finished surfaces,
is easily moved
M-FS-15 B63-10387 05
Device measures curved surface finish on
gear teeth
WOO-112 B65-10064 05
Averaging probe reduces static-pressure
sensing errors
LANGLEY-36 B65-10114 05
Portable tool cleans pipes and tubing
MSC-238 B65-10375 05
Aluminized fiberglass insulation conforms
to curved surfaces
M-FS-477 B66-10024 03
Specimen holder design improves accuracy
of X-ray powder analysis
JPL-SC-165 B66-10075 02
Alignment tool facilitates pin placement on
irregular horizontal surfaces
LANGLEY-219 B66-10410 05
Chemical regeneration of emitter surface
increases thermionic diode life
LEWIS-17 B66-10435 02
Vacuum probe sampler removes micron-sized
particles from surfaces
SAN-10003 B68-10231 04
Monte Carlo direct view factor and

SUBJECT INDEX

SWAGING

generalized radiative heat transfer programs M-FS-15051	B69-10038	06	Communication Experimental Facility M-FS-13155	B68-10050	06
Spacecraft Thermal Radiation Environment Computer Program M-FS-15054	B69-10574	06	SURVIVAL SPAN C - Terminal sterilization process analysis program NPO-10805	B69-10039	06
SURFACTANTS Surfactant for dye-penetrant inspection is insensitive to liquid oxygen M-FS-475	B66-10131	03	SPAN - Terminal sterilization process analysis program NPO-10804	B69-10104	06
Submicron metal powders produced by ball milling with grinding aids LEWIS-188	B66-10221	03	SURVIVAL EQUIPMENT New inflatable liferaft is nontippable MSC-4A	B64-10001	05
Improved thermal insulation materials made of foamed refractory oxides M-FS-735	B66-10288	03	Modular thermoelectric cell is easily packaged in various arrays GSFC-339	B65-10199	01
Ultrasonic cleaning restores depth-type filters M-FS-540	B66-10298	03	Emergency solar still desalts seawater MSC-135	B65-10214	03
Chemical milling solution produces smooth surface finish on aluminum MSC-549	B66-10312	03	Self-inflating lifevest stores in small package MSC-5A	B66-10184	04
SURGERY Means for improving apparent resolution of television ERC-65	B67-10152	01	Portable lightweight cell provides controlled environment MSC-648	B66-10370	05
Automatic patient respiration failure detection system with wireless transmission ARC-10174	B68-10365	01	SUSPENDING (HANGING) Mechanism isolates load weighing cell during lifting of load MSC-297	B66-10071	05
SURGES Recording and time expansion technique for high-speed, single-shot transient video signal ARC-10003	B67-10139	01	Proposed method of rotary dynamic balancing by laser M-FS-12422	B67-10452	02
Computer program predicts thermal and flow transients experienced in a reactor loss- of-flow accident NUC-10054	B67-10281	06	Adaptive control circuit prevents amplifier saturation ERC-10026	B67-10648	02
Computer program TRACK performs transient and/or steady state thermal analysis with coupled fluid flow and heat conduction NUC-10189	B68-10450	06	SUSPENDING (MIXING) Multiple test tubes stirred mechanically ARC-42	B65-10120	01
Method for measuring alternator voltage transients LEWIS-10373	B68-10513	01	Aluminum core structures brazed without use of flux M-FS-659	B66-10360	05
Operational integrator NPO-10230	B68-10547	01	SUSPENSION SYSTEMS (VEHICLES) Lateral ring metal elastic wheel absorbs shock loading M-FS-1312	B66-10663	05
SURGICAL INSTRUMENTS Encapsulation process sterilizes and preserves surgical instruments JPL-484	B64-10066	05	SUSPENSIONS Leaf-spring suspension provides accurate parallel displacements JPL-480	B65-10104	05
Hand-held instrument should relieve hematoma pressure MSC-599	B67-10332	04	Vacuum chamber provides improved insulation and support for cryostat M-FS-415	B65-10368	02
Optical frequency waveguide and ion transmission system HQ-10541	B69-10746	01	Levitation-melting technique for metals and alloys ARG-10240	B69-10006	03
SURVEYOR PROJECT An overview of electromagnetic interference problems in spacecraft NPO-11170	B69-10362	01	SWAGING Telescoping of instrumentation tubing eliminates swaging M-FS-546	B66-10116	05
Improved circularly polarized planar-array antenna NPO-10301	B69-10382	01	High temperature thermocouple operates in reduction atmosphere NU-0046	B66-10134	01
SURVEYS Vis-A-Plan /visualize a plan/ management technique provides performance-time scale KSC-10073	B67-10240	06	Low power heating element provides thermal control during swaging operations M-FS-457	B66-10206	05
Site survey for optimum location of Optical			Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area NUC-10007	B67-10538	01

SWEAT COOLING

SUBJECT INDEX

Tube swaging device uses explosive force LANGLEY-10092	B68-10235	05	by opaque coatings JPL-SC-107	B66-10141	01
Shock-absorbent mountings for bearings NPO-10626	B69-10331	05	High voltage potential divider calibrated by simple device ARG-83	B66-10497	01
Magnetic forming of resistive materials M-FS-20417	B69-10397	03	Apparatus enables automatic microanalysis of body fluids JPL-962	B66-10515	04
SWEAT COOLING Combustion chamber struts can be effectively transpiration cooled M-FS-1830	B66-10643	03	Preregulator feedback circuit utilizes Light Actuated Switch M-FS-1180	B66-10542	01
SWEEP CIRCUITS Subminiature deflection circuit operates integrated sweep circuits in TV camera MSC-1263	B67-10155	01	Sensors measure surface ablation rate of reentry vehicle heat shield LANGLEY-287	B66-10592	01
Oscilloscope used as X-Y plotter or two-dimensional analyzer LEWIS-311	B67-10269	01	MOSFET analog memory circuit achieves long duration signal storage M-FS-860	B66-10603	01
SWEEP FREQUENCY Frequency offset in linear FM/CW transponder eliminates clutter M-FS-249	B65-10146	01	Electrical continuity scanner facilitates identification of wires for soldering to connectors MSC-626	B66-10605	01
Circuit operates as sine function generator MSC-255	B66-10038	01	High transients suppressed in electromagnetic devices KSC-66-13	B67-10031	01
Parallel line raster eliminates ambiguities in reading timing of pulses less than 500 microseconds apart JPL-805	B66-10386	01	Circuit automatically calibrates flowmeter against liquid-level gage reference M-FS-2194	B67-10376	01
An investigation of phase-lock loop swept- frequency synchronization M-FS-656	B66-10423	01	Continuous wave detector has wide frequency range M-FS-1849	B67-10386	01
Plotter design simplifies determination of image sensor transfer characteristic NPO-10164	B67-10206	01	Rugged switch responds to minute pressure differentials M-FS-12704	B67-10389	01
Concept for automatic Doppler compensation in two-way communication systems GSFC-10213	B67-10643	01	Saturn S-2 Automatic Software System /SASS/ M-FS-1741	B67-10405	06
Sweep frequency detector NPO-10669	B69-10289	01	Stable ac phase and amplitude comparator M-FS-13086	B67-10459	01
SWELLING Apparatus measures swelling of membranes in electrochemical cells GSFC-280	B65-10087	01	Series transistors isolate amplifier from flyback voltage MSC-11023	B67-10468	01
SWITCHES Camera shutter is actuated by electric signal ARC-20	B63-10560	05	Multipulse current source offers low power losses and high reliability LANGLEY-68	B67-10603	01
Photoelectric semiconductor switch operates with low level inputs JPL-SC-068	B65-10033	01	Hydraulic servo system increases accuracy in fatigue testing LANGLEY-217	B67-10637	01
Automatic thermal switch accelerates cooling-down of cryogenic system JPL-655	B65-10068	01	Semiconductor ac static power switch LEWIS-10344	B68-10224	01
Rotor position sensor switches currents in brushless dc motors GSFC-315	B65-10151	01	Superconductive thin film makes convenient liquid helium level sensor LANGLEY-10289	B68-10341	01
Electron-beam deflection controlled by digital signals GSFC-385	B65-10283	02	An integrated circuit switch NPO-11073	B69-10326	01
Selenium bond decreases ON resistance of light-activated switch JPL-SC-101	B65-10324	01	Foot-operated cell-counter ARG-10315	B69-10351	01
Three-position rocker switch actuator has positive centering MSC-261	B65-10376	01	Novel multipurpose timer for laboratories ARG-10147	B69-10410	01
Economical and maintenance-free gas system operates railroad switches NU-0045	B66-10124	05	An interferometer tracking radar system MSC-10956	B69-10523	01
Optically driven switch turn-off time reduced			Integral valve provides automatic relief and remote venting M-FS-12134	B69-10545	05
			High voltage pulse generator MSC-12178	B69-10548	01

SUBJECT INDEX

SWITCHING CIRCUITS

A simple electrometer for measuring small photoelectric currents GSFC-10603	B69-10734	01	Phase-locked-loop phase modulator with high modulation index, low distortion MSC-12247	B69-10487	01
SWITCHING			Simplified, reliable circuit sorts binary numbers in order of magnitude NPO-10112		
Bandwidth switching is transient-free, avoids loss of loop lock WOO-054	B64-10349	01	SWITCHING CIRCUITS		
Knob linkage permits one-hand control of several operations MSC-30	B65-10022	05	Coincident switch closing reduces error in motor-driven timer JPL-182	B63-10143	05
Magnetic-shift-register circuit controls step motor operation GSFC-340	B65-10226	01	Double-throw microwave device switches two lines quickly JPL-410	B63-10258	01
Zener diode controls switching of large direct currents MSC-188	B65-10350	01	Digital logic elements provide additional functions from analog input MSC-64	B64-10064	01
Lamp automatically switches to new filament on burnout M-FS-498	B66-10046	01	Electronic device simulates respiration rate and depth MSC-89	B64-10255	01
Ring counter circuit switches multiphase motor direction of rotation JPL-SC-166	B66-10101	01	Variable frequency transistor inverters use multiple core transformers GSFC-183	B65-10119	01
Omnidirectional antennas transmit and receive over large bandwidth GSFC-436	B66-10133	01	Solid-state switching used to speed up capacitive integrator LANGLEY-104	B65-10159	01
Switching mechanism senses angular acceleration GSFC-462	B66-10158	01	Dc to ac converter operates efficiently at low input voltages GSFC-130	B65-10178	01
Multiple temperatures sampled using only one reference junction GSFC-485	B66-10260	01	Logic circuit exhibits optimum performance LANGLEY-129	B65-10193	01
Exclusive-or logic circuit has useful properties LANGLEY-214	B66-10272	01	Simple circuit reduces transistor switching time GSFC-314	B65-10234	01
Circuit provides accurate four-quadrant multiplication WOO-272	B66-10331	02	Improved circuit minimizes generation time of pseudonoise check bits JPL-698	B65-10275	01
Brushless dc motor has high efficiency, long life GSFC-181	B66-10355	01	Cam-operated limit switch features safe fuse replacement MSC-218	B65-10322	01
Simple, one transistor circuit boosts pulse amplitude GSFC-501	B66-10480	01	New television camera eliminates vidicon tube M-FS-472	B66-10112	01
Nixie tube display unit employs time-shared logic ARG-117	B66-10512	01	Tester periodically registers dc amplifier characteristics MSC-190	B66-10148	01
Design concept for pressure switch calibrator HQ-36	B66-10598	01	Efficient dc to dc converter eliminates large stray magnetic fields GSFC-463	B66-10376	01
Automatic channel switching device MSC-832	B67-10086	01	Junction connectors permit strategic placement of television cameras KSC-66-22	B66-10391	01
Simplified technique demonstrates magnetic domain switching M-FS-13153	B67-10342	02	Electrically controlled optical latch and switch requires less current JPL-SC-111	B66-10414	01
Review of research and development in fluid logic elements M-FS-420	B67-10438	01	Electronic bidirectional valve circuit prevents crossover distortion and threshold effect MSC-193	B66-10420	01
Optically exciting a magnetic memory - A feasibility study M-FS-14854	B69-10060	02	Video signal processing system uses gated current mode switches to perform high speed multiplication and digital-to-analog conversion MSC-781	B66-10429	01
A prototype high power portable lamp M-FS-20229	B69-10189	02	Solid-state switch increases switching speed WOO-298	B66-10430	01
Time-shared Cathode Ray Tube MSC-12238	B69-10243	06	Basic suppression techniques are evaluated M-FS-867	B66-10449	01
An unconventional magnetically-coupled multivibrator HQ-10226	B69-10480	01	Solid state circuit switches ac load		

SWIVELS

SUBJECT INDEX

JPL-798	B66-10465	01	Self-starting circuit for switching regulators LEWIS-10686	B69-10128	05
Pulse stretcher has improved dynamic range and linearity ARG-82	B66-10509	01	Schmitt trigger multivibrator MSC-10955	B69-10143	01
Photocell shadowing technique improves light source detector JPL-809	B66-10564	01	Dielectric materials for use in thin-film capacitors M-FS-20471	B69-10387	02
Electronic circuit provides accurate sensing and control of dc voltage NU-0089	B66-10591	01	Current-switching technique for analog pulse circuits ARG-10479	B69-10445	01
Low rate flow switch can be used for gas or liquid JPL-867	B66-10696	01	Constant-frequency, variable-duty-cycle multivibrator XGS-10033	B69-10512	01
Computer program detects transient malfunctions in switching circuits MSC-604	B67-10002	01	Lateral PNP bipolar transistor with aiding field diffusions MSC-13072	B69-10741	01
Variable-pulse switching circuit accurately controls solenoid-valve actuations M-FS-1895	B67-10022	01	SWIVELS		
Integrator can easily be set and reset with an electronic switch ARC-10002	B67-10135	01	Compact retractor protects cabling loops M-FS-561	B66-10018	05
Voltage regulator/amplifier is self-regulated MSC-1240	B67-10156	01	Shoulder adapter steadies spot welding gun M-FS-321	B66-10076	05
Hybrid solid state switch replaces motor-driven power switch JPL-931	B67-10165	01	Swiveling lathe jaw concept for holding irregular pieces M-FS-783	B66-10321	05
Switching-type regulator circuit has increased efficiency MSC-1063	B67-10190	01	Spherical joint connects axially misaligned flanges M-FS-2238	B67-10273	05
Solid state phase detector replaces bulky transformer circuit MSC-11007	B67-10253	01	Welding torch and wire feed manipulator M-FS-13102	B67-10385	05
SiC/Si diode trigger circuit provides automatic range switching for log amplifier M-FS-1879	B67-10314	01	SYMBOLIC PROGRAMMING		
Current steering commutator offers versatility JPL-812	B67-10410	01	Assembly processor program converts symbolic programming language to machine language M-FS-13262	B67-10493	06
Converter provides constant electrical power at various output voltages GSFC-519	B67-10481	01	Symbolic reduction of block diagrams using FORMAC LEWIS-10409	B68-10423	06
Automatic transducer switching provides accurate wide range measurement of pressure differential NUC-10001	B67-10540	01	SYMBOLS		
Solid state single-ended switching dc-to-dc converter M-FS-13598	B67-10558	01	Density trace made with computer printout GSFC-322	B65-10200	01
Solid state zero-bias bilateral switch GSFC-532	B67-10559	01	Uppercase and lowercase computer printout increases readability HQ-12	B65-10286	01
Thermionic diode switching has high temperature application NPO-10404	B67-10672	01	Automated drafting system uses computer techniques M-FS-788	B66-10362	01
Bilateral, zero-impedance static semiconductor switch LEWIS-10129	B68-10118	01	Computer program utilizes FORTRAN 4 subroutines for contour plotting NPO-10127	B67-10323	06
Analysis and design of a class-D amplifier M-FS-14803	B68-10313	01	Computer grading of examinations ARG-10269	B69-10159	06
High-efficiency step-up regulator M-FS-20049	B68-10432	01	SYMMETRICAL BODIES		
Isolated, multiple-output voltage dc-to-dc converter M-FS-14976	B69-10014	01	Fresnel cup reflector directs maximum energy from light source JPL-424	B63-10263	03
Remotely-actuated biomedical switch ARC-10105	B69-10117	01	Automatic system determines moments of inertia of asymmetrical objects M-FS-1769	B66-10636	01
			Conceptual nonorthogonal gyro configuration for guidance and navigation MSC-11363	B67-10433	01
			SYMMETRY		
			Modified interelement spacing improves Yagi antenna array LANGLEY-130	B65-10183	01
			Friction loading device enables accurate		

SUBJECT INDEX

SYSTEM FAILURES

testing of brittle materials NU-0051	B66-10345	05			
Computer program calculates steady-state temperature distribution within plane or axisymmetric solids NUC-10049	B67-10224	06			
Computer program calculates peripheral water injection cooling of axisymmetric subsonic diffuser NUC-10541	B67-10543	06			
Schmitt trigger multivibrator MSC-10955	B69-10143	01			
Ion-retarding lens improves the abundance sensitivity of tandem mass spectrometers ARG-10365	B69-10166	02			
SYNCHRONISM					
Increased performance reliability obtained with dual /redundant/ oscillator system GSPC-36	B63-10027	01			
Brushless dc motor uses electron beam switching tube as commutator GSPC-345	B65-10237	01			
Screen of cylindrical lenses produces stereoscopic television pictures M-FS-273	B66-10086	02			
Torque meter aids study of hysteresis motor rings M-FS-12219	B67-10412	01			
Video synchronization processor overcomes poor signal-to-noise ratio KSC-10002	B67-10515	01			
Synchronized circuit improves accuracy of fluid transfer measurements MSC-11167	B68-10057	05			
Acquisition of pseudonoise signals by sequential estimation M-FS-13898	B68-10258	01			
High-speed camera synchronization M-FS-18062	B68-10282	02			
Simple tunnel diode circuit for accurate zero crossing timing ARG-10309	B69-10116	01			
Time-shared Cathode Ray Tube MSC-12238	B69-10243	06			
A positive taper traveling-wave tube LANGLEY-10263	B69-10407	01			
Synchronous charge-constrained electroquasistatic generator HQ-10231	B69-10461	01			
PCM synchronization by word stuffing NFO-10688	B69-10695	01			
SYNCHRONIZED OSCILLATORS					
An investigation of phase-lock loop swept-frequency synchronization M-FS-656	B66-10423	01			
Means for improving apparent resolution of television ERC-65	B67-10152	01			
Video synchronization processor overcomes poor signal-to-noise ratio KSC-10002	B67-10515	01			
Improved frequency divider employs transistor avalanche effect NFO-10008	B67-10575	01			
Synchronizing redundant power oscillators XGS-09377	B69-10546	01			
			SYNCHRONOUS MOTORS		
			Coincident switch closing reduces error in motor-driven timer JPL-182	B63-10143	05
			Scanning photometer system automatically determines atmospheric layer height MSC-245	B66-10170	01
			Multicolor stroboscope pinpoints resonances in vibrating components JPL-0033	B66-10223	01
			Developmental instrument supplies accurate attitude and attitude-rate data HQ-57	B66-10607	01
			Circuit increases capability of hysteresis synchronous motor MSC-1080	B67-10084	01
			Portable machine welding head automatically controls arc M-FS-12763	B67-10272	05
			Sweep frequency detector NFO-10669	B69-10289	01
			SYNCHRONOUS SATELLITES		
			Design for a rapid automatic sync acquisition system NFO-10214	B69-10538	01
			SYNCHROTRONS		
			Beam profiles measured with thermoluminescent dosimeters ARG-10229	B69-10024	02
			SYNTAX		
			JFLIP-JPL FORTRAN language with interval pre-processor NFO-10835	B69-10187	06
			SYNTHESIS		
			Synthesis of perbromates ARG-10459	B69-10647	03
			SYNTHETIC FIBERS		
			Modified soldering iron speeds cutting of synthetic materials M-FS-725	B66-10246	05
			Study made of dielectric properties of promising materials for cryogenic capacitors M-FS-13620	B67-10366	03
			SYRINGES		
			Automated microsyringe is highly accurate and reliable NFO-10142	B67-10203	01
			Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations ARG-251	B67-10305	04
			Improved sample capsule for determination of oxygen in hemolyzed blood MSC-11017	B67-10408	04
			Sealed container sampling device GSPC-10690	B69-10682	03
			SYSTEM FAILURES		
			Safety switch permits emergency bridge crane shutdown M-FS-549	B66-10168	05
			Polarizing keys prevent mismatch of connector plugs and receptacles MSC-443	B66-10251	01
			Simplified circuit corrects faults in parallel binary information channels JPL-SC-090	B66-10261	01
			Program computes single-point failures in critical system designs		

SYSTEMS ANALYSIS

SUBJECT INDEX

MSC-603	B67-10001	01	Analysis of space vehicle structures using the transfer-function concept	B69-10337	06
Triple Modular Redundancy /TMR/ computer operation improved			NPO-11162		
MSC-831	B67-10085	01	Exact minimal-state system reliability analysis		
Analytical technique permits comparison of reliability of alternate mechanical designs			M-FS-16551	B69-10409	06
NUC-10065	B67-10261	06	Determination of quadric equation coefficients describing three-dimensional surfaces, their constraint and skewed planes, and view point areas		
Computer program predicts thermal and flow transients experienced in a reactor loss-of-flow accident			M-FS-15043	B69-10435	06
NUC-10054	B67-10281	06	Improved system for documenting measurement data		
Logic realization of simple majority voting connectives			M-FS-18269	B69-10513	01
JPL-727	B67-10511	06	Frequency domain analysis and synthesis of lumped parameter systems using nonlinear least squares techniques		
Flow liner extends operating life of high-angulation bellows			M-FS-15033	B69-10577	02
M-FS-12023	B67-10512	05			
Accumulator isolator prevents malfunctioning of faulty hydraulic system					
M-FS-1415	B67-10528	05			
SYSTEMS ANALYSIS			SYSTEMS ENGINEERING		
Computer programs simplify optical system analysis			Design reliability goal developed from small sample		
GSPC-306	B65-10093	01	M-FS-403	B66-10405	05
Human transfer functions used to predict system performance parameters			Program computes single-point failures in critical system designs		
LANGLEY-203	B66-10379	01	MSC-603	B67-10001	01
Computer program determines performance efficiency of remote measuring systems			Integrated mobility measurement and notation system		
M-FS-1137	B66-10503	01	MSC-726	B67-10114	04
Solid state annunciator facilitates complex system troubleshooting			Data retrieval system provides unlimited hardware design information		
M-FS-1258	B66-10505	01	MSC-1144	B67-10170	01
Integrated mobility measurement and notation system			Land landing couch dynamics computer program		
MSC-726	B67-10114	04	MSC-1210	B67-10233	06
Linear circuit analysis program for IBM 1620 Monitor 2, 1311/1443 data processing system /CIRCS/			Computerized parts list system coordinates engineering releases, parts control, and manufacturing planning		
NPO-10131	B67-10173	06	NUC-10073	B67-10348	06
Analytical technique permits comparison of reliability of alternate mechanical designs			Reaction of steam with molybdenum is studied		
NUC-10065	B67-10261	06	ARG-295	B67-10502	03
Computer program uses Monte Carlo techniques for statistical system performance analysis			Computer programs for antenna feed system design and analysis		
M-FS-2234	B67-10306	06	NPO-10359	B67-10504	06
Computer program analyzes generalized environmental control and life support systems			Review of biological mechanisms for application to instrument design		
MSC-1157	B67-10415	06	HQ-33	B67-10663	04
Analysis of dynamic systems with DAP4H computer program			Hydrogen safety manual		
M-FS-13999	B67-10523	06	LEWIS-10487	B68-10323	01
DYANA - An advanced programming system for large classes of dynamic and equivalent systems			Radial inflow turbine design charts		
M-FS-12084	B67-10524	06	LEWIS-10720	B68-10567	05
N-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program			Tunable bandpass filter with variable selectivity		
NUC-10126	B67-10536	06	ARC-10191	B69-10130	01
Phase plane displays detect incipient failure in servo system testing			Spacecraft Thermal Radiation Environment Computer Program		
HQ-10018	B67-10662	01	M-FS-15054	B69-10574	06
Computer program analyzes whirl critical speeds and bearing loads for shafts coupled by nonlinear springs to machine housing			Frequency domain analysis and synthesis of lumped parameter systems using nonlinear least squares techniques		
NUC-10308	B69-10034	06	M-FS-15033	B69-10577	02
			Monte Carlo simulation by computer for life-cycle costing		
			M-FS-14754	B69-10590	05
			Microelectronic device data handbook		
			ERC-10322	B69-10687	01
			SYSTOLE		
			Cardiac R-wave detector		
			LEWIS-10394	B68-10144	01

SUBJECT INDEX

TANKS (CONTAINERS)

T

T SHAPE

Temperature-sensed cryogenic bleed maintains liquid state in transfer line
M-FS-12681 B67-10424 01

TABLES (DATA)

Computer program simplifies selection of structural steel columns
NU-0044 B66-10097 01

System monitors discrete computer inputs
M-FS-1021 B66-10389 01

An orthonormalization procedure for multivariable function approximation
M-FS-1313 B66-10579 01

Equations provide tubular information on effects of uniform and variable loads on thin, flat, circular plates
ARG-151 B66-10601 05

Three-axis attitude and direction reference instrument has only one moving part
M-FS-1819 B66-10644 01

Recommended values of the thermophysical properties of eight alloys, their major constituents and oxides
NU-0095 B67-10062 03

Solubility data are compiled for metals in liquid zinc
ARG-149 B67-10191 03

A simplified PERT system
M-FS-2267 B67-10241 05

Analytical drafting curves provide exact equations for plotted data
LANGLEY-285 B67-10601 02

Solving nonlinear heat transfer constant area fin problems
M-FS-14851 B68-10504 02

Failure rates for accelerated acceptance testing of silicon transistors
ERC-10198 B68-10541 01

Thermal expansion properties of aerospace materials
M-FS-18335 B69-10055 03

Electron interaction in matter
M-FS-14886 B69-10674 02

TABS (CONTROL SURFACES)

Coiled spring makes self-locking device for threaded fasteners
MSC-149 B65-10135 05

Steel test panel helps control additives in pyrophosphate copper plating
LEWIS-10101 B67-10358 05

TABULATION

Analysis of dynamic systems with DAP4H computer program
M-FS-13999 B67-10523 06

Ratio matching of half-bridge weldable strain gages, computer program
FRC-10032 B69-10040 06

TABULATION PROCESSES

Data retrieval system provides unlimited hardware design information
MSC-1144 B67-10170 01

TACHOMETERS

Noncontacting vibration transducer has constant sensitivity
LANGLEY-99 B65-10392 01

Variable-capacitance tachometer eliminates

troublesome magnetic fields
GSFC-435 B66-10126 01

Automatic system determines moments of inertia of asymmetrical objects
M-FS-1769 B66-10636 01

Conceptual servo technique for controlling tape drivers
M-FS-12955 B67-10595 01

High- and low-pressure pneumotachometers measure respiration rates accurately in adverse environments
FRC-10012 B68-10188 01

TAKEOFF

New anemometer has fast response, measures dynamic pressure directly
LANGLEY-28 B63-10530 05

TANGENTS

Combustion chamber inlet manifold separates vapor from liquid
M-FS-531 B66-10052 05

Thermal conductivity and dielectric constant of silicate materials
M-FS-14856 B68-10351 03

TANK GEOMETRY

System for measuring roundness and concentricity of large tanks
M-FS-13362 B68-10099 05

TANKS (CONTAINERS)

Two-part valve acts as quick coupling
JPL-478 B64-10223 05

Oscillator circuit measures liquid level in tanks
M-FS-245 B65-10209 01

Weld leaks rapidly and safely detected
M-FS-362 B65-10265 01

Economical and maintenance-free gas system operates railroad switches
NU-0045 B66-10124 05

Device without electrical connections in tank measures liquid level
WOO-235 B66-10198 01

Study made to establish parameters and limitations of explosive welding
M-FS-13006 B67-10393 05

Computer program performs rectangular fitting stress analysis
M-FS-13010 B67-10520 06

Variable-speed, portable routing skate
M-FS-13772 B67-10525 05

Portable, high intensity isotopic neutron source provides increased experimental accuracy
ARG-90250 B68-10243 02

High-torque power wrench, a concept
M-FS-18194 B68-10299 05

Renewal of corrosion protection of coated aluminum after welding
M-FS-20361 B69-10150 05

Space-saving hoist for tank manholes
M-FS-16508 B69-10180 05

Handbook for design of containers of fluids and gases for spacecraft
M-FS-20502 B69-10279 05

Instrumentation for nondestructive testing of composite honeycomb materials
M-FS-20405 B69-10366 03

Integral valve provides automatic relief

TANTALUM

SUBJECT INDEX

and remote venting M-FS-12134	B69-10545	05	Improved inorganic ion exchange membranes LEWIS-10737	B69-10451	03
A comparison of two methods of measuring particle size of Al2O3 produced by a small rocket motor NPO-11198	B69-10572	03	TANTALUM ALLOYS Nickel-base superalloys developed for high- temperature applications LEWIS-226	B66-10222	03
Sealed container sampling device GSFC-10690	B69-10682	03	Tantalum alloys resist creep deformation at elevated temperatures LEWIS-350	B66-10558	03
TANTALUM Apparatus facilitates high-temperature tensile testing in vacuum LEWIS-42	B63-10345	03	Improved high-temperature silicide coatings LEWIS-10817	B69-10266	03
Wire winding increases lifetime of oxide coated cathodes LEWIS-154	B65-10032	03	TANTALUM OXIDES Dielectric materials for use in thin-film capacitors M-FS-20471	B69-10387	02
Ceramic-coated boat is chemically inert, provides good heat transfer LANGLEY-90	B65-10063	05	TAPE RECORDERS System selects framing rate for spectrograph camera LANGLEY-55	B65-10086	01
Cantilever springs maintain tension in thermally expanded wires LEWIS-136	B65-10149	05	Hybrid computer technique yields random signal probability distributions ARC-34	B65-10208	01
Tantalum cathode improves electron-beam evaporation of tantalum JPL-WOO-021	B65-10175	03	Electronic phase-locked-loop speed control system is stable JPL-SC-084	B66-10232	01
Thermoelectric elements diffusion-bonded to tungsten electrodes GSFC-346	B65-10309	01	Recording and time expansion technique for high-speed, single-shot transient video signal ARC-10003	B67-10139	01
Wire bundle formed into grids with minute interstices WOO-089	B65-10372	03	An improved magnetic tape recorder GSFC-08259	B67-10646	01
Binetallic devices help maintain constant sealing forces down to cryogenic temperatures M-FS-800	B66-10325	02	Damages in rolling element bearings may be detected early HQ-10031	B67-10658	01
Nonelectrolytic tantalum capacitors developed M-FS-1546	B66-10552	01	Scan rate converter for tape recording and playback of TV pictures NPO-10166	B67-10676	01
Use of steel and tantalum apparatus for molten Cd-Hg-Zn alloys ARG-199	B66-10594	03	Analysis of flutter in tape transport systems M-FS-11970	B68-10027	01
Thin film process forms effective electrical contacts on semiconductor crystals M-FS-2343	B67-10142	01	Magnetic tape transport controlled by rotating transducer heads GSFC-483	B68-10079	01
Modified blackbody device emits high-density radiation M-FS-12744	B67-10388	02	Harmonic distortion analyzer speeds setup of magnetic tape recorders GSFC-10198	B68-10254	01
Potassium plasma cell facilitates thermionic energy conversion process ARG-10010	B67-10399	01	Shock-absorbent mountings for bearings NPO-10626	B69-10331	05
Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide ARG-10154	B68-10293	02	Helical recorder GSFC-10614	B69-10340	01
Nickel base alloy with improved stress rupture properties LEWIS-10283	B68-10344	03	Seismographic recording of large rocket engine operation M-FS-20545	B69-10756	01
Nickel-base superalloy*s excellent properties promote its service to 2200 degrees F LEWIS-10355	B68-10380	03	TAPERING Machining technique prevents undercutting in tensile specimens LANGLEY-10281	B68-10352	05
Miniaturized King furnace permits absorption spectroscopy of small samples ARG-10177	B68-10418	02	Compound taper milling machine MSC-15174	B69-10018	05
Refractory oxide insulated thermocouple designed and analyzed for high temperature applications ARG-10202	B69-10053	03	TAPES Metal strip forms 21 foot boom, rolls up for compact storage GSFC-151	B64-10011	05
Preparation of thorium magnesium-zinc reduction ARG-10245	B69-10079	03	New energy storage concept uses tapes LEWIS-239	B66-10098	02
			Capacitive system detects and locates fluid leaks		

SUBJECT INDEX

TELECOMMUNICATION

M-FS-478	B66-10099	01	pyrolytic carbon NPO-11196	B69-10488	03
Inexpensive insulation is effective for cryogenic transfer lines MSC-618	B66-10348	02	TECHNICAL WRITING Review of research and development in fluid logic elements M-FS-420	B67-10438	01
Developmental instrument supplies accurate attitude and attitude-rate data HQ-57	B66-10607	01	Review of biological mechanisms for application to instrument design HQ-33	B67-10663	04
Gas leak detector is simple and inexpensive M-FS-1206	B66-10669	01	TEFLON (TRADEMARK) Coating permits use of strain gage in water and liquid hydrogen M-FS-594	B66-10192	01
Proposed method of rotary dynamic balancing by laser M-FS-12422	B67-10452	02	Insert sleeve prevents tube soldering contamination MSC-552	B66-10238	05
Tape reading fixture M-FS-14146	B69-10008	05	Low rate flow switch can be used for gas or liquid JPL-867	B66-10696	01
Tools for applying lead tape to flat conductor cabling for chemical stripping M-FS-20429	B69-10190	05	Teflon sheet permits valve and valve operator to move as a single unit in a cryogenic pipe line NU-0077	B66-10702	05
A mechanically extendible boom NPO-11118	B69-10328	05	Technique for stripping Teflon insulated wire M-FS-1774	B67-10048	05
Circuit board hole coordinate locator concept M-FS-14737	B69-10539	01	Evaluation of high temperature stranded hookup wire M-FS-2478	B67-10122	03
TAPS Electron-beam deflection controlled by digital signals GSFC-385	B65-10283	02	Connector shorting cap provides pin alignment, inspection, and stray voltage protection M-FS-13111	B67-10635	01
TARGET ACQUISITION Communication system features dual mode range acquisition plus time delay measurement M-FS-14323	B68-10306	01	Vacuum probe sampler removes micron-sized particles from surfaces SAN-10003	B68-10231	04
Improved electro-optical tracking system M-FS-14791	B68-10311	01	Abrasion and resistant discharge valve developed ARG-10219	B69-10044	05
Single degree of freedom antenna pointing program /ANTENA/ NPO-10756	B68-10449	06	Diffusion bond method of joining steel and a TFE-bronze composite M-FS-20482	B69-10237	03
TARGET RECOGNITION Point-source detection system rejects spatially extended radiation sources GSFC-486	B66-10622	01	TELECOMMUNICATION Flange on microwave antenna subreflector cuts ground noise JPL-362	B63-10229	01
TARGET THICKNESS Electron interaction in matter M-FS-14886	B69-10674	02	Economical fabrication process produces high quality junction transistors JPL-SC-065	B64-10330	01
TARGETS Instrument quickly transposes ground reference target to eye level MSC-275	B66-10061	05	Traveling-wave tube circuit simplifies microwave relay GSFC-299	B65-10127	01
Simplified fixture permits precision alignment of an optical target M-FS-1181	B66-10556	01	Superconductor magnets used for stagger-tuning traveling-wave maser GSFC-292	B65-10165	01
Electron beam parallel X-ray generator MSC-11022	B67-10372	02	Lightweight coaxial cable connector reduces signal loss JPL-720	B65-10244	01
Earth orbit rendezvous evaluation program M-FS-13016	B67-10407	06	Communication system uses modulated laser beam GSFC-377	B65-10333	01
Fortran 4 program for two-impulse rendezvous analysis M-FS-13971	B67-10479	06	An investigation of phase-lock loop swept- frequency synchronization M-FS-656	B66-10423	01
A theoretical study of radar backscatter from distributed targets with emphasis on polarization dependence M-FS-13775	B69-10560	02	Monitor assures availability and quality of communication channels KSC-66-38	B67-10028	01
Long range holographic contour mapping concept HQ-10350	B69-10700	02	Multiplexing control device enables handling of wide variations in sampling rates		
TEARING Basal-plane metallography of deformed					

TELEMETRY

SUBJECT INDEX

M-FS-1871	B67-10150	01	Circuit reduces distortion of FM modulator GSFC-257	B65-10152	01
Concept for automatic Doppler compensation in two-way communication systems GSFC-10213	B67-10643	01	Logic circuit exhibits optimum performance LANGLEY-129	B65-10193	01
Acquisition of pseudonoise signals by sequential estimation M-FS-13898	B68-10258	01	Device measures fluid drag on test vehicles LANGLEY-34	B65-10195	01
Communication system features dual mode range acquisition plus time delay measurement M-FS-14323	B68-10306	01	Field-effect transistor replaces bulky transformer in analog-gate circuit GSFC-351	B65-10284	01
One hundred MHz voltage-controlled oscillator NPO-11004	B69-10133	01	Instrument performs nondestructive chemical analysis, data can be telemetered JPL-SC-078	B65-10317	01
PCM bit detection with correction for intersymbol interference GSFC-10155	B69-10153	01	Temperature transducer has high output, is time stable GSFC-446	B65-10362	01
RF noise suppression using the photodielectric effect in semiconductors MSC-12259	B69-10225	01	Miniature bioelectric device accurately measures and telemeters temperature ARC-52	B66-10057	01
Multi-feed cone for Cassegrainian antenna NPO-10539	B69-10269	01	Seismometer designed for remote operation in random orientation JPL-320	B66-10085	01
Self-shielding printed circuit boards for high frequency amplifiers and transmitters HQ-10433	B69-10314	01	Phonocardiograph system monitors heart sounds MSC-185	B66-10154	04
An infrared television system for hydrogen flame detection KSC-10368	B69-10354	01	Solid state thermostat has integral probe and circuitry M-FS-434	B66-10193	01
Optimum FM pre-emphasis KSC-10151	B69-10359	01	PN acquisition demodulator achieves automatic synchronization of a telemetry channel JPL-612	B66-10271	01
Energy-storage of a prescribed impedance NPO-10303	B69-10380	01	Thin-film ferrites vapor deposited by one-step process in vacuum MSC-259	B66-10398	03
Estimation of signal-to-noise ratios INP-05254	B69-10557	01	Single-sideband modulator accurately reproduces phase information in 2-Mc signals M-FS-664	B66-10437	01
Balloon batteries, charged and heated by solar energy GSFC-10769	B69-10585	01	Miniature capacitive accelerometer is especially applicable to telemetry ARC-72	B66-10491	01
Electrolytic separation of crystals of transition-metal oxides ARG-10506	B69-10642	03	Digital system detects binary code patterns containing errors GSFC-541	B66-10516	01
Versatile telemonitoring system ARG-10339	B69-10655	01	Miniature capacitor functions as pressure sensor JPL-903	B67-10020	01
Optical frequency waveguide and ion transmission system HQ-10541	B69-10746	01	Multiplexing control device enables handling of wide variations in sampling rates M-FS-1871	B67-10150	01
TELEMETRY			Numerical data frame readout system used in testing telemetry systems GSFC-551	B67-10175	01
Monostable circuit with tunnel diode has fast recovery GSFC-132	B63-10603	01	A conceptual, parallel operating data compression processor NPO-10068	B67-10204	01
Comfortable, lightweight safety helmet holds radio transmitter, receiver MSC-53	B64-10015	05	Improved television signal processing system NPO-10140	B67-10246	01
Circuit converts AM signals to FM for magnetic recording GSFC-227	B65-10001	01	An efficient, temperature-compensated subcarrier oscillator JPL-SC-091	B67-10251	01
Oceanborne transponder platform has good stability M-FS-171	B65-10035	05	A calibration means for spectrum analyzers MSC-10987	B67-10254	01
Simulator produces physiological waveforms MSC-94	B65-10091	01	Multichannel pulse height analyzer is inexpensive, features low power requirements HQW-10020	B67-10258	01
Simple circuit functions as frequency discriminator for PFM signals GSFC-267	B65-10102	01	Multiplexer uses insulated gate-field effect transistors		
Variable frequency transistor inverters use multiple core transformers GSFC-183	B65-10119	01			

SUBJECT INDEX

TELEVISION CAMERAS

M-FS-13096	B67-10396	01	determines atmospheric layer height MSC-245	B66-10170	01
Automatic telemetry checkout system M-FS-12580	B67-10402	01	Infrared radiometer M-FS-13373	B67-10422	01
Range recording technique enables four-way polarization measurements M-FS-12447	B67-10460	01	Measuring thermal expansion of multiple specimens at high temperature NUC-10153	B68-10122	05
Blood pressure reprogramming adapter assists signal recording MSC-265	B67-10475	01	Telescope dcme control system automatically tracks sun MSC-10966	B68-10521	02
Computer program for Video Data Processing System /VDPS/ NPO-10042	B67-10630	06	Training manual on optical alignment instruments M-FS-20292	B68-10574	02
Simultaneous message framing and error detection MSC-12001	B68-10330	01	Improved method of optical design GSFC-10743	B69-10405	02
Fully automatic telemetry data processor GSFC-10576	B68-10336	01	Method of directing a laser beam with very high accuracy NPO-11087	B69-10508	02
Automatic calibration apparatus for telemetry systems NPO-10560	B68-10514	01	A new method for producing optical mirrors HQ-10227	B69-10529	02
Simple demodulator for telemetry phase- shift keyed subcarriers NPO-11000	B69-10095	01	A simple electrometer for measuring small photoelectric currents GSFC-10603	B69-10734	01
Remotely-actuated biomedical switch ARC-10105	B69-10117	01	TELETYPEWRITERS Mossbauer-effect data-collection system ARG-10282	B69-10027	01
One hundred MHz voltage-controlled oscillator NPO-11004	B69-10133	01	TELEVISION CAMERAS Raster linearity of video cameras calibrated with precision tester GSFC-200	B64-10209	01
Automatic bird watcher ARG-10342	B69-10286	02	Temperature-compensation circuit stabilizes performance of vidicons JPL-486	B64-10226	01
New passive telemetry system HQ-10214	B69-10312	01	Screen of cylindrical lenses produces stereoscopic television pictures M-FS-273	B66-10086	02
Wide-band doubler and sine wave quadrature generator NPO-11133	B69-10383	01	New television camera eliminates vidicon tube M-FS-472	B66-10112	01
Fast Fourier Transform Spectral Analysis Program M-FS-15062	B69-10434	06	Diffusion technique stabilizes resistor values MSC-205	B66-10142	01
Design for a rapid automatic sync acquisition system NPO-10214	B69-10538	01	Circular, explosion-proof lamp provides uniform illumination MSC-382	B66-10156	02
Estimation of signal-to-noise ratios XNP-05254	B69-10557	01	Junction connectors permit strategic placement of television cameras KSC-66-22	B66-10391	01
Data processing method for a weak, moving telemetry signal NPO-11003	B69-10639	01	Security warning system monitors up to fifteen remote areas simultaneously KSC-66-39	B66-10548	01
PCM synchronization by word stuffing NPO-10688	B69-10695	01	Subminiature deflection circuit operates integrated sweep circuits in TV camera MSC-1263	B67-10155	01
TELEPHONES Electrocardiograph transmitted by RF and telephone links in emergency situations FRC-10031	B68-10233	01	Design concept for improved photo-scan tube JPL-818	B67-10157	01
TELEPRINTERS Teleprinter uses thermal printing technique MSC-11327	B67-10572	01	Plotter design simplifies determination of image sensor transfer characteristic NPO-10164	B67-10206	01
Dewpoint temperature inversions analyzed ARG-10316	B69-10057	02	Electronic shutter gates image orthicon on and off HQ-96	B67-10270	01
TELESCOPES Attachment converts microscope to point source autocollimator JPL-499	B64-10124	05	Ultraminiature television camera M-FS-11967	B67-10469	01
Sextant measures spacecraft altitude without gravitational reference MSC-200	B66-10143	02	Color-televised medical microscopy MSC-13086	B68-10314	01
Scanning photometer system automatically					

TELEVISION EQUIPMENT

SUBJECT INDEX

Improved combustion chamber optical probe MSC-10953	B69-10142	02	Lithium-tellurium bimetallic cell has increased voltage ARG-10141	B68-10400	01
Time-shared Cathode Ray Tube MSC-12238	B69-10243	06	Analysis of secondary cells with lithium anodes and immobilized fused-salt electrolytes ARG-10452	B69-10613	01
Multipurpose binocular scanning apparatus NPO-11002	B69-10311	02			
TELEVISION EQUIPMENT			TELLURIUM COMPOUNDS		
Unijunction frequency divider is free of backward loading JPL-W00-010	B65-10112	01	IR-transmission glasses formed from oxides of bismuth and tellurium M-FS-279	B65-10190	03
Optical automatic gain channel M-FS-1550	B66-10596	02	Technological survey of tellurium and its compounds ARG-10119	B68-10201	03
Improved digital TV encoding and decoding system MSC-11147	B67-10562	01	Segmented SiGe-PbTe couples GSFC-10746	B69-10233	01
Isolated, multiple-output voltage dc-to-dc converter M-FS-14976	B69-10014	01	TELLURIUM ISOTOPES		
TELEVISION RECEIVERS			An economical method for the continuous production of iodine-123 LEWIS-10518	B68-10433	03
Concept for a multifunctional oscilloscope probe M-FS-16390	B69-10129	01	TEMPER (METALLURGY)		
TELEVISION RECEPTION			New weldable high strength aluminum alloy developed for cryogenic service M-FS-737	B66-10613	05
Means for improving apparent resolution of television ERC-65	B67-10152	01	Retention of ductility in high-strength steels ARG-10497	B69-10616	03
Improved ultrasonic TV images achieved by use of Lamb-wave orientation technique ARG-203	B67-10295	02	TEMPERATURE		
Video synchronization processor overcomes poor signal-to-noise ratio KSC-10002	B67-10515	01	Hydrated multivalent cations are new class of molten salt mixtures ARG-211	B67-10033	03
System converts slow-scan to standard fast-scan TV signals MSC-90534	B69-10748	01	Method of measuring thermal conductivity of high performance insulation M-FS-14088	B68-10013	02
TELEVISION SYSTEMS			Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01
TV synchronization system features stability and noise immunity JPL-915	B67-10118	01	TEMPERATURE COMPENSATION		
Closed circuit TV system monitors welding operations MSC-11002	B67-10162	01	New low-level a-c amplifier provides adjustable noise cancellation and automatic temperature compensation ARC-2	B63-10003	04
Improved head-controlled TV system produces high-quality remote image ARG-128	B67-10317	01	Simple circuit provides adjustable voltage with linear temperature variation JPL-W00-029	B63-10537	01
An infrared television system for hydrogen flame detection KSC-10368	B69-10354	01	Variable frequency magnetic multivibrator generates stable square-wave output GSFC-AE-21	B65-10124	01
TELEVISION TRANSMISSION			Logarithmic amplifier uses field effect transistors JPL-509	B65-10145	01
Variable word length encoder reduces TV bandwidth requirements LANGLEY-87	B65-10345	01	Calorimeter accurately measures thermal radiation energy LANGLEY-173	B66-10058	02
TV synchronization system features stability and noise immunity JPL-915	B67-10118	01	Radiation used to temperature compensate semiconductor strain gages LANGLEY-207	B66-10186	02
Multiplex television transmission system MSC-11595	B67-10576	01	Transistor circuit increases range of logarithmic current amplifier NU-0018	B66-10350	01
Scan rate converter for tape recording and playback of TV pictures NPO-10166	B67-10676	01	An efficient, temperature-compensated subcarrier oscillator JPL-SC-091	B67-10251	01
System converts slow-scan to standard fast-scan TV signals MSC-90534	B69-10748	01	MOSFET improves performance of power supply regulator GSFC-10022	B67-10569	01
TELLURIUM			Current-limiting voltage regulator MSC-11824	B68-10305	01
Technological survey of tellurium and its compounds ARG-10119	B68-10201	03			

SUBJECT INDEX

TEMPERATURE DISTRIBUTION

Acceleration insensitive fluid expansion compensator ERC-10152	B68-10559	01	lunar orbiting space vehicles M-FS-12916	B67-10307	06
Linear voltage-to-frequency converter GSFC-10546	B69-10220	01	Precision capacitor has improved temperature and operational stability ARG-189	B67-10313	01
Highly linear, sensitive analog-to-digital converter MSC-13110	B69-10230	01	Hand-held instrument should relieve hematoma pressure MSC-599	B67-10332	04
TEMPERATURE CONTROL			Development of technology for hot-drape forming of large torus sections M-FS-12141	B67-10341	05
Improved sensor counts micrometeoroid penetrations LEWIS-76	B63-10443	01	Simplified technique demonstrates magnetic domain switching M-FS-13153	B67-10342	02
Multiple test tubes stirred mechanically ARC-42	B65-10120	01	Method for X-ray study under extreme temperature and pressure conditions MSC-11232	B67-10474	02
Closed fluid system without moving parts controls temperature LEWIS-222	B65-10331	02	Test system accurately determines tensile properties of irradiated metals at cryogenic temperatures NUC-10521	B67-10617	02
Special coatings control temperature of structures GSFC-444	B65-10337	03	Environmental control system for cryogenic testing of tensile specimens NUC-10523	B67-10618	02
Auxiliary coil controls temperature of RF induction heater GSFC-428	B66-10067	01	Pyrotechnic device provides one-shot heat source LEWIS-10131	B68-10062	03
Thermal motor positions magnetometer sensors ARC-51	B66-10078	05	Viscosity and density of methanol/water mixtures at low temperatures M-FS-14991	B68-10274	03
Control system maintains compartment at constant temperature JPL-SC-145	B66-10188	05	Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide ARG-10154	B68-10293	02
Solid state thermostat has integral probe and circuitry M-FS-434	B66-10193	01	Temperature or pressure controller LEWIS-10297	B68-10337	01
Self-contained clothing system provides protection against hazardous environments M-FS-536	B66-10201	05	Fluidic-thermochromic display device ERC-10031	B68-10350	01
Soldering iron temperature is automatically reduced ARC-57	B66-10203	01	Battery-package design provides for cell cooling and constraint MSC-11839	B68-10398	05
Low power heating element provides thermal control during swaging operations M-FS-457	B66-10206	05	Temperature controlled strain gaged extensometer LEWIS-10353	B68-10543	01
High-speed furnace uses infrared radiation for controlled brazing NU-0047	B66-10268	02	Structural thermal-control coatings NPO-10785	B68-10553	03
Mixer conditions temperature of liquified gas streams M-FS-1784	B66-10565	02	Thermal calibration target XGS-11144	B69-10419	01
Rotational fluid coupling eliminates hose entanglements MSC-312	B66-10585	05	Temperature-controlled resistor NPO-10713	B69-10440	01
Design concept for pressure switch calibrator HQ-36	B66-10598	01	Freon, T-B1 cutting fluid MSC-11486	B69-10485	05
Technique for measuring absorptance and emittance by using cyclic incident radiation LEWIS-321	B66-10630	02	Rate of heat extraction controller for environmental control HQ-10318	B69-10516	01
Computer program determines chemical composition of physical system at equilibrium MSC-1119	B66-10670	01	Measurement of gas flow at extremely low pressures MSC-13261	B69-10522	03
Heater control circuit provides both fast and proportional control M-FS-906	B67-10097	01	Balloon batteries, charged and heated by solar energy GSFC-10769	B69-10585	01
Temperature responsive valve withstands high impact loading NPO-10186	B67-10225	05	TEMPERATURE DISTRIBUTION		
Computer program determines thermal environment and temperature history of			Variable-transparency wall regulates temperatures of structures LANGLEY-25	B63-10528	03
			Hot-air soldering technique prevents overheating of electrical components		

TEMPERATURE EFFECTS

SUBJECT INDEX

GSFC-91	B63-10536	01	LEWIS-10763	B69-10113	01
Temperature-sensitive network drives astable multivibrator			Thermal Network Analyzer Program		
GSFC-137	B63-10609	01	NUC-10540	B69-10239	06
Mechanical properties of plastics predetermined by empirical method			Technique for predicting temperature distribution in gases		
ARC-28	B64-10068	03	LEWIS-10918	B69-10329	01
Microwave technique measures plasma characteristics			Improved retort for cleaning metal powders with hydrogen		
LANGLEY-134	B65-10122	02	LEWIS-10718	B69-10468	03
Cantilever springs maintain tension in thermally expanded wires			Modified cryogenic storage tank subsystem		
LEWIS-136	B65-10149	05	KSC-10380	B69-10556	02
Hydrogen-atmosphere induction furnace has increased temperature range			TEMPERATURE EFFECTS		
LEWIS-153	B66-10055	05	Light ray modulation controls optical system alignment		
Remote preamplifier circuit maintains stability over wide temperature range			GSFC-171	B65-10211	02
WOO-278	B66-10432	01	Feed-through connector withstands high temperatures in vacuum environment		
Heat-treatment of metal parts facilitated by sand embedment			GSFC-442	B65-10328	01
M-FS-1543	B66-10616	03	Coiled sheet metal strip opens into tubular configuration		
Computer program simplifies transient and steady-state temperature prediction for complex body shapes			GSFC-425	B66-10009	03
MSC-989	B66-10619	01	Friction device damps linear motion of rotating shaft		
Computer program calculates steady-state temperature distribution within plane or axisymmetric solids			WOO-214	B66-10030	05
NUC-10049	B67-10224	06	Angular acceleration measured by deflection in sensing ring		
Computer program predicts thermal and flow transients experienced in a reactor loss-of-flow accident			MSC-250	B66-10105	01
NUC-10054	B67-10281	06	Storage-stable foamable polyurethane is activated by heat		
Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries			LANGLEY-187	B66-10111	03
M-FS-1910	B67-10329	06	Concept for passive system to control gas flow independently of temperature		
Thermodynamic properties of saturated liquid parahydrogen charted for important temperature range			M-FS-982	B66-10343	05
NUC-10018	B67-10346	03	Composite gaskets are compatible with liquid oxygen, resist compression set		
Computer program NCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid			M-FS-455	B66-10395	03
NUC-10042	B67-10456	06	Modified thermocouple is effective from minus 250 deg to 5000 deg F		
Computer program NCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid			MSC-420	B66-10461	01
NUC-10043	B67-10457	06	Evaluation of high temperature stranded hookup wire		
Stable ac phase and amplitude comparator			M-FS-2478	B67-10122	03
M-FS-13086	B67-10459	01	Effects of heat input rates on T-1 and T-1A steel welds		
Graphite cloth facilitates vacuum evaporation of silicon monoxide			M-FS-2475	B67-10163	03
M-FS-14764	B68-10256	03	Substituting gold for silver improves electrical connections		
Dynamics of moving bubbles in single and binary component systems			M-FS-2390	B67-10228	03
M-FS-14845	B68-10339	02	Computer program simplifies design of rotating components of turbomachinery		
Computer program TRACK performs transient and/or steady state thermal analysis with coupled fluid flow and heat conduction			NUC-10046	B67-10235	06
NUC-10189	B68-10450	06	Process controls introduction of selected impurities into semiconductor wafers		
Solving nonlinear heat transfer constant area fin problems			GSFC-523	B67-10303	01
M-FS-14851	B68-10504	02	Concept for design of variable stiffness damper		
Surface temperature mapping with infrared photographic pyrometry			ARC-11225	B67-10483	05
			Study of thermal effects on nickel-cadmium batteries		
			GSFC-10003	B67-10614	01
			Improved calorimeter provides accurate thermal measurements of space batteries		
			GSFC-10003A	B67-10615	01
			Resistivity measurements of neutron-irradiated pure metals and Al-Zn alloys		
			ARG-10108	B68-10200	03

SUBJECT INDEX

TEMPERATURE GRADIENTS

Silicon strain sensors enable pressure measurement at cryogenic temperatures M-FS-14703	B68-10262	01	Electronic device simulates respiration rate and depth MSC-89	B64-10255	01
Spiral-grooved shaft seals substantially reduce leakage and wear LEWIS-10397	B68-10270	05	Fastener provides cooling and compensates for thermal expansion NU-0003	B65-10038	05
Fiber glass reinforced structural materials for aerospace application M-FS-14806	B68-10360	03	Flexure support system protects thermally and dynamically loaded models LANGLEY-39	B65-10042	05
Effects of high frequency current in welding aluminum alloy 6061 M-FS-18337	B68-10383	05	Seal allows blind assembly and thermal expansion of components NU-0005	B65-10053	05
Grain-boundary migration in KCl bicrystals ARG-10181	B68-10455	03	Transducer measures temperature differentials in presence of strong electromagnetic fields ARC-27	B65-10089	01
Heat transfer coefficients for liquid hydrogen turbopumps M-FS-18345	B68-10517	02	Rotating filters permit wide range of optical pyrometry LANGLEY-33	B65-10100	02
Evaluation of a fluorocarbon plastic used in cryogenic valve seals M-FS-18189	B68-10523	03	Materials physically tested in variable-environment chamber JPL-789	B66-10130	01
Investigation of temperature dependence of development and aging ARG-10145	B69-10022	04	Bellows design features low spring rate and long life MSC-521	B66-10190	05
Instabilities encountered during heat transfer to a supercritical fluid ARG-10266	B69-10042	02	Device without electrical connections in tank measures liquid level WOO-235	B66-10198	01
Tensile and fatigue properties of Inconel 718 at cryogenic temperatures M-FS-18192	B69-10068	03	Pressure seal ring may be effective over wide temperature range M-FS-486	B66-10211	05
Active frequency control system for argon FM laser M-FS-14988	B69-10099	02	Strain gage network distinguishes between thermal and mechanical deformations GSFC-478	B66-10280	01
Electromechanical rotary actuator operates over wide temperature range M-FS-18402	B69-10100	05	Bypass rod transfers heat developed in thermionic diode JPL-SC-136	B66-10303	05
Purification and characterization of two fully deuterated enzymes ARG-10314	B69-10207	04	Bi-metallic devices help maintain constant sealing forces down to cryogenic temperatures M-FS-800	B66-10325	02
Precision mounting for instrument optical elements provided by polyimide bonding M-FS-20293	B69-10310	05	Sensors measure surface ablation rate of reentry vehicle heat shield LANGLEY-287	B66-10592	01
Conversion of continuous-direct-current TIG welder to pulse-arc operation M-FS-16411	B69-10393	05	Feed-thru flange is useful in vacuum applications to cryogenic temperatures JPL-846	B66-10615	02
Accurate nine-decade temperature-compensated logarithmic amplifier ARG-10480	B69-10429	01	Combustion chamber struts can be effectively transpiration cooled M-FS-1830	B66-10643	03
A new method for producing optical mirrors HQ-10227	B69-10529	02	Improved rolling element bearings provide low torque and small temperature rise in ultrahigh vacuum environment LEWIS-359	B66-10678	05
Coil bearing support for high-speed rotor HQ-10315	B69-10661	05	System maintains constant penetration during fusion welding M-FS-937	B67-10091	01
Determination of permissible applied load stress in structural elements M-FS-16556	B69-10823	02	Fixture tests bellows reliability through repetitive pressure/temperature cycling MSC-1176	B67-10111	01
TEMPERATURE GRADIENTS			Cryogenic seal remains leaktight during thermal displacement ARG-96	B67-10134	02
Packless valve with all-metal seal handles wide temperature, pressure range JPL-361	B63-10228	05	Effects of heat input rates on T-1 and T-1A steel welds M-FS-2475	B67-10163	03
New sintering process adjusts magnetic value of ferrite cores GSFC-129	B63-10606	01	Materials data handbook, Inconel alloy 718 M-FS-2348	B67-10282	03
Plastic films for reflective surfaces reproduced from masters GSFC-188	B64-10151	03	Jacketed cryogenic piping is stress		
Temperature-compensation circuit stabilizes performance of vidicons JPL-486	B64-10226	01			

TEMPERATURE INVERSIONS

SUBJECT INDEX

relieved M-FS-985	B67-10308	05	Nulling pyrometer uses Kerr cell shutter for fast responses NU-0010	B65-10050	01
Metal flame spray coating protects electrical cables in extreme environment NUC-10077	B67-10351	03	Rotating filters permit wide range of optical pyrometry LANGLEY-33	B65-10100	02
Digital-to-analog converter operates from low level inputs JPL-907	B67-10357	01	Microwave technique measures plasma characteristics LANGLEY-134	B65-10122	02
Rugged switch responds to minute pressure differentials M-FS-12704	B67-10389	01	Infrared shield facilitates optical pyrometer measurements LANGLEY-133	B65-10272	02
Scribable coating for plastic films MSC-11194	B67-10409	03	Multiple temperatures sampled using only one reference junction GSFC-485	B66-10260	01
Blood pressure reprogramming adapter assists signal recording MSC-265	B67-10475	01	Braze alloys used as temperature indicators NU-0063	B66-10274	01
Dewpoint temperature inversions analyzed ARG-10316	B69-10057	02	Strain gage network distinguishes between thermal and mechanical deformations GSFC-478	B66-10280	01
Induction probe determines levels of liquid metals ARG-10348	B69-10256	03	Semiautomatic device tests components with biaxial leads MSC-516	B66-10337	03
Automated measurement of thermal conductivity M-FS-20454	B69-10283	03	Pyrometry handbook describes practical aspects of surface temperature measurements of opaque materials LEWIS-349	B66-10520	01
Technique for assessing potential fire hazards HQ-10279	B69-10287	03	A radiometer-pyrometer LEWIS-284	B66-10606	01
Stress-testing of the throat of a rocket*s nozzle NPO-10311	B69-10358	05	Accurate depth control provided for thermocouple junction locations LANGLEY-289	B66-10632	01
Integral valve provides automatic relief and remote venting M-FS-12134	B69-10545	05	Study of fast response thermocouple measurement of temperatures in cryogenic gases M-FS-1659	B66-10661	01
Control for maintaining constant level of a cryogenic liquid NPO-11177	B69-10573	05	Quartz crystals detect gas contaminants during vacuum chamber evacuation NPO-10144	B67-10205	01
High-pressure seals for rotary shafts M-FS-18548	B69-10649	05	Self-balancing line-reversal pyrometer automatically measures gas temperatures LEWIS-348	B67-10268	01
Deposition monitor and control NPO-10706	B69-10722	01	IR vidicon scanner monitors many test points M-FS-1937	B67-10277	01
Optimum structural design based on reliability and proof-load testing NPO-11228	B69-10723	31	Vapor deposition process provides new method for fabricating high temperature thermocouples NUC-10152	B67-10616	01
Investigation of the development of cracks in solder joints M-FS-20444	B69-10807	01	Measuring thermal expansion of multiple specimens at high temperature NUC-10153	B68-10122	05
TEMPERATURE INVERSIONS			Silicon solar cell monitors high temperature furnace operation NUC-10163	B68-10148	01
Technique developed for measuring transmittance of optical birefringent networks M-FS-14267	B68-10260	02	Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06
Dewpoint temperature inversions analyzed ARG-10316	B69-10057	02	Detection of effect of deposits on optical windows of pyrometer measurements LEWIS-10366	B68-10367	01
Calibration of a resistance thermometer down to 0.04 degrees K ARG-10318	B69-10149	01	Method for making small pointed thermocouples SAN-10014	B68-10389	01
TEMPERATURE MEASUREMENT			Nondestructive testing of brazed rocket engine components M-FS-18191	B68-10394	03
Tiny sensor-transmitter can withstand extreme acceleration, gives digital output ARC-22	B63-10561	01			
Apparatus measures concentration of suspended droplets in gas streams LANGLEY-31	B64-10237	01			
Thermistor connector assembly increases accuracy of measurements LANGLEY-62	B65-10045	01			

SUBJECT INDEX

TEMPERATURE SENSORS

Imaging slitless spectrometer for X-ray astronomy M-FS-14309	B68-10546	02	Thin film heat transfer gage is stable at higher temperatures M-FS-12396	B68-10051	01
Superconductivity in zirconium-rhodium alloys ARG-10223	B69-10010	03	Tungsten-rhenium alloy thermocouples effective for high-temperature measurement ARG-10059	B68-10109	03
Computer program calculates the effective temperature for a crystalline solid /DETS/ NUC-10161	B69-10036	06	Ultrasonic temperature measuring device LEWIS-10446	B68-10319	01
SPAN C - Terminal sterilization process analysis program NPO-10805	B69-10039	06	Millimeter-wave atmospheric loss prediction method NPO-11054	B69-10584	01
Refractory oxide insulated thermocouple designed and analyzed for high temperature applications ARG-10202	B69-10053	03	TEMPERATURE PROBES		
Dewpoint temperature inversions analyzed ARG-10316	B69-10057	02	Internal cooling increases range of immersion-type temperature probe LEWIS-171	B65-10157	02
Techniques for controlling warpage and residual stresses in welded structures M-FS-20307	B69-10086	05	Solid state thermostat has integral probe and circuitry M-FS-434	B66-10193	01
Liquid-metal heat transfer in a cocurrent-flow, double-pipe heat exchanger is investigated ARG-10261	B69-10091	02	Thermal conductivity probe M-FS-20566	B69-10780	03
SPAN - Terminal sterilization process analysis program NPO-10804	B69-10104	06	TEMPERATURE PROFILES		
Surface temperature mapping with infrared photographic pyrometry LEWIS-10763	B69-10113	01	Density trace made with computer printout GSFC-322	B65-10200	01
The effect of mismatched components on microwave noise-temperature calibrations NPO-11163	B69-10333	01	SPAN C - Terminal sterilization process analysis program NPO-10805	B69-10039	06
TEMPERATURE MEASURING INSTRUMENTS			SPAN - Terminal sterilization process analysis program NPO-10804	B69-10104	06
Transducer measures temperature differentials in presence of strong electromagnetic fields ARC-27	B65-10089	01	Thermophysical properties of sodium ARG-10363	B69-10240	03
Miniature bioelectric device accurately measures and telemeters temperature ARC-52	B66-10057	01	TEMPERATURE SCALES		
Calorimeter accurately measures thermal radiation energy LANGLEY-173	B66-10058	02	Resistance thermometer has linear resistance-temperature coefficient at low temperatures WOO-190	B66-10612	01
Apparatus measures thermal conductivity of honeycomb-core panels LANGLEY-202	B66-10127	01	Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01
Bismuth alloy potting seals aluminum connector in cryogenic application WOO-260	B66-10138	03	Tool for reading psychrometric charts KSC-10358	B69-10527	05
Thin-film gage measures low heat-transfer rates LANGLEY 205	B66-10180	01	TEMPERATURE SENSORS		
Electrically conductive fibers thermally isolate temperature sensor GSFC-456	B66-10349	01	Transducer measures temperature differentials in presence of strong electromagnetic fields ARC-27	B65-10089	01
Microminiature thermocouple monitors own installation M-FS-1111	B66-10463	05	Temperature transducer has high output, is time stable GSFC-446	B65-10362	01
Study of theory and application of long duration heat flux transducers M-FS-1265	B66-10614	01	Wide-range instrument monitors flow rates of chemically active fluids MSC-186	B66-10205	01
Instrument accurately measures small temperature changes on test surface LANGLEY-174	B66-10637	01	Sniffer used as portable hydrogen leak detector M-FS-846	B66-10356	01
Bimetal sensor averages temperature of nonuniform profile LEWIS-10362	B68-10007	01	Heat flux sensor design reduces extraneous source effects MSC-400	B66-10531	01
			Thin film thermal detector JPL-943	B67-10505	01
			Instrumentation monitors transported material through variety of parameters M-FS-12938	B67-10545	01
			Temperature or pressure controller LEWIS-10297	B68-10337	01
			Fluidic transducer gives pressure output as function of temperature		

TEMPERING

SUBJECT INDEX

ERC-10093	B68-10537	05	environment chamber JPL-789	B66-10130	01
Torsion system for creep testing with multiple stress reversals HQ-10039	B69-10147	03	Improved adhesive for cryogenic applications cures at room temperature WOO-132	B66-10185	03
Automatic calorimetry system monitors RF power NPO-11033	B69-10384	01	Fibers of newly developed refractory ceramics produced by improved process WOO-169	B66-10196	03
Thermal conductivity probe M-FS-20566	B69-10780	03	Nickel-base superalloys developed for high- temperature applications LEWIS-226	B66-10222	03
TEMPERING			Aluminum/steel wire composite plates exhibit high tensile strength M-FS-401	B66-10262	05
High permeability semiconductors permit close-tolerance soldering GSFC-319	B65-10134	05	Boron-deoxidized copper withstands brazing temperatures M-FS-762	B66-10273	03
Improved thermal treatment of aluminum alloy 7075 M-FS-20083	B68-10534	05	Friction loading device enables accurate testing of brittle materials NU-0051	B66-10345	05
TEMPLATES			New backup-bar groove configuration improves helium welding of 2014-T6 aluminum MSC-806	B66-10443	05
Built-in templates speed up process for making accurate models LANGLEY-23	B63-10526	05	Weldable aluminum alloy has improved mechanical properties M-FS-295	B66-10445	03
Lathe converted for grinding aspheric surfaces GSFC-115	B63-10556	05	Thermoplastic rubberlike material produced at low cost JPL-793	B66-10453	03
Reusable neoprene jacket protects parts for chemical milling WOO-071	B65-10179	03	New tungsten alloy has high strength at elevated temperatures LEWIS-336	B66-10551	03
Nylon bit removes cork insulation without damage to substrate MSC-381	B66-10152	05	Tungsten fiber-reinforced copper composites form high strength electrical conductors LEWIS-338	B66-10572	03
Machining technique prevents undercutting in tensile specimens LANGLEY-10281	B68-10352	05	Study made to control depth of potting compound for honeycomb sandwich fasteners LEWIS-370	B66-10677	05
Calibration standard for dynamic evaluation of a profile-plotter M-FS-16476	B69-10458	05	Cryogenic fatigue data developed for Inconel 718 M-FS-702	B67-10049	03
A method for precision anodize stripping MSC-15040	B69-10581	03	Evaluation of high temperature stranded hookup wire M-FS-2478	B67-10122	03
TENSILE PROPERTIES			Heat treatment study of aluminum casting alloy M45 M-FS-2397	B67-10159	03
Polymer deformation gage measures thickness change in tensile tests JPL-745	B66-10147	01	Aluminum-titanium hydride-boron carbide composite provides lightweight neutron shield material NUC-10069	B67-10265	03
Study made of procedures for externally loading and corrosion testing stress corrosion specimens M-FS-12064	B67-10451	03	Simplified method measures changes in tensile yield strength using least number of specimens NUC-10075	B67-10266	03
Test system accurately determines tensile properties of irradiated metals at cryogenic temperatures NUC-10521	B67-10617	02	High-strength tungsten alloy with improved ductility LEWIS-10257	B67-10340	03
TENSILE STRENGTH			Extrusion of small-diameter, thin-wall tungsten tubing LEWIS-90335	B67-10355	05
Lightweight magnesium-lithium alloys show promise M-FS-17	B63-10389	03	Magnesium-lithium alloys developed for low temperature use M-FS-1541	B67-10365	03
New alloy brazes titanium to stainless steel MSC-102	B65-10060	05	Transducer measures embedment stresses in electronic modules M-FS-13486	B67-10367	01
Lightweight aluminum casting alloy is useful at cryogenic temperatures M-FS-267	B65-10092	03			
Irradiation improves properties of an aromatic polyester LANGLEY-115	B65-10164	03			
Tensile-strength apparatus applies high strain-rate loading with minimum shock JPL-28	B66-10063	05			
Mechanism continuously measures static and dynamic cable loads MSC-217	B66-10107	05			
Materials physically tested in variable-					

SUBJECT INDEX

TENSILE TESTS

Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133	B67-10437	03	Study to minimize hydrogen embrittlement of ultrahigh-strength steels M-FS-2455	B67-10141	03
Aluminum and stainless steel tubes joined by simple ring and welding process M-FS-13120	B67-10472	05	Glass bead shot peening retards stress corrosion failure of titanium tanks LANGLEY-319	B67-10198	05
Synthesis of pure aromatic glycidyl esters for use as adhesives M-FS-12705	B67-10647	03	Pipe joints reinforced in place with fitted aluminum sleeves MSC-11109	B67-10271	05
Study made of mechanics of deformation and fracture of fibrous composites HQ-10035	B67-10660	03	Circuit measures hysteresis loop areas at 30 Hz M-FS-13069	B67-10519	01
Improved molding process ensures plastic parts of higher tensile strength LANGLEY-10033	B68-10132	05	Buckling strength of filament-wound cylinders under axial compression is investigated HQ-10032	B67-10659	03
Magnetic forming studies M-FS-14217	B68-10186	02	Tensile testing grips ensure uniform loading of bimetal tubing specimens LEWIS-10267	B68-10248	05
Susceptibility of irradiated steels to hydrogen embrittlement ARG-10115	B68-10194	03	Analysis of problems related to slingshot shock machine high-velocity shock testing NPO-11193	B69-10506	05
Nickel base alloy with improved stress rupture properties LEWIS-10283	B68-10344	03	TENSILE TESTS		
Nickel-base superalloy*s excellent properties promote its service to 2200 degrees F LEWIS-10355	B68-10380	03	Apparatus facilitates high-temperature tensile testing in vacuum LEWIS-42	B63-10345	03
Evaluation of a fluorocarbon plastic used in cryogenic valve seals M-FS-18189	B68-10523	03	Peel resistance of adhesive bonds accurately measured GSPC-320	B65-10173	03
Tensile and fatigue properties of Inconel 718 at cryogenic temperatures M-FS-18192	B69-10068	03	Force controlled solenoid drives microweld tester WOO-125	B65-10182	01
Techniques for controlling warpage and residual stresses in welded structures M-FS-20307	B69-10086	05	Testing device subjects elastic materials to biaxial deformations JPL-616	B65-10189	03
High strength, superplastic superalloy LEWIS-10805	B69-10293	03	Tensile-strength apparatus applies high strain-rate loading with minimum shock JPL-28	B66-10063	05
Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03	Mechanism continuously measures static and dynamic cable loads MSC-217	B66-10107	05
Stress-testing of the throat of a rocket*s nozzle NPO-10311	B69-10358	05	Polymer deformation gage measures thickness change in tensile tests JPL-745	B66-10147	01
Development of improved potting and conformal coating compounds M-FS-20219	B69-10559	03	Boron-deoxidized copper withstands brazing temperatures M-FS-762	B66-10273	03
Silphenylene elastomers have high thermal stability and tensile strength M-FS-20250	B69-10580	03	Extensometer automatically measures elongation in elastomers M-FS-517	B66-10284	05
Strain-age cracking in Rene 41 alloy M-FS-18650	B69-10605	03	Ultrasonic emission method enables testing of adhesive bonds M-FS-799	B66-10341	01
Explosive bonding of metal-matrix composites M-FS-20657	B69-10804	05	Friction loading device enables accurate testing of brittle materials NU-0051	B66-10345	05
TENSILE STRESS			Composite weld rod corrects individual filler weaknesses M-FS-1923	B67-10107	05
Chain friction system gives positive, reversible drive ARC-8	B63-10009	05	Self-aligning rod prevents eccentric loading of tensile specimens NUC-10525	B67-10594	05
Infrared shield facilitates optical pyrometer measurements LANGLEY-133	B65-10272	02	Polystyrene cryostat facilitates testing tensile specimens under liquid nitrogen NUC-10522	B67-10613	02
Torus elements used in effective shock absorber WOO-114	B66-10318	05	Test system accurately determines tensile properties of irradiated metals at cryogenic temperatures		
Ultrasonic emission method enables testing of adhesive bonds M-FS-799	B66-10341	01			

TENSION

SUBJECT INDEX

NUC-10521	B67-10617	02	voltage discharge characteristic of silver-zinc cells	GSFC-169	B64-10114	01	
Environmental control system for cryogenic testing of tensile specimens	NUC-10523	B67-10618	02	Feed-through has polyterminal feature	M-FS-25	B65-10057	01
Tensile testing grips are easily assembled under liquid nitrogen	NUC-10524	B67-10628	05	TERMINOLOGY			
Buckling strength of filament-wound cylinders under axial compression is investigated	HQ-10032	B67-10659	03	Properties of optics at high temperature and their measurement, a study	M-FS-14696	B68-10240	02
Tensile testing grips ensure uniform loading of bimetal tubing specimens	LEWIS-10267	B68-10248	05	TERNARY ALLOYS			
One hundred angstrom niobium wire	LEWIS-10128	B68-10279	03	Silver-base ternary alloy proves superior for slip ring lead wires	M-FS-1540	B66-10540	03
Machining technique prevents undercutting in tensile specimens	LANGLEY-10281	B68-10352	05	Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys	ARG-199	B66-10594	03
Fractography can be used to analyze failure modes in polytetrafluoroethylene	M-FS-20294	B69-10066	03	TERRAIN ANALYSIS			
Abrasion and fracture testing in a high-pressure hydrogen environment	M-FS-18480	B69-10457	03	A theoretical study of radar backscatter from distributed targets with emphasis on polarization dependence	M-FS-13775	B69-10560	02
Heat-shrinkable jacket holds fluid in contact with tensile test specimen	MSC-13195	B69-10495	05	TEST CHAMBERS			
Literature review on pickling inhibitors and cadmium electroplating processes	M-FS-14421	B69-10606	03	Low-cost tape system measures velocity of acceleration	GSFC-85	B63-10512	01
Effects of high-pressure hydrogen on storage vessel materials	M-FS-18605	B69-10730	03	Test device prevents molecular bounce-back	GSFC-82	B63-10546	03
TENSION							
Tension is servo controlled in film advance system	LANGLEY-54	B65-10075	05	Multiple test chamber exposes materials to various environments	MSC-179	B65-10268	01
Cantilever springs maintain tension in thermally expanded wires	LEWIS-136	B65-10149	05	Superconductor shields test chamber from ambient magnetic fields	JPL-627	B65-10297	02
Automatic reel controls filler wire in welding machines	MSC-416	B66-10236	05	Oxygen-hydrogen torch is a small-scale steam generator	NU-0042	B66-10120	03
Hole saw drill attachment has zero force reaction	MSC-543	B66-10604	05	Materials physically tested in variable-environment chamber	JPL-789	B66-10130	01
Single-source mechanical loading system produces biaxial stresses in cylinders	M-FS-12530	B67-10380	05	Improved system measures output energy of pyrotechnic devices	WOO-256	B66-10159	01
Two-functional seal for hose connection	M-FS-14062	B69-10588	05	Subminiaturized gas chromatograph gives fast, efficient analysis	JPL-735	B66-10182	01
TERBIUM							
Liquid laser cavities	GSFC-10592	B69-10234	02	Expandable rubber plug seals openings for pressure testing	NU-0048	B66-10229	05
Mass culture of photobacteria to obtain luciferase	GSFC-10563	B69-10294	04	Feed-thru flange is useful in vacuum applications to cryogenic temperatures	JPL-846	B66-10615	02
Laser action from a terbium beta-ketoenolate at room temperature	GSFC-10593	B69-10324	02	High speed blowdown system provides rapid pressure loss	LEWIS-375	B67-10043	05
TERBIUM ISOTOPES							
Optically exciting a magnetic memory - A feasibility study	M-FS-14854	B69-10060	02	Apparatus for fabrication of americium-beryllium neutron sources prevents capsule contamination	ARG-184	B67-10202	05
TERMINALS							
Auxiliary silver electrode eliminates two-step				Protected, high-temperature connecting cable	LEWIS-10149	B67-10461	01
				Development of biaxial test fixture includes cryogenic application	M-FS-14185	B68-10070	01
				Automatic calibration system for pressure transducers	M-FS-20127	B68-10412	01
				Dual-purpose chamber-cooling system	NFO-10467	B68-10506	02

SUBJECT INDEX

TEST EQUIPMENT

Reliable method for testing gross leaks in semiconductor component packages BEC-10150	B68-10562	01	fabricated valves M-FS-1069	B66-10416	05
Stress-testing of the throat of a rocket's nozzle NPO-10311	B69-10358	05	Semiconductors can be tested without removing them from circuitry M-FS-1163	B66-10447	01
Calibratable solid-state pressure switch M-FS-20474	B69-10437	05	Modified thermocouple is effective from minus 250 deg to 5000 deg F MSC-420	B66-10461	01
Adjustable thermal **tree** MSC-15556	B69-10484	01	Low level accelerometer test methods are investigated M-FS-908	B66-10510	01
Testing the flammability of materials exposed to arcs MSC-15225	B69-10531	03	Antenna simulator permits preinstallation system checkout GSFC-522	B66-10518	01
Vacuum gage calibration system for 10 to the minus 8th power to 10 torr LEWIS-11032	B69-10713	01	Logic circuitry used to automatically test shielded cables HQ-60	B66-10659	01
Burn-rate testing apparatus MSC-10947	B69-10740	03	Tester for study of rolling element bearings LEWIS-305	B67-10009	01
TEST EQUIPMENT			Flow-test device fits into restricted access passages MSC-1078	B67-10074	01
Test device prevents molecular bounce-back GSFC-82	B63-10546	03	Tester automatically checks paper tape punch and reader after maintenance ARC-66	B67-10267	01
Continuity tester screens out faulty socket connections JPL-596	B64-10065	01	Electronic test instrument generates extremely small current signals ARG-276	B67-10318	01
Emission tester for high-power vacuum tubes JPL-628	B64-10158	01	Low-energy gamma ray inspection of brazed aluminum joints MSC-1189	B67-10337	02
Machine tests crease durability of sheet materials JPL-604	B64-10178	05	Practical new method of measuring thermal-neutron fluence NUC-10086	B67-10352	02
Raster linearity of video cameras calibrated with precision tester GSFC-200	B64-10209	01	Steel test panel helps control additives in pyrophosphate copper plating LEWIS-10101	B67-10358	05
Circuit converts AM signals to FM for magnetic recording GSFC-227	B65-10001	01	Automatic telemetry checkout system M-FS-12580	B67-10402	01
Fluid pressure used to test turbopump bearings NU-0001	B65-10024	03	Jet engine powers large, high-temperature wind tunnel M-FS-13544	B67-10621	02
Circuit detects errors in address currents for magnetic core arrays M-FS-234	B65-10047	01	Pneumatic pressure wave generator provides economical, simple testing of pressure transducers NUC-10024	B67-10664	05
Piezoresistive gage tests pin-connector sockets JPL-675	B65-10128	01	Harmonic distortion analyzer speeds setup of magnetic tape recorders GSFC-10198	B68-10254	01
Testing device subjects elastic materials to biaxial deformations JPL-616	B65-10189	03	Conceptual dead weight device to provide pressure calibration M-FS-14672	B68-10264	01
Novel probe simplifies electronic component testing GSFC-342	B65-10243	01	Environmental test planning, selection and standardization aids available SAN-10028	B68-10445	06
Simple device produces accelerometer calibration pulse M-FS-363	B65-10269	01	Insertion device for pressure testing MSC-15185	B69-10061	03
Air brake-dynamometer accurately measures torque LEWIS-163	B65-10312	05	One hundred MHz voltage-controlled oscillator NPO-11004	B69-10133	01
Noncontacting vibration transducer has constant sensitivity LANGLEY-99	B65-10392	01	Leakage tester for flat conductor cable connector M-FS-20427	B69-10284	05
Tensile-strength apparatus applies high strain-rate loading with minimum shock JPL-28	B66-10063	05	Radiographic threshold detection levels of aluminum weld defects M-FS-20487	B69-10418	01
Dispenser leak-tests and sterilizes rubber gloves MSC-285	B66-10166	03			
Matching flow characteristics of standard shutoff valves eliminates need for custom					

TEST FACILITIES

SUBJECT INDEX

Checking flat conductor cable spacing by means of a moire pattern M-FS-20426	B69-10456	05	concentrations in closed compartments MSC-210	B65-10390	03
Analysis of problems related to slingshot shock machine high-velocity shock testing NPO-11193	B69-10506	05	Rectilinear accelerometer possesses self-calibration feature M-FS-1480	B66-10452	01
TEST FACILITIES			Low level accelerometer test methods are investigated M-FS-908	B66-10510	01
A technique for making animal restraints ABC-25	B63-10564	05	Method for predicting frictional loss in metal bellows and flexible hose M-FS-883	B66-10662	05
Complementary system vaporizes subcooled liquid, improves transformer efficiency M-FS-550	B66-10045	02	Multiple correlation computer program determines relationships between several independent and dependent variables M-FS-13024	B67-10327	06
Infrared television used to detect hydrogen fires M-FS-654	B66-10363	01	Excellent spring properties developed in two nickel alloys for use at cryogenic temperatures NUC-10084	B67-10349	03
Monitoring circuit accurately measures movement of solenoid valve M-FS-1829	B66-10568	01	Cut-through tester accurately measures insulation failure rates M-FS-12506	B67-10354	03
Workmanship standards for fusion welding NUC-10050	B67-10200	05	Review of research and development in fluid logic elements M-FS-420	B67-10438	01
Pressure levels and pulsation frequencies can be varied on high pressure/frequency testing device LEWIS-10205	B67-10360	05	Beryllium fastener technology M-FS-20306	B69-10019	05
Saturn S-2 Automatic Software System /SASS/ M-FS-1741	B67-10405	06	Techniques for controlling warpage and residual stresses in welded structures M-FS-20307	B69-10086	05
Pump simulator provides variable pressure-flow characteristics LEWIS-10122	B67-10453	05	Integrated sequence display device KSC-10381	B69-10316	01
Technique eliminates high voltage arcing at electrode-insulator contact area LEWIS-10133	B67-10470	01	Simple test indicates degree of cure of polyimide coatings MSC-15487	B69-10330	03
Continuous analysis of nitrogen dioxide in gas streams of plants ARG-10356	B69-10254	03	Application of cryptanalytic techniques to the analysis of NiCd space batteries GSFC-10565	B69-10731	01
Improved dc voltage regulator KKS-06467	B69-10369	01	TETHERLINES		
TEST PILOTS			Body-fitted harness provides safe and easy component handling M-FS-533	B66-10202	05
High- and low-pressure pneumotachometers measure respiration rates accurately in adverse environments FRC-10012	B68-10188	01	TETRACHLORIDES		
TEST STANDS			Process produces chlorinated aromatic isocyanate in high yield M-FS-1658	B66-10646	03
High pressure tube coupling requires no threads or flares MSC-600	B66-10285	05	TETRODES		
Four-bar linkage for thermal compensation in test mounts for structures NPO-11059	B69-10298	05	FM oscillator uses tetrode transistor JPL-82	B65-10055	01
TEST VEHICLES			TEXTBOOKS		
Interference effects eliminated in random oriented space station antenna system MSC-11004	B67-10435	01	Handbooks for nondestructive testing using ultrasonics M-FS-20409	B69-10108	03
TESTING TIME			Instruction manuals for liquid penetrant nondestructive testing M-FS-14010	B69-10278	05
Novel probe simplifies electronic component testing GSFC-342	B65-10243	01	THEODOLITES		
TESTS			Optical automatic gain channel M-FS-1550	B66-10596	02
Built-in templates speed up process for making accurate models LANGLEY-23	B63-10526	05	Training manual on optical alignment instruments M-FS-20292	B68-10574	02
Apparatus facilitates pressure-testing of metal tubing LEWIS-174	B65-10131	05	THEOREM PROVING		
Weld leaks rapidly and safely detected M-FS-362	B65-10265	01	COGENT programming manual ARG-10463	B69-10656	06
Test strips detect different CO2			THEORETICAL PHYSICS		
			Self-sustained hydrodynamic oscillations in a natural-circulation two-phase-flow		

SUBJECT INDEX

THERMAL CYCLING TESTS

boiling loop ARG-10461	B69-10620	02	JPL-SC-145	B66-10188	05
Storage of electric and magnetic energy in passive nonreciprocal networks ARG-10360	B69-10630	01	Wide-range instrument monitors flow rates of chemically active fluids MSC-186	B66-10205	01
Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01	Rugged microelectronic module package supports circuitry on heat sink MSC-81A	B66-10245	01
THERAPY Simulator effects partial gravity conditions MSC-152	B66-10339	05	Boron-deoxidized copper withstands brazing temperatures M-FS-762	B66-10273	03
THERMAL CONDUCTIVITY Indium foil with beryllia washer improves transistor heat dissipation GSFC-42	B63-10033	01	Portable detector set discloses helium leak rates M-FS-1733	B67-10065	01
Method of welding joint in closed vessel improves quality of seam JPL-170	B63-10139	05	Aluminum-titanium hydride-boron carbide composite provides lightweight neutron shield material NUC-10069	B67-10265	03
Thermally conductive metal wool-silicone rubber material can be used as shock and vibration damper JPL-321	B63-10207	03	Development of dual solid cryogenics for high reliability refrigeration system GSFC-10188	B67-10644	02
New sintering process adjusts magnetic value of ferrite cores GSFC-129	B63-10606	01	Method of measuring thermal conductivity of high performance insulation M-FS-14088	B68-10013	02
Simple transducer measures low heat-transfer rates JPL-466	B64-10122	01	Thermal conductivity and dielectric constant of silicate materials M-FS-14856	B68-10351	03
Ceramic-coated boat is chemically inert, provides good heat transfer LANGLEY-90	B65-10063	05	Fiber glass reinforced structural materials for aerospace application M-FS-14806	B68-10360	03
Carbon-arc rod holder has long life, reduces arc splatter MSC-144	B65-10095	03	Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/ ARG-10148	B68-10368	03
Insulation accelerates rate of cooling with cryogenic fluid MSC-161	B65-10240	02	High conductance vapor thermal switch GSFC-10109	B68-10519	02
Boron nitride housing cools transistors WOO-079	B65-10289	01	Automated measurement of thermal conductivity M-FS-20454	B69-10283	03
Copper foil provides uniform heat sink path MSC-262	B66-10004	02	A method for predicting interfacial freezing of a liquid flowing over a cold surface LEWIS-10813	B69-10321	02
Aluminized fiberglass insulation conforms to curved surfaces M-FS-477	B66-10024	03	Thermally conducting electron transfer polymers GSFC-10703	B69-10511	03
Calorimeter accurately measures thermal radiation energy LANGLEY-173	B66-10058	02	Thermal conductivity probe M-FS-20566	B69-10780	03
Mount makes liquid nitrogen-cooled gamma ray detector portable LEWIS-259	B66-10103	01	THERMAL CONDUCTORS Cooling method prolongs life of hot-wire transducer LEWIS-41	B63-10344	02
Compound improves thermal interface between thermocouple and sensed surface NU-0028	B66-10121	02	Mounting for diodes provides efficient heat sink M-FS-197	B64-10283	01
Apparatus measures thermal conductivity of honeycomb-core panels LANGLEY-202	B66-10127	01	Automatic thermal switch accelerates cooling-down of cryogenic system JPL-655	B65-10068	01
Mounting improves heat-sink contact with beryllia washer MSC-194	B66-10144	01	Study made of anodized aluminum circuit boards M-FS-13580	B67-10425	01
Subminiaturized gas chromatograph gives fast, efficient analysis JPL-735	B66-10182	01	THERMAL CYCLING TESTS Brazing process provides high-strength bond between aluminum and stainless steel M-FS-803	B66-10352	05
Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02	Fixture tests bellows reliability through repetitive pressure/temperature cycling MSC-1176	B67-10111	01
Control system maintains compartment at constant temperature			Thermal and bias cycling stabilizes planar		

THERMAL DIFFUSION

SUBJECT INDEX

silicon devices ERC-48	B67-10176	01	THERMAL EXPANSION		
Transducer measures embedment stresses in electronic modules M-FS-13486	B67-10367	01	Flexible fastener allows thermal expansion LANGLEY-40	B64-10145	05
Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01	Connector seals fluid lines at cryogenic temperatures and high vacuums GSFC-253	B64-10327	05
Development of improved potting and conformal coating compounds M-FS-20219	B69-10559	03	Fastener provides cooling and compensates for thermal expansion NU-0003	B65-10038	05
THERMAL DIFFUSION			Flexure support system protects thermally and dynamically loaded models LANGLEY-39	B65-10042	05
Nickel/tin coating protects threaded fasteners in corrosive environment MSC-253	B65-10398	03	Seal allows blind assembly and thermal expansion of components NU-0005	B65-10053	05
THERMAL ENERGY			Magnetic field test coils are temperature compensated GSFC-294	B65-10081	02
Wide-angle sensor measures radiant heat energy in corrosive atmospheres M-FS-228	B65-10019	05	Cantilever springs maintain tension in thermally expanded wires LEWIS-136	B65-10149	05
Polymer film exhibits thermal and radiation stability LANGLEY-100	B66-10043	03	Titanium diaphragm makes excellent amplitron cathode support GSFC-394	B65-10298	01
Calorimeter accurately measures thermal radiation energy LANGLEY-173	B66-10058	02	Solid-film lubricant is effective at high temperatures in vacuum LEWIS-228	B66-10087	03
Thermal protective visor for entering high temperature areas MSC-10285	B68-10277	05	Pressure seal ring may be effective over wide temperature range M-FS-486	B66-10211	05
Technical report on galvanic cells with fused-salt electrolytes ARG-10297	B69-10155	01	Differential expansion provides pressure for diffusion bonding of large diameter rings M-FS-588	B66-10269	05
Magnetohydrodynamic generators using two-phase liquid-metal flows ARG-10168	B69-10162	01	Strain gage network distinguishes between thermal and mechanical deformations GSFC-478	B66-10280	01
Studies of cycles for liquid-metal magnetohydrodynamic generation of power ARG-10250	B69-10194	02	Improved thermal insulation materials made of foamed refractory oxides M-FS-735	B66-10288	03
Technique for assessing potential fire hazards HQ-10279	B69-10287	03	Bimetallic devices help maintain constant sealing forces down to cryogenic temperatures M-FS-800	B66-10325	02
Epitaxial crystalline growth upon cold substrates MSC-11196	B69-10494	01	Teflon sheet permits valve and valve operator to move as a single unit in a cryogenic pipe line NU-0077	B66-10702	05
THERMAL ENVIRONMENTS			Glass formulation has high coefficient of thermal expansion NU-0084	B66-10705	03
Electrically conductive fibers thermally isolate temperature sensor GSFC-456	B66-10349	01	Cryogenic seal remains leaktight during thermal displacement ARG-96	B67-10134	02
Computer program determines thermal environment and temperature history of lunar orbiting space vehicles M-FS-12916	B67-10307	06	Design concept to decrease relative speed of ball bearings M-FS-2003	B67-10212	05
High-strength tungsten alloy with improved ductility LEWIS-10257	B67-10340	03	Temperature responsive valve withstands high impact loading NPO-10186	B67-10225	05
Ratio matching of half-bridge weldable strain gages, computer program FRC-10032	B69-10040	06	Thermal neutron image intensifier tube provides brightly visible radiographic pattern ARG-120	B67-10296	02
Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes ARG-10274	B69-10047	02	Precision metal molding M-FS-13305	B67-10423	05
Fractography can be used to analyze failure modes in polytetrafluoroethylene M-FS-20294	B69-10066	03	Dynamic valve seal is reliable at cryogenic temperatures M-FS-12987	B67-10526	05
Remote control thermal actuator LEWIS-10873	B69-10307	01			

SUBJECT INDEX

THERMAL NEUTRONS

Measuring thermal expansion of multiple specimens at high temperature NUC-10153	B68-10122	05	Tool facilitates installation of Marmen clamps M-FS-2039	B67-10105	05
Design eliminates radial thermal expansion in turbine stator components M-FS-18146	B68-10531	05	Inexpensive cryogenic insulation replaces vacuum jacketed line NUC-10061	B67-10264	02
Device for diode tuning in a stripline varactor harmonic multiplier M-FS-20153	B69-10013	01	Development of technology for hot-drape forming of large torus sections M-FS-12141	B67-10341	05
Thermal expansion properties of aerospace materials M-FS-18335	B69-10055	03	Experiments to investigate particulate materials in reduced gravity fields M-FS-13308	B67-10394	02
Segmented SiGe-PbTe couples GSFC-10746	B69-10233	01	Concept for cryogenic liquid reclamation system NPO-10322	B67-10420	02
Induction probe determines levels of liquid metals ARG-10348	B69-10256	03	Newly developed foam ceramic body shows promise as thermal insulation material at 3000 deg F M-FS-11968	B67-10441	03
An improved atomic hydrogen frequency and time standard GSFC-10706	B69-10341	02	Foil radiometer accessory improves measurements M-FS-12684	B67-10448	01
Technique for predicting the thermal expansion coefficients of cryogenic metallic alloys NUC-10554	B69-10707	02	A ceramic composite thermal insulation M-FS-13991	B67-10608	03
THERMAL INSULATION			Feed-thru conduit minimizes heat pickup JPL-847	B67-10619	05
Refractory thermal insulation for smooth metal surfaces M-FS-160	B64-10099	03	Multichip packaging with thermal insulation M-FS-14076	B68-10119	02
Automatic thermal switch accelerates cooling-down of cryogenic system JPL-655	B65-10068	01	Temperature or pressure controller LEWIS-10297	B68-10337	01
Heater decomposes oil backstreaming from high-vacuum pumps GSFC-356	B65-10224	02	Fire retardant foams developed to suppress fuel fires ARC-10098	B68-10358	03
Aluminized fiberglass insulation conforms to curved surfaces M-FS-477	B66-10024	03	Structural thermal-control coatings NPO-10785	B68-10553	03
Ferroelectric bolometer measures RF absolute power at submillimeter wavelengths GSFC-422	B66-10051	01	Channel-wall limitations in the magnetohydrodynamic induction generator ARG-10128	B69-10255	02
Spray-on technique simplifies fabrication of complex thermal insulation blanket M-FS-497	B66-10053	03	Automated measurement of thermal conductivity M-FS-20454	B69-10283	03
Capacitive system detects and locates fluid leaks M-FS-478	B66-10099	01	Thermal conductivity probe M-FS-20566	B69-10780	03
Mount makes liquid nitrogen-cooled gamma ray detector portable LEWIS-259	B66-10103	01	THERMAL NEUTRONS		
Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02	Nondestructive test method accurately sorts mixed bolts M-FS-1426	B66-10574	01
Control system maintains compartment at constant temperature JPL-SC-145	B66-10188	05	Detection of entrapped moisture in honeycomb sandwich structures MSC-1103	B67-10116	01
Improved thermal insulation materials made of foamed refractory oxides M-FS-735	B66-10288	03	Thermal neutron image intensifier tube provides brightly visible radiographic pattern ARG-120	B67-10296	02
Inexpensive insulation is effective for cryogenic transfer lines MSC-618	B66-10348	02	Practical new method of measuring thermal-neutron fluence NUC-10086	B67-10352	02
Acceleration-compensated pressure transducer has fast response LANGLEY-113	B66-10353	01	Glancing incidence telescope for far ultraviolet and soft X-rays GSFC-10052	B67-10508	02
Dispersion of borax in plastic is excellent fire-retardant heat insulator ARG-5	B67-10016	03	Compilation of detection sensitivities in thermal-neutron activation ARG-10068	B67-10641	03
			Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes NUC-10143	B67-10665	06

THERMAL NOISE

SUBJECT INDEX

Computer program /P1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas NUC-10141	B67-10678	06	Calorimeter accurately measures thermal radiation energy LANGLEY-173	B66-10058	02
Computer program calculates the effective temperature for a crystalline solid /DETS/ NUC-10161	B69-10036	06	Ultraviolet photographic pyrometer used in rocket exhaust analysis M-FS-499	B66-10095	02
Neutron therapy of cancer ARG-10310	B69-10203	04	Chromium oxide coatings improve thermal emissivity of alumina WOO-263	B66-10227	03
Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons ARG-10220	B69-10211	02	Calculation of infrared spectral transmittances of inhomogeneous gases M-FS-1563	B66-10554	02
Dual-mode operation of a neutron source, a concept HQ-10106	B69-10248	02	Computer program determines thermal environment and temperature history of lunar orbiting space vehicles M-FS-12916	B67-10307	06
Tungsten thermal neutron dosimeter LEWIS-10880	B69-10249	02	Electron beam parallel X-ray generator MSC-11022	B67-10372	02
GAMBIT program NUC-10243	B69-10433	06	Infrared radiometer M-FS-13373	B67-10422	01
THERMAL NOISE Thermal short improves sensitivity of cryogenically cooled maser NPO-09975	B68-10059	01	Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area NUC-10007	B67-10538	01
THERMAL PLASMAS Microwave technique measures plasma characteristics LANGLEY-134	B65-10122	02	Monte Carlo direct view factor and generalized radiative heat transfer programs M-FS-15051	B69-10038	06
THERMAL PROTECTION Predicting surface heating rates and pressures resulting from hot exhaust gases MSC-971	B66-10633	05	Detection of molecular infrared spectra HQ-10377	B69-10172	02
Study of fast response thermocouple measurement of temperatures in cryogenic gases M-FS-1659	B66-10661	01	Prediction of thermal radiation from a rocket's exhaust plume M-FS-20414	B69-10371	02
Extrusion of small-diameter, thin-wall tungsten tubing LEWIS-90335	B67-10355	05	Spacecraft Thermal Radiation Environment Computer Program M-FS-15054	B69-10574	06
Eutectic fuse provides current and thermal protection under high vibration M-FS-13664	B67-10535	01	Production of crystalline polymers via liquid crystal monomers HQ-10235	B69-10744	03
Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area NUC-10007	B67-10538	01	THERMAL RESISTANCE Indium foil with beryllia washer improves transistor heat dissipation GSFC-42	B63-10033	01
Development of dual solid cryogenics for high reliability refrigeration system GSFC-10188	B67-10644	02	Removable preheater elements improve oxide induction furnace JPL-288	B63-10193	01
Thermal protective visor for entering high temperature areas MSC-10285	B68-10277	05	Thermally conductive metal wool-silicone rubber material can be used as shock and vibration damper JPL-321	B63-10207	03
Two-fluid, impinging-sheet injector NPO-10547	B68-10338	05	Refractory ceramic has wide usage, low fabrication cost M-FS-67	B63-10481	03
THERMAL RADIATION Variable-transparency wall regulates temperatures of structures LANGLEY-25	B63-10528	03	PTC thermistor protects multiloaded power supplies GSFC-236	B64-10281	01
Thermistor connector assembly increases accuracy of measurements LANGLEY-62	B65-10045	01	Pigmented coating resists thermal shock JPL-SC-083	B65-10354	03
Refractory metal shielding /insulation/ increases operating range of induction furnace LEWIS-202	B65-10188	02	Split glass tube assures quality in electron beam brazing M-FS-564	B66-10151	05
Air-cured ceramic coating insulates against high heat fluxes M-FS-150	B65-10357	03	Thin-film gage measures low heat-transfer rates LANGLEY 205	B66-10180	01
			Radiation used to temperature compensate semiconductor strain gages LANGLEY-207	B66-10186	02

SUBJECT INDEX

THERMAL STRESSES

Fibers of newly developed refractory ceramics produced by improved process WOO-169	B66-10196	03	MSC-20	B63-10493	01
Copper wire plated with nickel and silver resists corrosion M-FS-761	B66-10421	03	Polymer film exhibits thermal and radiation stability LANGLEY-100	B66-10043	03
Electrical cabling withstands severe environmental conditions M-FS-1585	B66-10427	01	Auxiliary coil controls temperature of RF induction heater GSPC-428	B66-10067	01
Intergranular metal phase increases thermal shock resistance of ceramic coating M-FS-1862	B66-10651	03	FET comparator detects analog signal levels without loading analog device M-FS-503	B66-10224	01
Fixture tests bellows reliability through repetitive pressure/temperature cycling MSC-1176	B67-10111	01	Substituted silane-diol polymers have improved thermal stability M-FS-469	B66-10259	03
Fused diode provides visual indication of fuse condition KSC-67-16	B67-10230	01	Silazane elastomer remains resilient at 400 deg C M-FS-1144	B66-10667	05
Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries M-FS-1910	B67-10329	06	RF inductor has high Q, is stable at higher temperatures JPL-1019	B67-10106	01
Experiments to investigate particulate materials in reduced gravity fields M-FS-13308	B67-10394	02	Sensing disks for slug-type calorimeters have higher temperature stability M-FS-1867	B67-10161	01
Thermal resistances of solder-boss/potting compound combinations MSC-12074	B68-10157	01	New class of compounds have very low vapor pressures ARG-115	B67-10184	03
Nickel base alloy with improved stress rupture properties LEWIS-10283	B68-10344	03	New class of thermosetting plastics has improved strength, thermal and chemical stability LEWIS-10108	B67-10197	03
THERMAL SHOCK			An efficient, temperature-compensated subcarrier oscillator JPL-SC-091	B67-10251	01
Refractory ceramic has wide usage, low fabrication cost M-FS-67	B63-10481	03	Adhesives for laminating polyimide insulated flat conductor cable M-FS-12066	B67-10429	03
Refractory oxides evaluated for high-temperature use LANGLEY-121	B65-10167	03	High-temperature bearing-cage materials LEWIS-10403	B68-10176	05
Pigmented coating resists thermal shock JPL-SC-083	B65-10354	03	High-temperature bearing lubricants LEWIS-10408	B68-10249	05
Impact and puncture resistant material protects parts from damage MSC-747	B66-10375	05	New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118	03
Crucible cast from beryllium oxide and refractory cement is impervious to flux and molten metal ARG-22	B66-10527	03	Purification and characterization of two fully deuterated enzymes ARG-10314	B69-10207	04
Multilayer refractory nozzles produced by plasma-spray process WOO-318	B66-10611	05	Improved pulse shape discriminator for fast neutron-gamma ray detection system HQ-10151	B69-10481	01
Intergranular metal phase increases thermal shock resistance of ceramic coating M-FS-1862	B66-10651	03	Silphenylene elastomers have high thermal stability and tensile strength M-FS-20250	B69-10580	03
Photosensitive filler minimizes internal stresses in epoxy resins M-FS-1880	B67-10227	03	THERMAL STRESSES		
Newly developed foam ceramic body shows promise as thermal insulation material at 3000 deg F M-FS-11968	B67-10441	03	Use of tear ring permits repair of sealed module circuitry M-FS-210	B65-10014	05
Simple test for physical stability of cryogenic tank insulation M-FS-12547	B68-10048	03	Lightweight door seals cryogenic container against diaphragm type loading M-FS-476	B65-10402	05
Reinforced thermal-shock resistant ceramics LEWIS-10376	B68-10085	03	Strain gage network distinguishes between thermal and mechanical deformations GSPC-478	B66-10280	01
THERMAL STABILITY			Thermal stress-relief treatments for 2219 aluminum alloy are evaluated M-FS-1213	B66-10448	03
Two-stage emitter follower is temperature stabilized			Plasma jet electrode has longer operating life		

THERMAL VACUUM TESTS

SUBJECT INDEX

NU-0098	B67-10024	02	Thermionic scanner pinpoints work function of emitter surfaces	JPL-SC-177	B66-10444	01
Weld procedure produces quality welds for thick sections of Hastelloy-X	NUC-10048					
	B67-10195	05	Study shows effect of surface preparations on improving thermionic emission	JPL-SC-140	B66-10493	01
Encapsulation technique eliminates thermal stresses in welded electronic modules	M-FS-14581					
	B68-10307	01	High-temperature thermionic emission microscope	NPO-10584	B68-10516	01
Ratio matching of half-bridge weldable strain gages, computer program	FRC-10032					
	B69-10040	06	Preparation of thorium magnesium-zinc reduction	ARG-10245	B69-10079	03
Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes	ARG-10274					
	B69-10047	02	THERMISTORS			
Four-bar linkage for thermal compensation in test mounts for structures	NPO-11059					
	B69-10298	05	Tiny sensor-transmitter can withstand extreme acceleration, gives digital output	ARC-22	B63-10561	01
Investigation of the development of cracks in solder joints	M-FS-20444					
	B69-10807	01	Temperature-compensation circuit stabilizes performance of vidicons	JPL-486	B64-10226	01
Determination of permissible applied load stress in structural elements	M-FS-16556					
	B69-10823	02	Electronic device simulates respiration rate and depth	MSC-89	B64-10255	01
THERMAL VACUUM TESTS			PTC thermistor protects multiloading power supplies	GSFC-236	B64-10281	01
Electrolytic etching process provides effective bonding surface on stainless steel	GSFC-484					
	B66-10299	03	Thermistor connector assembly increases accuracy of measurements	LANGLEY-62	B65-10045	01
THERMIONIC CATHODES			FM oscillator uses tetrode transistor	JPL-82	B65-10055	01
Application of the solid lubricant molybdenum disulfide by sputtering	LEWIS-10544					
	B68-10340	03	Wedge immersed thermistor bolometer measures infrared radiation	GSFC-443	B65-10330	02
THERMIONIC CONVERTERS			Miniature bioelectric device accurately measures and telemeters temperature	ARC-52	B66-10057	01
Collector/collector guard ring balancing circuit eliminates edge effects	JPL-SC-143					
	B66-10563	01	Complementary monostable circuits achieve low power drain and high reliability	GSFC-433	B66-10179	01
Potassium plasma cell facilitates thermionic energy conversion process	ARG-10010					
	B67-10399	01	Solid state thermostat has integral probe and circuitry	M-FS-434	B66-10193	01
Thermionic diode switching has high temperature application	NPO-10404					
	B67-10672	01	Wide-range instrument monitors flow rates of chemically active fluids	MSC-186	B66-10205	01
Performance of low-pressure thermionic converters is evaluated	ARG-10276					
	B69-10090	01	Braze alloys used as temperature indicators	NU-0063	B66-10274	01
THERMIONIC DIODES			Electrically conductive fibers thermally isolate temperature sensor	GSFC-456	B66-10349	01
Bypass rod transfers heat developed in thermionic diode	JPL-SC-136					
	B66-10303	05	Apparatus enables automatic microanalysis of body fluids	JPL-962	B66-10515	04
Chemical regeneration of emitter surface increases thermionic diode life	LEWIS-17					
	B66-10435	02	Detector measures power in 50 to 30,000 GHz radiation band	ERC-26	B66-10581	01
Low input voltage converter/regulator minimizes external disturbances	GSFC-527					
	B66-10689	01	Portable detector set discloses helium leak rates	M-FS-1733	B67-10065	01
Design for high-temperature /1800 deg F/ liquid metal pressure transducer	LEWIS-10144					
	B67-10458	01	Mm-wave power meter mount	NPO-10348	B68-10152	01
Feasibility study of wireless power transmission systems	M-FS-14691					
	B68-10309	01	Automatic patient respiration failure detection system with wireless transmission	ARC-10174	B68-10365	01
Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor	ARG-10158					
	B69-10191	01	Nosepiece respiration monitor	ERC-10136	B68-10438	01
THERMIONIC EMISSION						
Chemical regeneration of emitter surface increases thermionic diode life	LEWIS-17					
	B66-10435	02				

SUBJECT INDEX

THERMOCOUPLES

Radiometric temperature reference MSC-13276	B69-10507	01	Liquid trap seals thermocouple leads M-FS-688	B66-10212	05
THERMOCOUPLE PYROMETERS			Multiple temperatures sampled using only one reference junction GSFC-485	B66-10260	01
High temperature thermocouple operates in reduction atmosphere NU-0046	B66-10134	01	High-speed furnace uses infrared radiation for controlled brazing NU-0047	B66-10268	02
THERMOCOUPLES			Braze alloys used as temperature indicators NU-0063	B66-10274	01
Apparatus facilitates high-temperature tensile testing in vacuum LEWIS-42	B63-10345	03	Modified thermocouple is effective from minus 250 deg to 5000 deg F MSC-420	B66-10461	01
Connector for thermocouple leads saves costly wire, makes reliable connectors LANGLEY-26	B63-10529	01	Microminiature thermocouple monitors own installation M-FS-1111	B66-10463	05
Simple circuit continuously monitors thermocouple sensor M-FS-61	B63-10567	01	Heat flux sensor design reduces extraneous source effects MSC-400	B66-10531	01
Simple transducer measures low heat-transfer rates JPL-466	B64-10122	01	Thermocouples electrically checked while connected to data system LANGLEY-182	B66-10623	01
Apparatus measures concentration of suspended droplets in gas streams LANGLEY-31	B64-10237	01	Accurate depth control provided for thermocouple junction locations LANGLEY-289	B66-10632	01
Wide-angle sensor measures radiant heat energy in corrosive atmospheres M-FS-228	B65-10019	05	Instrument accurately measures small temperature changes on test surface LANGLEY-174	B66-10637	01
Metal sheath improves thermocouple using graphite in one leg NU-0011	B65-10051	01	Thermocouples easily installed in hard-to- get-to places M-FS-1946	B66-10653	01
Transducer measures temperature differentials in presence of strong electromagnetic fields ARC-27	B65-10089	01	Study of fast response thermocouple measurement of temperatures in cryogenic gases M-FS-1659	B66-10661	01
Apparatus facilitates pressure-testing of metal tubing LEWIS-174	B65-10131	05	Metal boot permits fabrication of hermetically sealed splices in metal sheathed instrumentation cables NU-0083	B66-10704	05
Vapor pressure measured with inflatable plastic bag GSFC-281	B65-10136	03	Thermocouple-flexible cable connector insulator is highly reliable NU-0082	B66-10709	01
Internal cooling increases range of immersion-type temperature probe LEWIS-171	B65-10157	02	Tester for study of rolling element bearings LEWIS-305	B67-10009	01
Thermocouple-to-instrumentation connector features quick assembly NU-0022	B65-10246	05	Multipurpose instrumentation cable provides integral thermocouple circuit NU-0108	B67-10046	01
Servo calorimeter measures material heating rate NU-0024	B65-10247	01	Sensing disks for slug-type calorimeters have higher temperature stability M-FS-1867	B67-10161	01
Hollow plastic hoops protect thermocouple in storage and handling NU-0023	B65-10256	05	Development of technology for hot-drape forming of large torus sections M-FS-12141	B67-10341	05
Protective coating withstands high temperature in oxidizing atmosphere M-FS-529	B66-10044	03	Foil radionometer accessory improves measurements M-FS-12684	B67-10448	01
Ferroelectric bolometer measures RF absolute power at submillimeter wavelengths GSFC-422	B66-10051	01	High temperature thermocouple design provides gas cooling without increasing overall size of unit NUC-10515	B67-10497	01
Calorimeter accurately measures thermal radiation energy LANGLEY-173	B66-10058	02	Calibration technique for electromagnetic flowmeters LEWIS-10328	B67-10554	01
Auxiliary coil controls temperature of RF induction heater GSFC-428	B66-10067	01	Improved cavity-type absolute total-radiation radionometer JPL-807	B67-10557	01
Compound improves thermal interface between thermocouple and sensed surface NU-0028	B66-10121	02	Vapor deposition process provides new		
Materials physically tested in variable- environment chamber JPL-789	B66-10130	01			

THERMODYNAMIC CYCLES

SUBJECT INDEX

method for fabricating high temperature thermocouples NUC-10152	B67-10616	01	in oxidizing atmosphere M-FS-529	B66-10044	03
Test system accurately determines tensile properties of irradiated metals at cryogenic temperatures NUC-10521	B67-10617	02	Hydrogen-atmosphere induction furnace has increased temperature range LEWIS-153	B66-10055	05
Environmental control system for cryogenic testing of tensile specimens NUC-10523	B67-10618	02	Improved cryogenic refrigeration system JPL-731	B67-10128	02
Thoriated tungsten tube provides improved high temperature thermocouple sheath NUC-10145	B67-10627	03	Sensing disks for slug-type calorimeters have higher temperature stability M-FS-1867	B67-10161	01
Development of dual solid cryogens for high reliability refrigeration system GSFC-10188	B67-10644	02	THERMODYNAMIC EFFICIENCY		
Tungsten-rhenium alloy thermocouples effective for high-temperature measurement ARG-10059	B68-10109	03	Multidimensional reaction kinetic ablation program /REKAP/ MSC-10079	B67-10495	06
Ultrasonic temperature measuring device LEWIS-10446	B68-10319	01	THERMODYNAMIC EQUILIBRIUM		
Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01	Special mount improves remote transducer accuracy LEWIS-269	B66-10021	01
Method for making small pointed thermocouples SAN-10014	B68-10389	01	Computer program determines chemical composition of physical system at equilibrium MSC-1119	B66-10670	01
Heat-load simulator for heat sink design MSC-15170	B68-10510	02	Computer program calculates steady-state temperature distribution within plane or axisymmetric solids NUC-10049	B67-10224	06
Temperature controlled strain gaged extensometer LEWIS-10353	B68-10543	01	Self-balancing line-reversal pyrometer automatically measures gas temperatures LEWIS-348	B67-10268	01
Combination probe for airflow measurements LEWIS-10281	B68-10558	01	ELAS - A general purpose computer program for the equilibrium problems of linear structures NPO-10598	B68-10187	06
Refractory oxide insulated thermocouple designed and analyzed for high temperature applications ARG-10202	B69-10053	03	Dynamics of moving bubbles in single and binary component systems M-FS-14845	B68-10339	02
Dewpoint temperature inversions analyzed ARG-10316	B69-10057	02	A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voight line profile ARC-10221	B69-10232	06
Surface temperature mapping with infrared photographic pyrometry LEWIS-10763	B69-10113	01	THERMODYNAMIC PROPERTIES		
Continuous analysis of nitrogen dioxide in gas streams of plants ARG-10356	B69-10254	03	Assembly jig assures reliable solar cell modules GSFC-455	B66-10040	05
Identification of thermocouple material M-FS-18540	B69-10356	01	Effects of helium and nitrogen as pressurants in nitrogen tetroxide transfer MSC-924	B67-10083	03
Thermal calibration target XGS-11144	B69-10419	01	Thermodynamic properties related to expansion of two-component gas MSC-1133	B67-10112	03
Improved retort for cleaning metal powders with hydrogen LEWIS-10718	B69-10468	03	Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique ARG-277	B67-10324	03
Adjustable thermal **tree** MSC-15556	B69-10484	01	Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries M-FS-1910	B67-10329	06
Burn-rate testing apparatus MSC-10947	B69-10740	03	Thermodynamic properties of saturated liquid parahydrogen charted for important temperature range NUC-10018	B67-10346	03
THERMODYNAMIC CYCLES			Experiments to investigate particulate materials in reduced gravity fields M-FS-13308	B67-10394	02
Closed fluid system without moving parts controls temperature LEWIS-222	B65-10331	02	Study of hydrogen slush-hydrogen gel utilization M-FS-13068	B67-10413	02
Resilient clamp holds fuel cell stack through resilient clamp holds fuel cell stack through thermal cycle MSC-313	B66-10035	05			
Protective coating withstands high temperature					

SUBJECT INDEX

THERMOSETTING RESINS

Pure xenon hexafluoride prepared for thermal properties studies ARG-10056	B67-10577	03	plutonium dioxide fuel NPO-11220	B69-10733	02
Computer program for calculation of ideal gas thermodynamic data LEWIS-10254	B68-10025	06	THERMOELECTRIC MATERIALS Thermoelectric elements diffusion-bonded to tungsten electrodes GSFC-346	B65-10309	01
Computer programs for thermodynamic and transport properties of hydrogen NUC-10537	B68-10150	06	Solid-state recoverable fuse functions as circuit breaker GSFC-560	B66-10691	01
Tube swaging device uses explosive force LANGLEY-10092	B68-10235	05	THERMOELECTRIC POWER GENERATION Modular thermoelectric cell is easily packaged in various arrays GSFC-339	B65-10199	01
The thermodynamic properties of the wustite phase are studied ARG-10200	B68-10408	03	Measurements of thermoelectric power in annealed and quenched gold-platinum alloys ARG-10303	B69-10206	03
Levitation-melting technique for metals and alloys ARG-10240	B69-10006	03	THERMOELECTRICITY Identification of thermocouple material M-FS-18540	B69-10356	01
Thermal expansion properties of aerospace materials M-FS-18335	B69-10055	03	THERMOLUMINESCENCE Readout system for radiation detector MSC-90180	B68-10501	01
Computer program for high pressure real gas effects LEWIS-10820	B69-10222	06	Beam profiles measured with thermoluminescent dosimeters ARG-10229	B69-10024	02
Water-glycol system volume calculation MSC-15193	B69-10563	02	THERMOMETERS Apparatus measures concentration of suspended droplets in gas streams LANGLEY-31	B64-10237	01
Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01	Viscosity and density of methanol/water mixtures at low temperatures M-FS-14991	B68-10274	03
Mass-spectrometric study of the rhenium-oxygen system ARG-10421	B69-10645	02	Ultrasonic temperature measuring device LEWIS-10446	B68-10319	01
Properties of air and combustion products of fuels with air LEWIS-11030	B69-10711	03	THERMOPHYSICAL PROPERTIES Recommended values of the thermophysical properties of eight alloys, their major constituents and oxides NU-0095	B67-10062	03
THERMODYNAMICS Study of cryogenic container thermodynamics during propellant transfer M-FS-14310	B68-10108	02	Thermophysical properties of sodium ARG-10363	B69-10240	03
Reaction studied of steam with niobium and tantalum ARG-10051	B68-10189	03	THERMOPILES Transducer measures temperature differentials in presence of strong electromagnetic fields ARC-27	B65-10089	01
Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06	Apparatus measures thermal conductivity of honeycomb-core panels LANGLEY-202	B66-10127	01
Study of lattice defect vibration ARG-10221	B69-10078	02	Improved calorimeter provides accurate thermal measurements of space batteries GSFC-10003A	B67-10615	01
Method for predicting pump cavitation performance LEWIS-10916	B69-10446	02	The Quantasyn, an improved quantum detector ERC-10148	B69-10443	01
THERMOELASTICITY Damping of thermoelastic structures M-FS-20002	B69-10467	02	THERMOPLASTIC RESINS Vacuum forming of thermoplastic sheet results in low-cost investment casting patterns ARC-7	B63-10008	05
THERMOELECTRIC COOLING Rate of heat extraction controller for environmental control HQ-10318	B69-10516	01	Thermoplastic rubberlike material produced at low cost JPL-793	B66-10453	03
THERMOELECTRIC GENERATORS Low input voltage converter/regulator minimizes external disturbances GSFC-527	B66-10689	01	Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04
Superconducting switch permits measurement of small voltages at cryogenic temperatures ARG-90260	B68-10087	01	THERMOSETTING RESINS Valve seat pores sealed with thermosetting monomer M-FS-900	B66-10322	03
New bimetallic EMF cell shows promise in direct energy conversion ARG-10183	B68-10415	01			
Gamma radiation characteristics of					

THERMOSTATS

New class of thermosetting plastics has improved strength, thermal and chemical stability
LEWIS-10108

B67-10197 03

Improved compression molding process
LANGLEY-10027

B67-10302 03

THERMOSTATS

Solid state thermostat has integral probe and circuitry
M-FS-434

B66-10193 01

High conductance vapor thermal switch
GSFC-10109

B68-10519 02

THERMOVISCOELASTICITY

Finite element formulation for linear thermoviscoelastic materials
NPO-11229

B69-10660 03

THICK WALLS

Wall-thickness changes predicted in hollow-drawn tubing
ARG-10425

B69-10428 02

THICKENERS (MATERIALS)

Masking of aluminum surface against anodizing
M-FS-12964

B69-10335 05

THICKNESS

Polymer deformation gage measures thickness change in tensile tests
JPL-745

B66-10147 01

Chemical milling solution produces smooth surface finish on aluminum
MSC-549

B66-10312 03

Bimetallic devices help maintain constant sealing forces down to cryogenic temperatures
M-FS-800

B66-10325 02

External linkage tie permits reduction in ducting system flange thickness
M-FS-823

B66-10326 05

System for etching thick aluminum layers minimizes bridging and undercutting
M-FS-1366

B66-10400 03

Opposed arcs permit deep weld penetration with only one pass
M-FS-1696

B66-10513 05

Effects of heat input rates on T-1 and T-1A steel welds
M-FS-2475

B67-10163 03

Welding of AM350 and AM355 steel
M-FS-2314

B67-10292 05

Precision trimmer aids in preparing biomedical specimen blocks for ultrathin sectioning
ARG-242

B67-10541 05

Buckling strength of filament-wound cylinders under axial compression is investigated
HQ-10032

B67-10659 03

Computer program performs frequency analysis of nonuniform turbine disk subjected to temperature gradients
NUC-10301

B68-10006 06

Microwave interferometer controls cutting depth of plastics
M-FS-14673

B69-10012 01

THIN BODIES

Precision trimmer aids in preparing biomedical specimen blocks for ultrathin sectioning
ARG-242

B67-10541 05

THIN FILMS

Efficient thin film heating element takes minimum space
GSFC-289

B65-10123 01

High permeability semiconductors permit close-tolerance soldering
GSFC-319

B65-10134 05

Modified developer increases line resolution in photosensitive resist
GSFC-386

B65-10278 01

Thin-film resistors used in functional electronic blocks
GSFC-380

B65-10305 01

Improved wire memory matrix uses very little power
JPL-SC-167

B65-10359 01

Fluoride coatings make effective lubricants in molten sodium environment
LEWIS-229

B66-10005 03

Thin-film semiconductor rectifier has improved properties
MSC-207

B66-10012 01

Cold cathode ionization gage has rigid metal housing
GSFC-445

B66-10041 01

Thin carbon film serves as UV bandpass filter
ERC-8

B66-10060 02

Polytetrafluoroethylene lubricates ball bearings in vacuum environment
M-FS-379

B66-10081 03

Niobium thin films are superconductive in strong magnetic fields at low temperatures
JPL-SC-174

B66-10122 02

Thin-film gage measures low heat-transfer rates
LANGLEY 205

B66-10180 01

Single-crystal semiconductor films grown on foreign substrates
WOO-076

B66-10225 01

Rugged microelectronic module package supports circuitry on heat sink
MSC-81A

B66-10245 01

Extensometer automatically measures elongation in elastomers
M-FS-517

B66-10284 05

Valve seat pores sealed with thermosetting monomer
M-FS-900

B66-10322 03

Submicron holes in thin films increase sampling range of mass spectrometers
JPL-SC-097

B66-10380 03

Self-supported aluminum thin films produced by vacuum deposition process
ARC-58

B66-10387 03

Thin-film ferrites vapor deposited by one-step process in vacuum
MSC-259

B66-10398 03

System for etching thick aluminum layers minimizes bridging and undercutting
M-FS-1366

B66-10400 03

Thin plastic sheet eliminates need for expensive plating
M-FS-1896

B66-10681 03

Mechanism facilitates coating of inner surfaces of metal cylinders
GSFC-515

B66-10698 05

Air bearing provides friction-free support

SUBJECT INDEX

THIXOTROPY

for shaker system slip table
 NU-0086 B66-10708 05

Complex surfaces plated by thin-film
 deposition in one operation
 LEWIS-292 B67-10006 05

Thin film process forms effective electrical
 contacts on semiconductor crystals
 M-FS-2343 B67-10142 01

Process facilitates photoresist mask
 alignment on SiC crystals
 M-FS-2394 B67-10144 01

Substituting gold for silver improves
 electrical connections
 M-FS-2390 B67-10228 03

Soft metal plating enables hard metal seal to
 operate successfully in low temperature, high
 pressure environment
 NUC-10083 B67-10350 03

Thin film thermal detector
 JPL-943 B67-10505 01

Development of Curie point switching for
 thin film, random access, memory device
 NPO-10402 B67-10633 02

Thin film heat transfer gage is stable
 at higher temperatures
 M-FS-12396 B68-10051 01

Ion plating technique improves thin film
 deposition
 SAN-10006 B68-10212 03

Graphite cloth facilitates vacuum
 evaporation of silicon monoxide
 M-FS-14764 B68-10256 03

Preparation of silver-activated zinc sulfide
 thin films
 GSFC-10687 B68-10271 03

Standards for compatibility of printed
 circuit and component lead materials
 M-FS-14531 B68-10310 01

Superconductive thin film makes convenient
 liquid helium level sensor
 LANGLEY-10289 B68-10341 01

Separator for alkaline batteries
 GSFC-10173 B68-10557 03

Microelectronic oscillator
 GSFC-10375 B69-10064 01

A new solid lubricant
 LEWIS-10812 B69-10250 03

Multilayer infrared beamsplitter film
 system
 XGS-11036 B69-10260 02

Dielectric materials for use in thin-film
 capacitors
 M-FS-20471 B69-10387 02

A compact rotary vane attenuator
 NPO-10562 B69-10427 01

Preparation of superconducting thin films
 of transition-metal interstitial compounds
 HQ-10445 B69-10470 01

Epitaxial crystalline growth upon cold
 substrates
 MSC-11196 B69-10494 01

Pulsed high-voltage dc RF sputtering
 LEWIS-10920 B69-10699 01

Deposition monitor and control
 NPO-10706 B69-10722 01

THIN LAYER CHROMATOGRAPHY

Comparative chromatography of chloroplast
 pigment
 ARG-10415 B69-10425 03

THIN PLATES

Lamb waves increase sensitivity in
 nondestructive testing
 ARG-10009 B67-10605 02

Repair of honeycomb panels with welded
 breakaway studs
 MSC-15046 B69-10261 05

Thermal radiation shields for piping in
 vacuum environments
 LEWIS-10899 B69-10262 03

THIN WALLS

Vacuum forming of thermoplastic sheet results
 in low-cost investment casting patterns
 ARC-7 B63-10008 05

Shaped superconductor cylinder retains intense
 magnetic field
 JPL-381 B63-10238 01

Friction device damps linear motion of
 rotating shaft
 WOO-214 B66-10030 05

Bench vise adapter grips tubing securely and
 safely
 MSC-279 B66-10056 05

Oxygen-hydrogen torch is a small-scale
 steam generator
 NU-0042 B66-10120 03

Bellows joint absorbs torsional deflections in
 duct system
 M-FS-882 B66-10332 04

Silver plating technique seals leaks in
 thin wall tubing joints
 NU-0090 B66-10703 05

Investigation of pressurized toroidal shells
 HQ-27 B67-10117 05

Extrusion of small-diameter, thin-wall
 tungsten tubing
 LEWIS-90335 B67-10355 05

Study made of thin-walled pipe response to
 turbulent fluids
 M-FS-1321 B67-10518 05

Plastic shoe facilitates ultrasonic
 inspection of thin wall metal tubing
 NUC-10010 B67-10542 02

Fabrication techniques developed for small-
 diameter, thin-wall tungsten and tungsten
 alloy tubing
 ARG-10100 B68-10284 05

Shell design computer program
 LEWIS-10734 B69-10175 06

Nondestructive testing of welds on
 thin-walled tubing
 M-FS-18144 B69-10402 01

Wall-thickness changes predicted in
 hollow-drawn tubing
 ARG-10425 B69-10428 02

Device for obtaining separation of
 oxygen
 LANGLEY-11007 B69-10477 01

THIOLS

Experimental study and evaluation of
 radioprotective drugs
 ARG-10196 B68-10320 04

THIXOTROPY

Sprayable birefringent coating enables

THORIUM

SUBJECT INDEX

strain measurements on large surfaces M-FS-1484	B66-10578	03	Determining gas leakage from bubble formations M-FS-14841	B68-10393	05
THORIUM			THREE BODY PROBLEM		
Refractory oxides evaluated for high-temperature use LANGLEY-121	B65-10167	03	Study compares methods for the numerical solution of ordinary differential equations M-FS-830	B66-10466	01
Magnesium-zinc reduction is effective in preparation of metals ARG-10050	B67-10579	03	THREE DIMENSIONAL FLOW		
Refractory oxide insulated thermocouple designed and analyzed for high temperature applications ARG-10202	B69-10053	03	Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02
Preparation of thorium magnesium-zinc reduction ARG-10245	B69-10079	03	THREE DIMENSIONAL MOTION		
THORIUM COMPOUNDS			Computer program determines vibration in three-dimensional space of hydraulic lines excited by forced displacements M-FS-12226	B68-10159	06
Screening technique makes reliable bond at room temperature M-FS-227	B65-10004	03	THRESHOLD CURRENTS		
Preparation of thorium magnesium-zinc reduction ARG-10245	B69-10079	03	Modified univibrator compensates for output timing errors ARG-85	B67-10130	01
THORIUM OXIDES			Thermal and bias cycling stabilizes planar silicon devices ERC-48	B67-10176	01
Thoriated nickel bonded by solid-state diffusion method LANGLEY-116	B65-10220	03	Stable ac phase and amplitude comparator M-FS-13086	B67-10459	01
Crucible cast from beryllium oxide and refractory cement is impervious to flux and molten metal ARG-22	B66-10527	03	PCM bit detection with correction for intersymbol interference GSFC-10155	B69-10153	01
Thoriated tungsten tube provides improved high temperature thermocouple sheath NUC-10145	B67-10627	03	THRESHOLD DETECTORS (DOSIMETERS)		
Tungsten fiber-reinforced nickel superalloy LEWIS-10424	B68-10369	03	Constant-current regulator improves tunnel diode threshold-detector performance GSFC-239	B65-10282	01
THREADS			Threshold detector produces narrow pulses at high repetition rates GSFC-383	B65-10310	01
Low-cost tool minimizes damage to O-rings during installation MSC-140	B65-10116	05	Digitally controlled pulse-level discriminator operates over wide voltage range GSFC-324	B66-10129	01
Threaded pilot insures cutting tool alignment M-FS-527	B66-10074	05	Transistor biased amplifier minimizes diode discriminator threshold attenuation ARG-163	B67-10311	01
Expandable insert serves as screw anchor MSC-301	B66-10132	05	Continuous wave detector has wide frequency range M-FS-1849	B67-10386	01
Mounting facilitates removal and installation of flame-detector rods M-FS-555	B66-10150	05	Radiographic threshold detection levels of aluminum weld defects M-FS-20487	B69-10418	01
Multisurface fixture permits easy grinding of tool bit angles M-FS-586	B66-10171	05	THRESHOLD GATES		
Seal surfaces protected during assembly NU-0067	B66-10266	05	Electronic circuit provides accurate sensing and control of dc voltage NU-0089	B66-10591	01
High pressure tube coupling requires no threads or flares MSC-600	B66-10285	05	FM carrier deviation measured by differential probability method M-FS-2166	B67-10213	01
Tool pre-tensions covers prior to lacing MSC-631	B66-10301	05	PCM bit detection with correction for intersymbol interference GSFC-10155	B69-10153	01
Holding fixture facilitates pipe thread gage measurements M-FS-2009	B67-10066	05	THRESHOLD LOGIC		
Thread cutting with 3-axis N/C milling machine LANGLEY-10017	B68-10055	06	Circuit maintains digital decision threshold at preset level M-FS-331	B65-10281	01
Tensile testing grips ensure uniform loading of bimetal tubing specimens LEWIS-10267	B68-10248	05	Review of research and development in fluid logic elements M-FS-420	B67-10438	01
			THRESHOLDS		
			Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time ARG-10110	B68-10328	01

SUBJECT INDEX

TIME

THRESHOLDS (PERCEPTION)

Modified algesimeter provides accurate
depth measurements
MSC-616 B66-10647 04

Computer program reduces calculation time
of normal response functions
M-FS-1517 B67-10108 01

Occluding-filter method for obtaining
flashing-light visibility data
MSC-13097 B69-10107 02

THROATS

Bell nozzle kernel analysis program
M-FS-18456 B69-10146 06

Stress-testing of the throat of a rocket's
nozzle
NPO-10311 B69-10358 05

THROTTLING

Two-fluid, impinging-sheet injector
NPO-10547 B68-10338 05

Semitoroidal-diaphragm cavitating valve
designed for bipropellant flow control
XNF-09704 B69-10016 05

Multiple-orifice throttle valve
XNF-09698 B69-10030 05

THRUST

Lightweight universal joint transmits both
torque and thrust
JPL-375 B63-10236 05

Elimination of rocket engine asymmetric
loads during tests at sea level
M-FS-1730 B66-10674 05

Computer program for mass optional solutions
of some endpoint trajectory problems
M-FS-12976 B67-10310 06

Earth orbit rendezvous evaluation program
M-FS-13016 B67-10407 06

Computer program provides steady state
analysis for liquid propellant propulsion
systems
MSC-10064 B67-10414 06

Fortran 4 program for two-impulse
rendezvous analysis
M-FS-13971 B67-10479 06

Electrothermal linear actuator
NPO-10637 B69-10296 05

Elimination of dissolved gases in
hypergolic engine propellants
M-FS-16179 B69-10692 03

THRUST BEARINGS

Torque wrench designed for restricted areas
LEWIS-246 B66-10011 05

Hermetically sealed pump
LEWIS-10837 B69-10320 05

THRUST CHAMBERS

Plated nickel wire mesh makes superior
catalyst bed
MSC-216 B65-10321 03

New brazing alloy eliminates metal-stress
cracking
WOO-249 B65-10397 03

Special mount improves remote transducer
accuracy
LEWIS-269 B66-10021 01

Beam splitter used in dual filming technique
M-FS-501 B66-10072 02

Microminiature thermocouple monitors own
installation

M-FS-1111 B66-10463 05

Machining heavy plastic sections
M-FS-12720 B67-10381 03

Development of detonation reaction engine
M-FS-14020 B67-10652 01

THRUST CONTROL

Cold solid propellant motor has stop-restart
capability
JPL-836 B66-10673 03

Two-step rocket engine bipropellant valve
concept
MSC-10951 B69-10280 05

Piezoelectric linear actuator
MSC-13194 B69-10469 02

THRUST LOADS

Flexible coiled spline securely joins mating
cylinders
WOO-270 B66-10172 05

Electronic analog equalization for
vibrational testing
NPO-10544 B69-10472 01

THRUST MEASUREMENT

Apparatus measures very small thrusts
WOO-048 B64-10284 05

Damper reduces effects of resonance on
force transducer
WOO-321 B66-10550 05

Device measures reaction engine thrust vector
deviations
JPL-SC-163 B66-10642 05

A comparison of two methods of measuring
particle size of Al₂O₃ produced by a small
rocket motor
NPO-11198 B69-10572 03

THRUST VECTOR CONTROL

Study of vortex valve for medium
temperature solid propellants
LANGLEY-204 B66-10524 01

Phase plane displays detect incipient
failure in servo system testing
HQ-10018 B67-10662 01

THRUST-WEIGHT RATIO

Fortran 4 program for two-impulse
rendezvous analysis
M-FS-13971 B67-10479 06

THYMIDINE

Effect of preparation procedures on
intensity of radioautographic labeling is
studied
ARG-10032 B67-10500 04

THYRATONS

Solid state detectors monitor relay contacts
JPL-785 B66-10396 01

High-temperature, gas-filled ceramic
rectifiers, thyratons, and
voltage-reference tubes
LEWIS-90271 B69-10376 01

Hydrogen flash lamps studied
ARG-10419 B69-10411 02

TIGHTNESS

Tool pre-tensions covers prior to lacing
MSC-631 B66-10301 05

TIME

Commercial film produces positive X-ray photo
in ten seconds
M-FS-521 B66-10307 02

Sea dye marker provides visibility for 20
hours

TIME CONSTANT

SUBJECT INDEX

MSC-714	B66-10313	03	Application of a truncated normal failure distribution in reliability testing		
Vis-A-Plan /visualize a plan/ management technique provides performance-time scale			M-FS-14328	B68-10179	02
KSC-10073	B67-10240	06	Computer program determines system stability /DIGSTA/		
Electronic shutter gates image orthicon on and off			LEWIS-10395	B68-10216	06
HQ-96	B67-10270	01	Design techniques - Stochastic controllers		
Computer program generates averaged value data tapes			MSC-11554	B68-10234	02
M-FS-12728	B67-10411	06	Study of optimum discrete estimators in measurement analysis		
Training course for radiation safety technicians			M-FS-14915	B68-10348	02
ARG-216	B67-10477	02	Integrated sequence display device		
GMT/local-time conversion chart			KSC-10381	B69-10316	01
GSFC-10521	B67-10548	01	On the bound of first excursion probability		
Shortened processing time technique for color industrial radiography			NPO-11158	B69-10334	06
ARG-10235	B69-10001	02	TIME LAG		
An improved atomic hydrogen frequency and time standard			Frequency offset in linear FM/CW transponder eliminates clutter		
GSFC-10706	B69-10341	02	M-FS-249	B65-10146	01
TIME CONSTANT			Gapped toroid provides infinite resolution of delay-line pickup		
Temperature transducer has high output, is time stable			GSFC-370	B65-10258	01
GSFC-446	B65-10362	01	Frequency discriminator with binary output eliminates tuned circuits		
Solid state detectors monitor relay contacts			M-FS-376	B65-10349	01
JPL-785	B66-10396	01	Optically driven switch turn-off time reduced by opaque coatings		
Blackbody cavity radiometer has rapid response			JPL-SC-107	B66-10141	01
JPL-521	B66-10679	01	Pneumatic shutoff and time-delay valve operates at controlled rate		
Foil radiometer accessory improves measurements			M-FS-602	B66-10189	05
M-FS-12684	B67-10448	01	Means for improving apparent resolution of television		
Concept for sleeve induction motor with 1-msec mechanical time constant			ERC-65	B67-10152	01
ARG-10124	B68-10185	01	Study of yttrium iron garnet rods reveals new magnetostatic echo mode		
Moebius resistor is noninductive and nonreactive			ERC-37	B67-10153	01
SAN-10020	B68-10267	01	Cytology is advanced by studying effects of deuterium environment		
Multichannel analyzers at high rates of input			ARG-205	B67-10304	04
ARG-10355	B69-10214	02	Communication system features dual mode range acquisition plus time delay measurement		
TIME DEPENDENCE			M-FS-14323	B68-10306	01
Computer program FPIP-REV calculates fission product inventory for U-235			Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time		
NUC-10089	B67-10450	06	ARG-10110	B68-10328	01
TIME DIVISION MULTIPLEXING			Reducing quantizer deadband with a **range switching** digital filter		
Multiplexing control device enables handling of wide variations in sampling rates			M-FS-20419	B69-10259	01
M-FS-1871	B67-10150	01	Combination ranging system and mapping radar		
Multiplex television transmission system			NPO-11001	B69-10325	01
MSC-11595	B67-10576	01	A method for reducing sampling jitter in digital control systems		
TIME FUNCTIONS			NPO-11088	B69-10338	01
Computer program reduces calculation time of normal response functions			Dynamic calibration of turbine flowmeters		
M-FS-1517	B67-10108	01	LEWIS-11014	B69-10764	01
Computer program calculates monotonic maximum likelihood estimates using method of reversals			TIME MEASUREMENT		
M-FS-1516	B67-10136	01	Volumetric system calibrates meters for large flow rates		
Circuit measures hysteresis loop areas at 30 Hz			WOO-130	B65-10323	05
M-FS-13069	B67-10519	01	Binary counter accumulates time by complementary preset		
Analysis of dynamic systems with DAP4H computer program			MSC-242	B65-10399	01
M-FS-13999	B67-10523	06	Single channel pulse-height analyzer operates		

SUBJECT INDEX

TIMING DEVICES

in subnanosecond range LEWIS-267	B66-10377	01	systems M-FS-12084	B67-10524	06
Variable-pulse switching circuit accurately controls solenoid-valve actuations M-FS-1895	B67-10022	01	TIME SERIES ANALYSIS Computer programs perform spectral analyses of up to seven time series M-FS-1133	B66-10539	01
Modified univibrator compensates for output timing errors ARG-85	B67-10130	01	Technique for strip chart recorder time notation GSFC-473	B67-10196	01
Hydrogen maser as a highly stable frequency reference M-FS-2437	B67-10146	01	Instrumentation monitors transported material through variety of parameters M-FS-12938	B67-10545	01
Vibrator elapsed time is automatically controlled M-FS-2573	B67-10284	01	Phase plane displays detect incipient failure in servo system testing HQ-10018	B67-10662	01
Algebraic Monte Carlo procedure reduces statistical analysis time and cost factors M-FS-1887	B67-10434	01	Manganese-56 coincidence-counting facility precisely measures neutron-source strength ARG-90261	B69-10621	01
KOPE /Kalendar Oriented Program Efforts/ provides data for management decisions M-FS-12331	B67-10478	06	TIME SHARING New computer system simplifies programming of mathematical equations M-FS-441	B66-10361	01
Communication system features dual mode range acquisition plus time delay measurement M-FS-14323	B68-10306	01	Nixie tube display unit employs time-shared logic ARG-117	B66-10512	01
Ultrasonic temperature measuring device LEWIS-10446	B68-10319	01	Multiplexer uses insulated gate-field effect transistors M-FS-13096	B67-10396	01
Simple tunnel diode circuit for accurate zero crossing timing ARG-10309	B69-10116	01	Time-shared Cathode Ray Tube MSC-12238	B69-10243	06
Performance statistics of the FORTRAN 4 /R/ library for the IBM system/360 ARG-10299	B69-10157	06	Simplified system displays complex curves corresponding to input data HQ-10073	B69-10247	01
Ionene membrane battery separator NPO-11091	B69-10501	03	Special purpose computer provides programmable digital filter for sampled-data control systems M-FS-20290	B69-10454	06
TIME MEASURING INSTRUMENTS Vibration analysis utilizing Mossbauer effect M-FS-11974	B67-10339	01	TIME SIGNALS PCM magnetic tape system efficiently records and reproduces data GSFC-375	B65-10311	01
Tunnel diode circuit used as nanosecond-range time marker ARG-90164	B68-10173	01	Recording and time expansion technique for high-speed, single-shot transient video signal ARC-10003	B67-10139	01
TIME OF FLIGHT SPECTROMETERS Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons ARG-10220	B69-10211	02	Subminiature deflection circuit operates integrated sweep circuits in TV camera MSC-1263	B67-10155	01
TIME OPTIMAL CONTROL Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations NUC-10052	B67-10345	06	Control apparatus for spectral energy source LEWIS-391	B67-10404	01
Computerized parts list system coordinates engineering releases, parts control, and manufacturing planning NUC-10073	B67-10348	06	Method of reducing time base error in digital magnetic recorders GSFC-10108	B68-10317	01
TIME RESPONSE Densitometer system for liquid hydrogen has high accuracy, fast response M-FS-909	B66-10438	01	TIMING DEVICES Solenoid permits remote control of stop watch and assures restarting FRC-17	B63-10024	01
Improved design provides faster response time in photomultiplier GSFC-451	B66-10526	01	Coincident switch closing reduces error in motor-driven timer JPL-182	B63-10143	05
Study of fast response thermocouple measurement of temperatures in cryogenic gases M-FS-1659	B66-10661	01	Electromechanically operated camera shutter provides uniform exposure JPL-357	B63-10227	01
DYANA - An advanced programming system for large classes of dynamic and equivalent			Unijunction frequency divider is free of backward loading JPL-W00-010	B65-10112	01
			High-intensity flashing beacon powered by		

TIN

SUBJECT INDEX

mercury cells LANGLEY-80	B65-10361	01	Improved rolling element bearings provide low torque and small temperature rise in ultrahigh vacuum environment LEWIS-359	B66-10678	05
Flowmeter measures low gas-flow rates M-FS-215	B66-10036	01	Spectrographic analysis of bismuth-tin eutectic alloys by spark-ignited low-voltage ac-arc excitation ARG-10288	B69-10081	03
Modified McLeod gage records automatically LEWIS-290	B66-10290	02	TIN OXIDES Photovoltaic effect in organic polymer-iodine complex NPO-10373	B67-10634	03
Parallel line raster eliminates ambiguities in reading timing of pulses less than 500 microseconds apart JPL-805	B66-10386	01	Improved radiographic image amplifier panel M-FS-14522	B68-10363	02
Technique for strip chart recorder time notation GSFC-473	B67-10196	01	TIN TELLURIDES Thermoelectric elements diffusion-bonded to tungsten electrodes GSFC-346	B65-10309	01
Cut-through tester accurately measures insulation failure rates M-FS-12506	B67-10354	03	TIPS Hand-held instrument should relieve hematoma pressure MSC-599	B67-10332	04
Long time constant timer requires no recovery time GSFC-10091	B67-10487	01	TIRES Shock-absorbing caster wheel is simple and compact SAN-10019	B68-10266	05
System measures arc energy dissipated in relay contact cycling M-FS-14541	B68-10312	01	TISSUES (BIOLOGY) Uranyl phthalocyanines show promise in the treatment of brain tumors ARG-100	B67-10188	04
Circuit counts pulses and indicates time of occurrence of slow pulses XNP-06234	B69-10313	01	Effect of preparation procedures on intensity of radioautographic labeling is studied ARG-10032	B67-10500	04
Automatic filter-blowback systems used with sintered-metal filters ARG-10324	B69-10342	05	Simple colorimetric method determines uranium in tissue ARG-10039	B67-10580	03
Improved dc voltage regulator XKS-06467	B69-10369	01	Study of radiation effects on mammalian cells in vitro ARG-10191	B68-10294	02
Novel multipurpose timer for laboratories ARG-10147	B69-10410	01	Experimental study and evaluation of radioprotective drugs ARG-10196	B68-10320	04
Load current sensor for a pulse width modulator power regulator GSFC-10656	B69-10578	01	Method for making small pointed thermocouples SAN-10014	B68-10389	01
TIN Solder flux leaves corrosion-resistant coating on metal JPL-611	B64-10206	03	Combustion method for assay of biological materials labeled with carbon-14 or tritium, or double-labeled ARG-10331	B69-10208	04
Nickel/tin coating protects threaded fasteners in corrosive environment MSC-253	B65-10398	03	TITANATES Air-cured ceramic coating insulates against high heat fluxes M-FS-150	B65-10357	03
Jig protects transistors from heat while tinning leads MSC-515	B66-10240	05	High-emittance coatings on metal substrates LEWIS-10325	B68-10381	03
Weldable aluminum alloy has improved mechanical properties M-FS-295	B66-10445	03	TITANIUM New alloy brazes titanium to stainless steel MSC-102	B65-10060	05
Evaluation of high temperature stranded hookup wire M-FS-2478	B67-10122	03	Lightweight aluminum casting alloy is useful at cryogenic temperatures M-FS-267	B65-10092	03
Silver plating ensures reliable diffusion bonding of dissimilar metals M-FS-1975	B67-10124	03	Titanium treatment improves brazed joints MSC-127	B65-10153	05
Inspection criteria ensure quality control of parallel gap soldering M-FS-14530	B68-10257	05	Ion pump provides increased vacuum pumping speed NEO-13	B65-10239	02
Analysis of cell performance and thermal regeneration of a lithium-tin cell having an immobilized fused-salt electrolyte ARG-10453	B69-10627	03	Titanium diaphragm makes excellent amplitron cathode support		
Electron interaction in matter M-FS-14886	B69-10674	02			
TIN ALLOYS Gallium alloy films investigated for use as boundary lubricants LEWIS-245	B66-10165	03			

SUBJECT INDEX

TITRATION

GSFC-394	B65-10298	01	characteristics		
Reflective insulator layers separated by bonded silica beads			LEWIS-320	B66-10373	03
MSC-215	B66-10070	03	Simple technique determines ac properties of hard superconductive materials		
Hot-wire detector for chemically active materials used in gas chromatography			M-FS-1818	B66-10657	02
MSC-269	B66-10139	03	Degreasing of titanium to minimize stress corrosion		
Aluminum/steel wire composite plates exhibit high tensile strength			LEWIS-382	B67-10147	03
M-FS-401	B66-10262	05	Glass bead shot peening retards stress corrosion failure of titanium tanks		
Auxiliary titanium sublimation pump produces ultrahigh /10 to the minus 11 torr/ vacuum			LANGLEY-319	B67-10198	05
LANGLEY-212	B66-10388	02	Chemical milling solution reveals stress corrosion cracks in titanium alloy		
Lateral ring metal elastic wheel absorbs shock loading			LANGLEY-10077	B67-10322	03
M-FS-1312	B66-10663	05	Copper and nickel adherently electroplated on titanium alloy		
Process reduces secondary resonant emission in electronic components			M-FS-13952	B67-10532	03
JPL-934	B66-10685	01	Roll diffusion bonding of titanium alloy panels		
Silver plating ensures reliable diffusion bonding of dissimilar metals			M-FS-14743	B68-10161	05
M-FS-1975	B67-10124	03	Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/		
Aluminum-titanium hydride-boron carbide composite provides lightweight neutron shield material			ARG-10148	B68-10368	03
NUC-10069	B67-10265	03	Tungsten fiber-reinforced nickel superalloy		
Crack growth measured on flat and curved surfaces at cryogenic temperatures			LEWIS-10424	B68-10369	03
LEWIS-389	B67-10384	01	Corrosion protection of aluminum alloys in contact with other metals		
Aluminum and stainless steel tubes joined by simple ring and welding process			M-FS-18526	B69-10098	03
M-FS-13120	B67-10472	05	Handbook for design of containers of fluids and gases for spacecraft		
Magnesium-zinc reduction is effective in preparation of metals			M-FS-20502	B69-10279	05
ARG-10050	B67-10579	03	TITANIUM CARBIDES		
Nickel base alloy with improved stress rupture properties			Study of high temperature bearing materials		
LEWIS-10283	B68-10344	03	LEWIS-10829	B69-10252	03
Titanium-nitrogen reaction investigated for application to gettering systems			TITANIUM NITRIDES		
ARG-10208	B68-10414	03	Two systems developed for purifying inert atmospheres		
Two systems developed for purifying inert atmospheres			ARG-10234	B69-10026	03
ARG-10234	B69-10026	03	TITANIUM OXIDES		
An ultrasonic method for studying elastic moduli as a function of temperature			Refractory thermal insulation for smooth metal surfaces		
ARG-10187	B69-10082	02	M-FS-160	B64-10099	03
Silicon carbide diode for increased light output			Inorganic paint is durable, fireproof, easy to apply		
M-FS-20063	B69-10096	01	GSFC-366	B65-10156	03
Precision mounting for instrument optical elements provided by polyimide bonding			Anodization process produces opaque, reflective coatings on aluminum		
M-FS-20293	B69-10310	05	M-FS-348	B65-10336	03
Effects of hydrogen on metals			Special coatings control temperature of structures		
M-FS-20364	B69-10372	03	GSFC-444	B65-10337	03
TITANIUM ALLOYS			White primer permits a corrosion-resistant coating of minimum weight		
Galvanic corrosion reduced in aluminum fabrications			M-FS-304	B66-10207	03
M-FS-272	B65-10140	03	Coating protects magnesium-lithium alloys against corrosion		
Nickel-base superalloys developed for high-temperature applications			M-FS-2446	B67-10149	03
LEWIS-226	B66-10222	03	Scribable coating for plastic films		
Brazing process provides high-strength bond between aluminum and stainless steel			MSC-11194	B67-10409	03
M-FS-803	B66-10352	05	TITRATION		
Bearing alloys with hexagonal crystal structures provide improved friction and wear			Sensitive bridge circuit measures conductance of low-conductivity electrolyte solutions		
			ARG-147	B67-10294	01
			Effect of preparation procedures on intensity of radioautographic labeling is studied		
			ARG-10032	B67-10500	04

TOLERANCES (MECHANICS)

SUBJECT INDEX

Improved gyro-flotation /damping/ fluids MSC-13217	B69-10360	03	Production of metals and compounds by radiation chemistry LEWIS-10231	B69-10123	03
Novel multipurpose timer for laboratories ARG-10147	B69-10410	01	Recent development in organic scintillators ARG-10344	B69-10198	03
TOLERANCES (MECHANICS)			Masking of aluminum surface against anodizing M-FS-12964	B69-10335	05
Etching process mills PH 14-8 Mo alloy steel to precise tolerances MSC-270	B66-10110	03	Technique for ultrasonic cleaning with volatile solvents eliminates need for hoods or condensers MSC-15611	B69-10552	03
Soldering tool heats workpieces and applies solder in one operation LEWIS-247	B66-10115	05	TOOLING		
Rotating mandrel speeds assembly of plastic inflatables LANGLEY-155	B66-10137	05	Fiber glass dies speed forming of large metal sheets M-FS-214	B65-10210	05
Diffusion technique stabilizes resistor values MSC-205	B66-10142	01	Multisurface fixture permits easy grinding of tool bit angles M-FS-586	B66-10171	05
Depth indicator and stop aid machining to precise tolerances M-FS-553	B66-10149	05	Cork is used to make tooling patterns and molds MSC-425	B66-10328	01
Device spot-laps spheres to very close tolerances JPL-SC-119	B66-10175	05	System enables dimensional inspection of very large structures M-FS-2477	B67-10214	05
Hollow needle used to cut metal honeycomb structures MSC-486	B66-10244	05	TOOLS		
Gear drive automatically indexes rotary table M-FS-753	B66-10383	05	V-slotted screw head and matching driving tool facilitate insertion and removal of screw fasteners FRC-16	B63-10023	05
Pressure probe compensates for dimensional tolerance variations LEWIS-302	B66-10599	01	Special pliers connect hose containing liquid under pressure JPL-IT-1003	B63-10291	05
Traveling wire electrode increases productivity of Electrical Discharge Machining /EDM/ equipment ARG-136	B67-10238	05	Heavy-duty staple remover operated by hand JPL-IT-1004	B63-10292	05
Static seal concept to accommodate seat tolerances M-FS-1854	B67-10285	05	Tool facilitates sealing of metal fill tubes MSC-24	B63-10519	05
Square tubing reduces cost of telescoping bridge crane hoist ARG-13	B67-10293	05	Insulated weld tooling permits uniform, high quality weld MSC-42	B64-10058	05
Steel test panel helps control additives in pyrophosphate copper plating LEWIS-10101	B67-10358	05	Forming blocks speed production of strain gage grids LEWIS-182	B65-10009	05
Machining heavy plastic sections M-FS-12720	B67-10381	03	Cutter and stripper reduces coaxial cable connection time ARC-40	B65-10094	05
Precision metal molding M-FS-13305	B67-10423	05	Low-cost tool minimizes damage to O-rings during installation MSC-140	B65-10116	05
Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid NUC-10043	B67-10457	06	Lathe attachment used to machine elliptical cones MSC-100	B65-10168	05
Rolanite - A new mechanical design concept SAN-10001	B67-10611	05	Handtool facilitates extraction of circuit modules LANGLEY-38	B65-10231	05
Pneumatic flow comparator M-FS-18373	B69-10400	05	Remotely operated clamping tool has positive grip NU-0020	B65-10254	05
A new method for the determination of particulate contamination levels for surface cleanliness of fluid systems KSC-10267	B69-10520	02	Standoff tool speeds placement of friction-fit electrical terminals WOO-029	B65-10348	05
Photomicrometrology M-FS-14556	B69-10736	01	Portable tool removes burrs from pipe and tubing MSC-237	B65-10360	05
TOLUENE			Portable tool cleans pipes and tubing MSC-238	B65-10375	05
Direct measurement of carbon-14 in carbon dioxide by liquid scintillation counting ARG-10237	B69-10092	03	Drill bit design assures clean holes in		

SUBJECT INDEX

TOOLS CONT

laminated materials WOO-098	B65-10386	05	Alignment tool facilitates pin placement on irregular horizontal surfaces LANGLEY-219	B66-10410	05
Forming tool improves quality of tubing flares WOO-231	B66-10001	05	Modified pliers facilitate coupling of bayonet-type connectors M-FS-1344	B66-10417	05
Improved tool easily removes brazed tube connectors MSC-263	B66-10003	05	Bearing puller facilitates removal and replacement of bearing assemblies M-FS-1538	B66-10418	05
Bench vise adapter grips tubing securely and safely MSC-279	B66-10056	05	Heat treatment stabilizes welded aluminum jigs and tool structures MSC-800	B66-10458	03
Shoulder adapter steadies spot welding gun M-FS-321	B66-10076	05	Hole saw drill attachment has zero force reaction MSC-543	B66-10604	05
Tool provides constant purge during tube welding M-FS-547	B66-10093	05	Film coating permits low-force scribing MSC-990	B66-10609	03
Soldering tool heats workpieces and applies solder in one operation LEWIS-247	B66-10115	05	Mechanical gauge accurately checks tubing flare, roundness, and concentricity M-FS-1822	B66-10656	05
Device spot-laps spheres to very close tolerances JPL-SC-119	B66-10175	05	Micromanipulation tool is easily adapted to many uses JPL-129	B67-10004	05
Low power heating element provides thermal control during swaging operations M-FS-457	B66-10206	05	Tool facilitates installation of Marmon clamps M-FS-2039	B67-10105	05
Tool enables proper mating of accelerometer and cable connector M-FS-611	B66-10208	05	Photosensitive filler minimizes internal stresses in epoxy resins M-FS-1880	B67-10227	03
Special tool seals conductors with combination of plastic sleeves M-FS-579	B66-10209	05	Concept for modifying drafting instruments to minimize smearing KSC-10056	B67-10283	05
Tool permits damage-free removal of solar cell GSFC-467	B66-10219	05	Tool samples subsurface soil free of surface contaminants MSC-10988	B67-10473	05
Automatic reel controls filler wire in welding machines MSC-416	B66-10236	05	Tube dimpling tool assures accurate dip-brazed joints MSC-533	B68-10036	05
Adjustable knife cuts honeycomb material to specified depth MSC-475	B66-10237	05	Tool reconstructs data input points corresponding to first order output graph M-FS-18003	B68-10154	02
Hand tool permits shrink sizing of assembled tubing MSC-504	B66-10239	05	Versatile impact hand tool M-FS-20140	B68-10371	05
Portable sandblaster cleans small areas MSC-523	B66-10242	05	Coaxial cable stripper for confined areas KSC-10167	B68-10444	05
Lathe chuck key incorporates safety feature MSC-506	B66-10243	05	Weld preparation tool for pipes and tubing KSC-09955	B68-10551	05
Hollow needle used to cut metal honeycomb structures MSC-486	B66-10244	05	Fixture facilitates soldering operations M-FS-14456	B68-10573	05
Modified soldering iron speeds cutting of synthetic materials M-FS-725	B66-10246	05	Gun facilitates adhesive bonding of studs to surfaces M-FS-20299	B69-10009	05
Tool separates sleeve-type unions without heat MSC-497	B66-10253	05	Tube welding and brazing M-FS-20348	B69-10085	05
Ultrasonic hand tool allows convenient scanning of spot welds M-FS-539	B66-10289	02	Shell design computer program LEWIS-10734	B69-10175	06
Tool pre-tensions covers prior to lacing MSC-631	B66-10301	05	Astronaut's tool for withdrawing/replacing computer cards M-FS-20453	B69-10183	05
Tool forms right angles in component leads M-FS-722	B66-10346	05	Adjustable wrench for electronic connectors M-FS-18547	B69-10184	05
Welds chilled by liquid coolant manifold M-FS-679	B66-10354	05	Tools made of ice facilitate forming of soft, sticky materials KSC-10262	B69-10199	05
Special tool kit aids heavily garmented workers MSC-163	B66-10403	05	Tool simplifies machining of pipe ends for		

TOPOGRAPHY

SUBJECT INDEX

precision welding KSC-10361	B69-10231	05	
Repair of weld defects in thin-walled stainless steel tubes M-FS-16293	B69-10305	05	
Design of a strain-gage probe ARG-10338	B69-10343	05	
Tool repairs tube components in situ MSC-15348	B69-10379	05	
Quick-acting backup tool for welding ducts M-FS-18404	B69-10396	05	
One-handed hammer-spanner for chucks M-FS-18581	B69-10398	05	
Possible correlation between work-hardening and fatigue-failure ARG-10371	B69-10414	03	
Flexible rivet-set M-FS-20317	B69-10459	05	
Tool for reading psychrometric charts KSC-10358	B69-10527	05	
TOPOGRAPHY			
Surface profilometer for examining grain-boundary grooves ARG-10290	B69-10345	05	
TOPOLOGY			
GERT EXCLUSIVE-OR combining paths and loops of electrical networks ERC-10206	B68-10435	06	
TORCHES			
Miniature oxygen-hydrogen cutting torch constructed from hypodermic needle JPL-545	B63-10517	05	
Oxygen-hydrogen torch is a small-scale steam generator NU-0042	B66-10120	03	
Argon purge gas cooled by chill box M-FS-560	B66-10153	02	
Effect of welding position on porosity formation in aluminum alloy welds M-FS-2318	B67-10177	05	
Weld procedure produces quality welds for thick sections of Hastelloy-X NUC-10048	B67-10195	05	
Welding torch and wire feed manipulator M-FS-13102	B67-10385	05	
Improved torch increases weld quality in refractory metals LEWIS-324	B68-10041	05	
Automatic contour welder incorporates speed control system M-FS-14574	B68-10091	01	
Closed circuit TV system automatically guides welding arc M-FS-20084	B68-10357	01	
Plasma-heating by induction LEWIS-10528	B69-10185	02	
Improved table for cutting and welding MSC-15537	B69-10346	05	
Gas Metal Arc /GMA/ weld torch proximity control M-FS-16327	B69-10533	01	
TOROIDAL SHELLS			
Investigation of pressurized toroidal shells HQ-27	B67-10117	05	
TOROIDS			
Improved magnetometer uses toroidal gating coil GSFC-249	B65-10103	01	
Gapped toroid provides infinite resolution of delay-line pickup GSFC-370	B65-10258	01	
High frequency wide-band transformer uses coax to achieve high turn ratio and flat response ARG-107	B66-10600	01	
Solid state high-voltage pulser operates with low supply voltage M-FS-14034	B68-10308	01	
Miniaturization of magnetic logic circuitry LANGLEY-10037	B69-10148	06	
Novel terminal strips for transformers NPO-10842	B69-10246	01	
Evaluation of magnetic materials for static inverters and converters LEWIS-10343	B69-10306	01	
TORQUE			
Device transmits rotary motion through hermetically sealed wall JPL-303	B63-10198	05	
Lightweight universal joint transmits both torque and thrust JPL-375	B63-10236	05	
Shock absorber protects motive components against overloads WOO-092	B65-10008	05	
Tension is servo controlled in film advance system LANGLEY-54	B65-10075	05	
New coupling compensates for shaft misalignment NU-0013	B65-10077	05	
Slit feeds reduce unbalanced torques in gas-lubricated bearings JPL-264	B65-10099	05	
Bidirectional torque filter eliminates backlash GSFC-335	B65-10148	05	
Rotor position sensor switches currents in brushless dc motors GSFC-315	B65-10151	01	
System measures unidirectional forces, excludes extraneous forces LEWIS-170	B65-10154	05	
Pressure transducer system is force-balanced, has digital output M-FS-154	B65-10174	05	
Torque wrench designed for restricted areas LEWIS-246	B66-10011	05	
Modified power tool rapidly drives series torque bolts MSC-221	B66-10054	05	
T-handle wrench has torque-limiting action MSC-280	B66-10065	05	
Thermal motor positions magnetometer sensors ARC-51	B66-10078	05	
Switching mechanism senses angular acceleration GSFC-462	B66-10158	01	
Transducer measures force in vacuum environment LEWIS-218	B66-10161	01	

SUBJECT INDEX

TORSION

Torque wrench allows readings from inaccessible locations
M-FS-598 B66-10204 05

Tool enables proper mating of accelerometer and cable connector
M-FS-611 B66-10208 05

Pressure-welded flange assembly provides leaktight seal at reduced bolt loads
M-FS-640 B66-10247 05

Modified hydraulic braking system limits angular deceleration to safe values
GSFC-476 B66-10310 05

Braking mechanism is self actuating and bidirectional
M-FS-1299 B66-10484 05

Hole saw drill attachment has zero force reaction
MSC-543 B66-10604 05

Improved rolling element bearings provide low torque and small temperature rise in ultrahigh vacuum environment
LEWIS-359 B66-10678 05

Simple motor drive system operates heavy hinged door
NU-0093 B66-10712 05

A theoretical model for determining turbine flowmeter sensitivity
M-FS-1172 B67-10179 01

Ultrasonic wrench produces leaktight connections
M-FS-12561 B67-10353 05

Standard surface grinder for precision machining of thin-wall tubing
ARG-10014 B67-10400 05

Power torque wrench concept for precision torque application
M-FS-13546 B67-10547 05

Magnetically controlled torque wrench prevents overtightening
SAN-10002 B68-10209 05

High-torque power wrench, a concept
M-FS-18194 B68-10299 05

Electromechanical rotary actuator operates over wide temperature range
M-FS-18402 B69-10100 05

Torsion system for creep testing with multiple stress reversals
HQ-10039 B69-10147 03

Adjustable wrench for electronic connectors
M-FS-18547 B69-10184 05

Compensation of pulse-rebalanced inertial instruments
MSC-13098 B69-10216 01

Sealing a rubber bladder between two sections of an accumulator
M-FS-20403 B69-10355 05

Pressure transducer
NPO-10853 B69-10364 01

Air-cushion lift pad
M-FS-14685 B69-10448 05

Torsional tubular disconnect
NPO-10704 B69-10499 05

Report on a cryogenic gyroscope
NPO-11200 B69-10504 02

TORQUE MOTORS

Hydraulic drive system prevents backlash

JPL-371 B65-10351 05

Quick-response servo amplifies small hydraulic pressure differences
ARG-99 B66-10498 05

Improved fluid control circuit operates on low power input
LEWIS-325 B67-10042 01

Gimbaled-mirror scanning system capable of spiral pattern
GSFC-10170 B67-10609 02

Low-cost, fast-response drive circuit for electromagnetic torque motors
LEWIS-10143 B68-10386 01

Two-step rocket engine bipropellant valve concept
MSC-10951 B69-10280 05

Multi-purpose tool mitten
HQ-10047 B69-10483 05

TORQUEMETERS

Optics used to measure torque at high rotational speeds
LEWIS-13 B63-10338 01

Device enables measurement of moments of inertia about three axes
GSFC-49 B65-10176 05

Air brake-dynamometer accurately measures torque
LEWIS-163 B65-10312 05

Miniature servo accelerometer is force-balanced
JPL-155 B65-10340 01

Torque wrench designed for restricted areas
LEWIS-246 B66-10011 05

Noncontacting transducer measures shaft torque
M-FS-474 B66-10048 01

Torque wrench allows readings from inaccessible locations
M-FS-598 B66-10204 05

Torque meter aids study of hysteresis motor rings
M-FS-12219 B67-10412 01

High-temperature bearing lubricants
LEWIS-10408 B68-10249 05

Hermetically sealed pump
LEWIS-10837 B69-10320 05

TORQUERS

Helical recorder
GSFC-10614 B69-10340 01

TORSION

Dispensing system eliminates torsion in deployed hoses
MSC-80 B65-10185 05

Miniature servo accelerometer is force-balanced
JPL-155 B65-10340 01

Sheet metal strip unrolls to form circular boom
GSFC-423 B66-10032 05

Resilient clamp holds fuel cell stack through resilient clamp holds fuel cell stack through thermal cycle
MSC-313 B66-10035 05

Noncontacting transducer measures shaft torque
M-FS-474 B66-10048 01

Thermodynamic properties of solid palladium-silver alloys and other alloys are

TORSIONAL STRESS

SUBJECT INDEX

investigated by torsion-effusion technique ARG-277	B67-10324	03	Product identification techniques used as training aids for analytical chemists SAN-10025	B68-10373	03
Torsion system for creep testing with multiple stress reversals HQ-10039	B69-10147	03	Heat-shrinkable jacket holds fluid in contact with tensile test specimen MSC-13195	B69-10495	05
TORSIONAL STRESS			TOXICITY		
Bellows joint absorbs torsional deflections in duct system M-FS-882	B66-10332	04	Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations ARG-251	B67-10305	04
Pipe joints reinforced in place with fitted aluminum sleeves MSC-11109	B67-10271	05	Study made of anodized aluminum circuit boards M-FS-13580	B67-10425	01
Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique ARG-277	B67-10324	03	Metabolic and toxicological effects of water-soluble xenon compounds are studied ARG-90239	B68-10076	04
Buckling strength of filament-wound cylinders under axial compression is investigated HQ-10032	B67-10659	03	Experimental study and evaluation of radioprotective drugs ARG-10196	B68-10320	04
TORSIONAL VIBRATION			TOXICITY AND SAFETY HAZARD		
Computer program for determination of natural frequencies of closed spherical sandwich shells MSC-1246	B67-10279	06	Health hazards of ultrafine metal and metal oxide powders LEWIS-10878	B69-10268	04
TORSO			TRACE CONTAMINANTS		
Electronic dummy for acoustical testing MSC-206	B67-10298	01	Trace levels of metallic corrosion in water determined by emission spectrography MSC-1193	B66-10701	03
TORUSES			Analytical technique characterizes all trace contaminants in water MSC-11032	B67-10243	03
Torus elements used in effective shock absorber WOO-114	B66-10318	05	Trace hydrazines in aqueous solutions accurately determined by gas chromatography MSC-11222	B67-10290	03
Inflatable holding fixture permits X-rays to be taken of inner weld areas M-FS-856	B66-10327	03	Separation of traces of metal ions from sodium matrices ARG-10341	B69-10168	03
Fixture facilitates helium leak testing of pipe welds M-FS-2167	B67-10178	05	TRACE ELEMENTS		
Development of technology for hot-drape forming of large torus sections M-FS-12141	B67-10341	05	Wear studies made of slip rings and gas bearing components M-FS-12882	B67-10403	05
TOUGHNESS			Control apparatus for spectral energy source LEWIS-391	B67-10404	01
Improved primer for bonding polyurethane adhesives to metals M-FS-90591	B69-10540	03	Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03
Strain-age cracking in Rene 41 alloy M-FS-18650	B69-10605	03	Ignition of binary alloys of uranium ARG-10057	B68-10280	01
Retention of ductility in high-strength steels ARG-10497	B69-10616	03	Diffusion of trace gases for leak detection - A study M-FS-20254	B69-10067	03
TOWED BODIES			Direct in-vial collection for liquid-scintillation assay of carbon-14 and tritium ARG-10424	B69-10412	03
Quick-attach clamp XFR-05421	B68-10250	05	TRACERS		
TOWERS			Radioactive tracer system detects oil contaminants in fluid lines M-FS-512	B66-10090	03
Wind tower influence study M-FS-20239	B69-10653	01	Portable detector set discloses helium leak rates M-FS-1733	B67-10065	01
TOWING			Fixture facilitates helium leak testing of pipe welds M-FS-2167	B67-10178	05
Quick-attach clamp XFR-05421	B68-10250	05	Fluorescent particles enable visualization of gas flow M-FS-14583	B68-10259	02
TOXIC HAZARDS					
Dispenser leak-tests and sterilizes rubber gloves MSC-285	B66-10166	03			
Self-contained clothing system provides protection against hazardous environments M-FS-536	B66-10201	05			
Weldable aluminum alloy has improved mechanical properties M-FS-295	B66-10445	03			

SUBJECT INDEX

TRANSDUCERS

TRACHEA				bearings under dynamic load		
Automatic patient respiration failure				M-FS-20562	B69-10367	05
detection system with wireless transmission						
ARC-10174	B68-10365	01		TRADEOFFS		
TRACKING (POSITION)				Selective vignetting of Type 1 X-ray		
Binary system generates sidereal rate from				telescopes	B69-10075	02
standard solar rate				GSFC-10682		
GSFC-190	B64-10200	01		TRAFFIC CONTROL		
Bandwidth switching is transient-free, avoids				Computer program simplifies transient and		
loss of loop lock				steady-state temperature prediction for		
WOO-054	B64-10349	01		complex body shapes	B66-10619	01
Direction indicator system does not require				MSC-989		
complicated optics				TRAILERS		
WOO-305	B66-10407	01		Compressed gas system operates semitrailer		
Photocell shadowing technique improves light				brakes during winching operation	B64-10306	05
source detector				JPL-0036		
JPL-809	B66-10564	01		Fifth-wheel fork truck adapter	B69-10021	05
Optical superheterodyne receiver uses laser				M-FS-14460		
for local oscillator				TRAINING SIMULATORS		
M-FS-1605	B66-10584	01		Technique simulates effect of reduced gravity	B64-10146	04
Optical automatic gain channel				LANGLEY-44		
M-FS-1550	B66-10596	02		Separation simulator	B69-10315	01
Hydraulic system provides smooth control of				KSC-67-15		
large tracking and antenna drive systems				TRAJECTORIES		
at very low tracking rates				Computer program for mass optional solutions		
NPO-10316	B67-10418	05		of some endpoint trajectory problems	B67-10310	06
Reflectometer for receiver input system				M-FS-12976		
NPO-10843	B67-10657	01		Earth orbit rendezvous evaluation program	B67-10407	06
Communication system features dual mode				M-FS-13016		
range acquisition plus time delay				HICOV - Newton-Raphson calculus of		
measurement				variation with automatic transversalities	B68-10232	06
M-FS-14323	B68-10306	01		M-FS-14468		
Closed circuit TV system automatically				ABTRAJ on-site tracking prediction		
guides welding arc				program		
M-FS-20084	B68-10357	01		NPO-10836	B69-10103	06
Telescope dome control system automatically				TRAJECTORY ANALYSIS		
tracks sun				Space trajectories program for IBM 7090		
MSC-10966	B68-10521	02		NPO-10125	B67-10172	06
Sweep frequency detector				Internal velocity factors	B68-10403	06
NPO-10669	B69-10289	01		MSC-15002		
Method of directing a laser beam with very				Generalized Newton-Raphson trajectory		
high accuracy				optimization-generator 1	B68-10422	06
NPO-11087	B69-10508	02		M-FS-15020		
TRACKING NETWORKS				Advanced mission analysis programs	B69-10171	06
MOSFET analog memory circuit achieves long				GSFC-10575		
duration signal storage				TRAJECTORY CONTROL		
M-FS-860	B66-10603	01		SiC/Si diode trigger circuit provides		
Acquisition of pseudonoise signals by				automatic range switching for log amplifier	B67-10314	01
sequential estimation				M-FS-1879		
M-FS-13898	B68-10258	01		TRAJECTORY MEASUREMENT		
One hundred MHz voltage-controlled				Study of optimum discrete estimators in		
oscillator				measurement analysis	B68-10348	02
NPO-11004	B69-10133	01		M-FS-14915		
TRACKING RADAR				TRAJECTORY OPTIMIZATION		
An interferometer tracking radar system				Generalized Newton-Raphson trajectory		
MSC-10956	B69-10523	01		optimization-generator 1	B68-10422	06
TRACKING STATIONS				M-FS-15020		
ABTRAJ on-site tracking prediction				Trajectory optimization using regularized		
program				variables	B69-10810	02
NPO-10836	B69-10103	06		MSC-13370		
An improved atomic hydrogen frequency and				TRANSDUCERS		
time standard				High purity electroforming yields superior		
GSFC-10706	B69-10341	02		metal models	B63-10007	05
TRACTION				ARC-6		
Lateral ring metal elastic wheel absorbs				Improved variable-reluctance transducer		
shock loading				measures transient pressures	B63-10321	01
M-FS-1312	B66-10663	05		LANGLEY-10		
Study of high-speed angular-contact ball				Cooling method prolongs life of hot-wire		
				transducer		

TRANSDUCERS CONT

SUBJECT INDEX

LEWIS-41	B63-10344	02	Study of theory and application of long duration heat flux transducers	M-FS-1265	B66-10614	01	
Unmanned seismometer levels self, corrects drift errors	GSFC-100	B63-10551	01	Motion drive system is accurately controlled in the 1-micron range	JPL-864	B66-10695	05
Ultra-sensitive transducer advances micro-measurement range	ARC-26	B64-10004	01	Multipurpose instrumentation cable provides integral thermocouple circuit	NU-0108	B67-10046	01
Multiple port pressure scanner valve features greater accuracy, quicker data	JPL-555	B64-10031	05	Cleanroom air sampler counts, categorizes, and records particle data	M-FS-2221	B67-10076	01
Simple transducer measures low heat-transfer rates	JPL-466	B64-10122	01	Ultrasonics permits brazing complex stainless steel assembly without flux	NU-0115	B67-10094	05
Apparatus measures very small thrusts	WOO-048	B64-10284	05	Calibrating ultrasonic test equipment for checking thin metal strip stock	NUC-10009	B67-10127	01
Seismic transducer measures small horizontal displacements	M-FS-81	B65-10029	05	Solid state circuit averages multiple signals and rejects those varying significantly from the average	NUC-10066	B67-10262	01
Vibrating-membrane electrometer has high conversion gain	ARC-38	B65-10056	01	IR vidicon scanner monitors many test points	M-FS-1937	B67-10277	01
Metal diaphragm used to calibrate miniature transducers	M-FS-207	B65-10059	01	Vibration analysis utilizing Mossbauer effect	M-FS-11974	B67-10339	01
Transducer senses displacements of panels subjected to vibration	ARC-37	B65-10085	01	Transducer measures embedment stresses in electronic modules	M-FS-13486	B67-10367	01
Transducer measures temperature differentials in presence of strong electromagnetic fields	ARC-27	B65-10089	01	Study made of acoustical monitoring for mechanical checkout	M-FS-13372	B67-10430	02
System measures unidirectional forces, excludes extraneous forces	LEWIS-170	B65-10154	05	Design for high-temperature /1800 deg F/ liquid metal pressure transducer	LEWIS-10144	B67-10458	01
Interferometer combines laser light source and digital counting system	MSC-151	B65-10161	01	Plastic shoe facilitates ultrasonic inspection of thin wall metal tubing	NUC-10010	B67-10542	02
Detector circuit compensates for vidicon beam current variations	GSFC-310	B65-10212	01	Nondestructive testing techniques used in analysis of honeycomb structure bond strength	M-FS-1214	B67-10574	01
Electropneumatic rheostat regulates high current	ARC-44	B65-10299	01	Lamb waves increase sensitivity in nondestructive testing	ARG-10009	B67-10605	02
Direct force-measuring transducer used in blood pressure research	ARC-53	B65-10325	01	Gimbaled-mirror scanning system capable of spiral pattern	GSFC-10170	B67-10609	02
Noncontacting vibration transducer has constant sensitivity	LANGLEY-99	B65-10392	01	Ballpoint probe gives optimum results in ultrasonic testing	M-FS-13590	B67-10620	01
Device without electrical connections in tank measures liquid level	WOO-235	B66-10198	01	Review of biological mechanisms for application to instrument design	HQ-33	B67-10663	04
Wide-range instrument monitors flow rates of chemically active fluids	MSC-186	B66-10205	01	Magnetic tape transport controlled by rotating transducer heads	GSFC-483	B68-10079	01
Ultrasonic quality inspection of bonded honeycomb assemblies is automated	MSC-859	B66-10544	01	System for measuring roundness and concentricity of large tanks	M-FS-13362	B68-10099	05
Damper reduces effects of resonance on force transducer	WSO-321	B66-10550	05	Reliable, self-calibrating vibration transducer	LANGLEY-89	B68-10124	01
Ultrasonic water column probe speeds up testing of welds	HQ-58	B66-10577	01	Color-televised medical microscopy	MSC-13086	B68-10314	01
Developmental instrument supplies accurate attitude and attitude-rate data	HQ-57	B66-10607	01				

SUBJECT INDEX

TRANSFERRING

Ultrasonic temperature measuring device LEWIS-10446	B68-10319	01	system performance parameters LANGLEY-203	B66-10379	01
Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01	Carriage system remotely moves drawer over extended distance NU-0092	B66-10711	05
Automatic calibration system for pressure transducers M-FS-20127	B68-10412	01	Circuit multiplies pulse width modulation, exhibits linear transfer function HQ-56	B67-10055	01
Fluidic transducer gives pressure output as function of temperature ERC-10093	B68-10537	05	Plotter design simplifies determination of image sensor transfer characteristic NPO-10164	B67-10206	01
Fluidic analog amplifier ERC-10102	B68-10538	05	CINDA - Chrysler Improved Numerical Differencing Analyzer computer program M-FS-2298	B67-10278	06
Welding skate with computerized controls M-FS-20224	B68-10566	01	Computer program provides linear sampled- data analysis for high order systems M-FS-12821	B67-10287	06
Simple switch actuated by force applied over wide solid angle XNF-09808	B69-10032	01	General frequency response program calculates frequency response of system, open at any specified element M-FS-12817	B67-10521	06
Thick transducers used for generating short-duration stress pulses in thin specimens ARG-10232	B69-10045	01	Phase plane displays detect incipient failure in servo system testing HQ-10018	B67-10662	01
Bootstrap unloader XNF-09768	B69-10120	01	Active rc networks of low sensitivity for integrated circuit transfer function ARC-10146	B68-10210	01
Mossbauer vibration calibration systems evaluated M-FS-20014	B69-10125	01	Method for reducing snap in magnetic amplifiers LEWIS-10388	B68-10388	01
A magnifying scratch-gage force transducer LANGLEY-10496	B69-10212	01	Symbolic reduction of block diagrams using FORMAC LEWIS-10409	B68-10423	06
High-power microwave power divider concept NPO-11031	B69-10290	01	Use of both linear and logarithmic transfer functions to increase dynamic range of visual channel GSFC-10675	B69-10037	01
Surface profilometer for examining grain-boundary grooves ARG-10290	B69-10345	05	Tunable bandpass filter with variable selectivity ARC-10191	B69-10130	01
Tracer of electrical conduit or pipes MSC-15223	B69-10347	01	Reducing quantizer deadband with a **range switching** digital filter M-FS-20419	B69-10259	01
Pressure transducer NPO-10853	B69-10364	01	Analysis of space vehicle structures using the transfer-function concept NPO-11162	B69-10337	06
Instrumentation for nondestructive testing of composite honeycomb materials M-FS-20405	B69-10366	03	Fast Fourier Transform Spectral Analysis Program M-FS-15062	B69-10434	06
Nondestructive determination of cohesive strength of adhesive-bonded composites M-FS-20397	B69-10464	03	Current-switching technique for analog pulse circuits ARG-10479	B69-10445	01
Torsional tubular disconnect NPO-10704	B69-10499	05	TRANSFER ORBITS Computer program for mass optional solutions of some endpoint trajectory problems M-FS-12976	B67-10310	06
Gas Metal Arc /GMA/ weld torch proximity control M-FS-16327	B69-10533	01	Generalized Newton-Raphson trajectory optimization-generator 1 M-FS-15020	B68-10422	06
Cryogenic pressure transducer M-FS-14909	B69-10601	01	TRANSFERRING Rapid billet loader aids extrusion of refractory metals LEWIS-50	B63-10354	05
New type pressure transducer for severe thermal environments M-FS-20208	B69-10652	01	Study of theory and application of long duration heat flux transducers M-FS-1265	B66-10614	01
Miniature backward-diode pressure sensor features stability and low power consumption ERC-10229	B69-10690	01	Irradiated gases transferred without contamination or dilution		
TRANSFER FUNCTIONS Cryogenic liquid transfer system reduces residual boiloff LEWIS-274	B66-10157	02			
Transistor circuit increases range of logarithmic current amplifier NU-0018	B66-10350	01			
Human transfer functions used to predict					

TRANSFORMATIONS (MATHEMATICS)

SUBJECT INDEX

LEWIS-278	B67-10044	03	Two-light circuit continuously monitors ac ground, phase, and neutral wires	MSC-356	B66-10163	01
Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133	B67-10437	03	Soldering iron temperature is automatically reduced	ARC-57	B66-10203	01
Vacuum-jacketed transfer line installation technique M-FS-14496	B68-10125	05	Substituting transistor for diode improves rectifying means	GSFC-474	B66-10295	01
Encode/Decode facility for FORTRAN 4 ARG-10335	B69-10169	06	Microphone multiplex system provides multiple outlets from single source	GSFC-426	B66-10308	01
TRANSFORMATIONS (MATHEMATICS)			Efficient dc to dc converter eliminates large stray magnetic fields	GSFC-463	B66-10376	01
A modal combination computer program for dynamic analysis of structures NPO-10129	B67-10217	06	Control circuit maintains unity power factor of reactive load	MSC-192	B66-10431	01
Computer program provides linear sampled-data analysis for high order systems M-FS-12821	B67-10287	06	Thermionic scanner pinpoints work function of emitter surfaces	JPL-SC-177	B66-10444	01
Solution of differential equations by application of transformation groups M-FS-14802	B68-10276	02	Rectilinear accelerometer possesses self-calibration feature	M-FS-1480	B66-10452	01
Computer program analyzes and designs supersonic wing-body combinations ARC-10141	B68-10335	06	Process yield Co-Fe alloys with superior high temperature magnetic properties	LEWIS-333	B66-10535	03
ABTRAJ on-site tracking prediction program NPO-10836	B69-10103	06	High frequency wide-band transformer uses coax to achieve high turn ratio and flat response	ARG-107	B66-10600	01
Root-cubing and general root-powering methods for finding the zeros of polynomials ARG-10444	B69-10424	02	Amplifier provides dual outputs from a single source with complete isolation	NUC-10056	B67-10221	01
Trajectory optimization using regularized variables MSC-13370	B69-10810	02	Solid state phase detector replaces bulky transformer circuit	MSC-11007	B67-10253	01
TRANSFORMERS			Ultrasonic wrench produces leaktight connections	M-FS-12561	B67-10353	05
Simple circuit continuously monitors thermocouple sensor M-FS-61	B63-10567	01	Signal generator converts direct current to multiphase supplies	MSC-11043	B67-10368	01
Improved insertion-loss tester JPL-358	B64-10080	01	High power dc/dc and dc/ac electrical power conversion techniques developed	M-FS-13227	B67-10390	01
Variable frequency transistor inverters use multiple core transformers GSFC-183	B65-10119	01	Blood pressure reprogramming adapter assists signal recording	MSC-265	B67-10475	01
Apparatus permits flexure testing of specimens at cryogenic temperatures M-FS-257	B65-10129	02	Converter provides constant electrical power at various output voltages	GSFC-519	B67-10481	01
System measures unidirectional forces, excludes extraneous forces LEWIS-170	B65-10154	05	Light-controlled resistors provide quadrature signal rejection for high-gain servo systems	WSO-340	B67-10552	01
Analog-to-digital converter has increased reliability and reduced power consumption GSFC-246	B65-10194	01	Electronic skewing circuit monitors exact position of object underwater	NUC-10146	B67-10629	01
High-speed square-wave current limiter operates efficiently JPL-SC-073	B65-10233	01	Compensation circuit improves operation of inductive coupling transformers	M-FS-13801	B68-10129	01
Electronic ampere-hour integrator is accurate to one percent GSFC-203	B65-10308	01	Solid state high-voltage pulser operates with low supply voltage	M-FS-14034	B68-10308	01
Compact SCR trigger circuit for ignitron switch operates efficiently M-FS-371	B65-10347	01	Concept to convert electrical power	GSFC-10222	B68-10321	01
Noncontacting vibration transducer has constant sensitivity LANGLEY-99	B65-10392	01				
Dual-voltage power supply has increased efficiency LEWIS-107A	B66-10002	01				
Complementary system vaporizes subcooled liquid, improves transformer efficiency M-FS-550	B66-10045	02				

SUBJECT INDEX

TRANSISTOR CIRCUITS

Full wave dc-to-dc converter using energy storage transformers LEWIS-10375	B69-10140	01	LEWIS-10395	B68-10216	06
Torsion system for creep testing with multiple stress reversals HQ-10039	B69-10147	03	Improved limiter for turn-on current transient GSFC-10413	B68-10384	01
Remote balance weighs accurately amid high radiation ARG-10387	B69-10242	05	CIRCUS--A digital computer program for transient analysis of electronic circuits M-FS-15002	B68-10416	06
Novel terminal strips for transformers NPO-10842	B69-10246	01	TRANSISTOR AMPLIFIERS		
Magnetic field mapper LEWIS-10782	B69-10476	01	Simplified electrometer has excellent operating characteristics JPL-413	B65-10125	01
Improved pulse shape discriminator for fast neutron-gamma ray detection system HQ-10151	B69-10481	01	High-gain amplifier has excellent stability and low power consumption GSFC-272	B65-10138	01
Synchronizing redundant power oscillators XGS-09377	B69-10546	01	Tiny biomedical amplifier combines high performance, low power drain ARC-41	B65-10203	01
High voltage pulse generator MSC-12178	B69-10548	01	Field effect transistor presents high input impedance in ac amplifier JPL-500	B65-10232	01
Load current sensor for a pulse width modulator power regulator GSFC-10656	B69-10578	01	Electrometer preamplifier has drift correction feedback JPL-SC-074	B65-10267	01
Flexible high-voltage supply for experimental electron microscope ARG-10482	B69-10603	01	Photosensors used to maintain welding electrode-to-joint alignment MSC-243	B65-10401	05
TRANSIENT HEATING			FET comparator detects analog signal levels without loading analog device M-FS-503	B66-10224	01
New computer program solves wide variety of heat flow problems M-FS-421	B66-10404	01	Phase inverter provides variable reference push-pull output HQ-23	B66-10344	01
Gage measures total radiation, including vacuum UV, from ionized high-temperature gases XNP-09802	B69-10028	02	Modified univibrator compensates for output timing errors ARG-85	B67-10130	01
Surface-renewal models for heat-transfer between walls and fluidized beds ARG-10372	B69-10772	02	Experimental coherent fractional frequency multiplier at S-band M-FS-2427	B67-10250	01
TRANSIENT PRESSURES			Sensitive bridge circuit measures conductance of low-conductivity electrolyte solutions ARG-147	B67-10294	01
Improved variable-reluctance transducer measures transient pressures LANGLEY-10	B63-10321	01	Transistor biased amplifier minimizes diode discriminator threshold attenuation ARG-163	B67-10311	01
Burst diaphragm protects vacuum vessel from internal pressure transients JPL-687	B65-10236	05	Limit circuit prevents overdriving of operational amplifier NUC-10082	B67-10343	01
Special mount improves remote transducer accuracy LEWIS-269	B66-10021	01	Solid state high-voltage pulser operates with low supply voltage M-FS-14034	B68-10308	01
Magnetoresistor monitors relay performance M-FS-1754	B66-10650	01	TRANSISTOR CIRCUITS		
Digital computer program predicts effects of local pressure transients on deformation and stresses in cylindrical ducts M-FS-13058	B67-10631	06	New low-level a-c amplifier provides adjustable noise cancellation and automatic temperature compensation ARC-2	B63-10003	04
Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes ARG-10274	B69-10047	02	Increased performance reliability obtained with dual /redundant/ oscillator system GSFC-36	B63-10027	01
TRANSIENT RESPONSE			Igniting system for mercury lamps protects transistorized sustaining supply JPL-421	B63-10262	01
Polarimeter provides transient response in nanosecond range JPL-890	B67-10021	02	Temperature-compensation circuit stabilizes performance of vidicons JPL-486	B64-10226	01
Computer program analyzes generalized environmental control and life support systems MSC-1157	B67-10415	06	Inexpensive, stable circuit measures heart rate MSC-95	B65-10010	01
Computer program determines system stability /DIGSTA/					

TRANSISTOR CIRCUITS CONT

SUBJECT INDEX

Transistor voltage comparator performs own sensing GSFC-228	B65-10028	01	logarithmic current amplifier NU-0018	B66-10350	01
Pulse height analyzer operates at high repetition rates, low power WOO-046	B65-10041	01	Efficient dc to dc converter eliminates large stray magnetic fields GSFC-463	B66-10376	01
Variable voltage supply uses Zener diode as reference GSFC-262	B65-10097	01	Single channel pulse-height analyzer operates in subnanosecond range LEWIS-267	B66-10377	01
Transistorized circuit clamps voltage with 0.1 percent error GSFC-196	B65-10118	01	Equivalent circuit for a field effect transistor established for computer simulation M-FS-1752	B66-10690	01
Variable frequency magnetic multivibrator generates stable square-wave output GSFC-AE-21	B65-10124	01	Logarithmic current simulator generates electrical currents accurately between 10 to the minus 11 ampere to 10 to the minus 3 ampere NU-0087	B66-10706	01
Sensitive electrometer features digital output GSFC-288	B65-10206	01	Double emitter suppressed carrier modulator uses commercially available components M-FS-2494	B67-10101	01
High-speed square-wave current limiter operates efficiently JPL-SC-073	B65-10233	01	Modified univibrator compensates for output timing errors ARG-85	B67-10130	01
Simple circuit reduces transistor switching time GSFC-314	B65-10234	01	Subminiature deflection circuit operates integrated sweep circuits in TV camera MSC-1263	B67-10155	01
Solid-state laser transmitter is amplitude modulated MSC-121	B65-10238	01	Hybrid solid state switch replaces motor-driven power switch JPL-931	B67-10165	01
Increased junction lead inductance ballasts high-frequency transistors GSFC-387	B65-10259	01	Switching-type regulator circuit has increased efficiency MSC-1063	B67-10190	01
Electronic ampere-hour integrator is accurate to one percent GSFC-203	B65-10308	01	An efficient, temperature-compensated subcarrier oscillator JPL-SC-091	B67-10251	01
Hybrid circuit achieves pulse regeneration with low power drain GSFC-382	B65-10314	01	Fast-response frequency-to-analog converter M-FS-709	B67-10257	01
High-intensity flashing beacon powered by mercury cells LANGLEY-80	B65-10361	01	Solid state circuit averages multiple signals and rejects those varying significantly from the average NUC-10066	B67-10262	01
Automatic gain control circuit handles wide input range MSC-166	B66-10089	01	Analog buffer isolates high impedance source from low impedance load M-FS-13481	B67-10544	01
Fingertip current control facilitates use of arc welding gun MSC-289	B66-10092	05	Transistor h parameter conversion slide rule JPL-649	B67-10561	01
Low-power ring counter drives high-level loads GSFC-431	B66-10106	01	Improved frequency divider employs transistor avalanche effect NPO-10008	B67-10575	01
Improved chopper circuit uses parallel transistors M-FS-468	B66-10113	01	Low cost SCR lamp driver indicates contents of digital computer registers GSFC-10221	B67-10656	01
FET comparator detects analog signal levels without loading analog device M-FS-503	B66-10224	01	Current-limiting voltage regulator MSC-11824	B68-10305	01
Electronic phase-locked-loop speed control system is stable JPL-SC-084	B66-10232	01	Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time ARG-10110	B68-10328	01
Circuit protects regulated power supply against overload current GSFC-453	B66-10292	01	Two-way digital driver/receiver uses one set of lines ERC-10055	B68-10437	01
Substituting transistor for diode improves rectifying means GSFC-474	B66-10295	01	An electronic circuit for sensing malfunctions in test instrumentation KSC-10209	B69-10392	01
Circuit provides accurate four-quadrant multiplication WOO-272	B66-10331	02	Accurate nine-decade temperature-compensated logarithmic amplifier ARG-10480	B69-10429	01
Transistor circuit increases range of					

SUBJECT INDEX

TRANSISTORS

Lateral PNP bipolar transistor with aiding field diffusions MSC-13072	B69-10741	01	Dc to ac converter operates efficiently at low input voltages GSFC-130	B65-10178	01
TRANSISTORS			Voltage controlled oscillator is easily aligned, has low phase noise JPL-510	B65-10223	01
Indium foil with beryllia washer improves transistor heat dissipation GSFC-42	B63-10033	01	Magnetic-shift-register circuit controls step motor operation GSFC-340	B65-10226	01
Two-stage emitter follower is temperature stabilized MSC-20	B63-10493	01	Boron trifluoride nuclear detector preamplifier uses single-cable connection LEWIS-178	B65-10255	01
Computer circuit will fit on single silicon chip JPL-513	B63-10514	01	Constant-current regulator improves tunnel diode threshold-detector performance GSFC-239	B65-10282	01
Transistorized trigger circuit is frequency-controllable GSFC-111	B63-10553	01	Boron nitride housing cools transistors WOO-079	B65-10289	01
High efficient square-wave oscillator operator at high power levels GSFC-112	B63-10554	01	Insulator-holder protects transistors in dense electronic assemblies MSC-214	B65-10389	01
Monostable circuit with tunnel diode has fast recovery GSFC-132	B63-10603	01	Mounting improves heat-sink contact with beryllia washer MSC-194	B66-10144	01
Low-power transistorized circuit provides staircase waveform GSFC-48	B64-10007	01	Complementary monostable circuits achieve low power drain and high reliability GSFC-433	B66-10179	01
Blocking oscillator uses low triggering voltage MSC-58	B64-10017	01	Jig protects transistors from heat while tinning leads MSC-515	B66-10240	05
Novel circuit combines pulse stretcher with NOR gate GSFC-187	B64-10150	01	Function generator eliminates necessity of series summation GSFC-214	B66-10351	01
Temperature-compensation circuit stabilizes performance of vidicons JPL-486	B64-10226	01	Brushless dc motor has high efficiency, long life GSFC-181	B66-10355	01
PTC thermistor protects multiloaded power supplies GSFC-236	B64-10281	01	Solid-state switch increases switching speed WOO-298	B66-10430	01
Tunnel-diode circuit features zero-level clipping GSFC-241	B65-10002	01	Semiconductors can be tested without removing them from circuitry M-FS-1163	B66-10447	01
Circuit improvement produces monostable multivibrator with load-carrying capability GSFC-34A	B65-10011	01	Pulse generator using transistors and silicon controlled rectifiers produces high current pulses with fast rise and fall times MSC-405	B66-10456	01
Circuit detects errors in address currents for magnetic core arrays M-FS-234	B65-10047	01	Solid state circuit switches ac load JPL-798	B66-10465	01
Pulse generator permits nondestructive testing of component breakdown voltage MSC-122	B65-10054	01	Bipolar current driver for memory circuits GSFC-213	B66-10469	01
Feedback oscillator functions as low-level pulse stretcher GSFC-261	B65-10069	01	Simple, one transistor circuit boosts pulse amplitude GSFC-501	B66-10480	01
Synchronized pulse generator needs no external power GSFC-274	B65-10072	01	Solid state annunciator facilitates complex system troubleshooting M-FS-1258	B66-10505	01
Simple circuit functions as frequency discriminator for PFM signals GSFC-267	B65-10102	01	Computer program searches characteristic data of diodes and transistors GSFC-493	B66-10529	01
Variable load automatically tests dc power supplies GSFC-291	B65-10105	01	Preregulator feedback circuit utilizes Light Actuated Switch M-FS-1180	B66-10542	01
Unijunction frequency divider is free of backward loading JPL-WOO-010	B65-10112	01	Collector/collector guard ring balancing circuit eliminates edge effects JPL-SC-143	B66-10563	01
Rotor position sensor switches currents in brushless dc motors GSFC-315	B65-10151	01	Circuit provides overcurrent protection to push-pull amplifier MSC-12033	B67-10300	01

TRANSIT TIME

SUBJECT INDEX

SiC/Si diode trigger circuit provides automatic range switching for log amplifier M-FS-1879	B67-10314	01	transistors MSC-13199	B69-10244	01
Field effect transistors improve buffer amplifier M-FS-916	B67-10334	01	Improved dc voltage regulator IKS-06467	B69-10369	01
Current pulse amplifier transmits detector signals with minimum distortion and attenuation NUC-10055	B67-10347	01	Punch-magnet delay eliminated by modification of circuit ARG-10333	B69-10416	01
High power dc/dc and dc/ac electrical power conversion techniques developed M-FS-13227	B67-10390	01	An unconventional magnetically-coupled multivibrator HQ-10226	B69-10480	01
Multiplexer uses insulated gate-field effect transistors M-FS-13096	B67-10396	01	Constant-frequency, variable-duty-cycle multivibrator XGS-10033	B69-10512	01
Study made of anodized aluminum circuit boards M-FS-13580	B67-10425	01	TRANSIT TIME		
Aluminum heat sink enables power transistors to be mounted integrally with printed circuit board M-FS-13663	B67-10426	01	Instrument calibrates low gas-rate flowmeters MSC-134	B65-10137	01
Series transistors isolate amplifier from flyback voltage MSC-11023	B67-10468	01	Ultrasonic temperature measuring device LEWIS-10446	B68-10319	01
Blood pressure reprogramming adapter assists signal recording MSC-265	B67-10475	01	Thick transducers used for generating short-duration stress pulses in thin specimens ARG-10232	B69-10045	01
Converter provides constant electrical power at various output voltages GSFC-519	B67-10481	01	TRANSITION METALS		
Solid state zero-bias bilateral switch GSFC-532	B67-10559	01	Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique ARG-277	B67-10324	03
Prediction of radiation damage effects in transistors GSFC-10021	B67-10606	01	Twin solution calorimeter determines heats of formation of alloys at high temperatures ARG-10114	B68-10083	01
Gyrator-type circuits replace ungrounded inductors IAC-10608	B68-10084	01	Levitation-melting technique for metals and alloys ARG-10240	B69-10006	03
Analysis and design of a class-D amplifier M-FS-14803	B68-10313	01	Silicon carbide diode for increased light output M-FS-20063	B69-10096	01
Integrated metal transistor leads GSFC-90536	B68-10518	01	Coordination chemistry in fused-salt solutions ARG-10469	B69-10423	03
Pressure-sensitive bonded junction transducers ERC-10087	B68-10563	01	Preparation of superconducting thin films of transition-metal interstitial compounds HQ-10445	B69-10470	01
Microelectronic oscillator, 2 GSFC-10387	B69-10063	01	Electrolytic separation of crystals of transition-metal oxides ARG-10506	B69-10642	03
Microelectronic oscillator GSFC-10375	B69-10064	01	TRANSITION POINTS		
Remotely-actuated biomedical switch ARC-10105	B69-10117	01	Lower-cost tungsten-rhenium alloys LEWIS-332	B66-10528	03
Integrated circuit with multiple collector current source M-FS-20177	B69-10126	01	Elimination of rocket engine asymmetric loads during tests at sea level M-FS-1730	B66-10674	05
Self-starting circuit for switching regulators LEWIS-10686	B69-10128	05	Fabrication techniques developed for small-diameter, thin-wall tungsten and tungsten alloy tubing ARG-10100	B68-10284	05
Full wave dc-to-dc converter using energy storage transformers LEWIS-10375	B69-10140	01	Preparation of superconducting thin films of transition-metal interstitial compounds HQ-10445	B69-10470	01
Positive and negative output circuits LEWIS-10715	B69-10151	01	TRANSITS		
Conceptual techniques for reducing parasitic current gain of lateral pnp			Training manual on optical alignment instruments M-FS-20292	B68-10574	02
			TRANSLATING		
			Conditioning of pulses from aerosol-particle detectors ERC-10250	B69-10691	01

SUBJECT INDEX

TRANSMITTER RECEIVERS

TRANSLATIONAL MOTION

Eccentric drive mechanism is adjustable during operation
M-FS-2576 B67-10373 05

A magnifying scratch-gage force transducer
LANGLEY-10496 B69-10212 01

Precisely repeatable rotary mechanism
NPO-10679 B69-10696 05

TRANSLUCENCE

Setting of angles on machine tools speeded by magnetic protractor
ARC-5 B63-10006 01

Areas of irregular, discontinuous patterns rapidly and accurately measured
GSFC-10184 B67-10674 01

TRANSMISSION

Bearing transmits rotary and axial motion
LANGLEY-27 B64-10130 05

Pneumatic power is transmitted through air bearing
MSC-8 B64-10141 05

IR-transmission glasses formed from oxides of bismuth and tellurium
M-FS-279 B65-10190 03

Optically exciting a magnetic memory - A feasibility study
M-FS-14854 B69-10060 02

Resonant microwave dichroic surface
GSFC-10658 B69-10274 01

High voltage pulse generator
MSC-12178 B69-10548 01

TRANSMISSION CIRCUITS

TV synchronization system features stability and noise immunity
JPL-915 B67-10118 01

Current pulse amplifier transmits detector signals with minimum distortion and attenuation
NUC-10055 B67-10347 01

Optometric system facilitates colorimetric and fluorometric measurements
NPO-10233 B68-10316 01

Technique for tuning antenna systems producing negligible signal radiation
KSC-10060 B69-10215 01

TRANSMISSION LINES

Igniting system for mercury lamps protects transistorized sustaining supply
JPL-421 B63-10262 01

Plastic molds reduce cost of encapsulating electric cable connectors
M-FS-69 B63-10568 05

High-pass RF coaxial filter rejects dc and low frequency signals
GSFC-73 B64-10173 01

Thermistor connector assembly increases accuracy of measurements
LANGLEY-62 B65-10045 01

Electrical cable connector-clamp has smooth exterior surface
MSC-154 B65-10201 05

Oscillator circuit measures liquid level in tanks
M-FS-245 B65-10209 01

Electromagnetic hammer removes weld distortions from aluminum tanks
M-FS-287 B65-10342 05

Single connector provides safety fuses for multiple lines
MSC-199 B66-10050 01

Electrical cabling withstands severe environmental conditions
M-FS-1585 B66-10427 01

Video signal processing system uses gated current mode switches to perform high speed multiplication and digital-to-analog conversion
MSC-781 B66-10429 01

Remote preamplifier circuit maintains stability over wide temperature range
WOO-278 B66-10432 01

Pulse technique provides more accurate checkout of exploding bridge wire device
HQ-62 B66-10561 01

Electrical continuity scanner facilitates identification of wires for soldering to connectors
MSC-626 B66-10605 01

Improved memory word line configuration allows high storage density
GSFC-559 B66-10617 01

Cable clamp bolt fixture facilitates assembly in close quarters
KSC-67-80 B67-10244 05

Metal flame spray coating protects electrical cables in extreme environment
NUC-10077 B67-10351 03

Cut-through tester accurately measures insulation failure rates
M-FS-12506 B67-10354 03

Temperature-sensed cryogenic bleed maintains liquid state in transfer line
M-FS-12681 B67-10424 01

Adhesives for laminating polyimide insulated flat conductor cable
M-FS-12066 B67-10429 03

Rectangular configuration improves superconducting cable
ARG-90088 B68-10098 02

Solid state high-voltage pulser operates with low supply voltage
M-FS-14034 B68-10308 01

Automatic calorimetry system monitors RF power
NPO-11033 B69-10384 01

TRANSMISSIVITY

Shock and vibration response of multistage structure
M-FS-14972 B68-10353 05

TRANSMITTANCE

Calculation of infrared spectral transmittances of inhomogeneous gases
M-FS-1563 B66-10554 02

Exposure Value /EV/ system expanded to include filter factors and transmittance
LANGLEY-190 B66-10602 02

Detection of effect of deposits on optical windows of pyrometer measurements
LEWIS-10366 B68-10367 01

Correction for losses in optical birefringent networks, a concept
M-FS-20088 B68-10571 02

TRANSMITTER RECEIVERS

Frequency offset in linear FM/CW transponder eliminates clutter
M-FS-249 B65-10146 01

TRANSMITTERS

SUBJECT INDEX

Improved electro-optical tracking system M-FS-14791	B68-10311	01	reading of graphs LANGLEY-88	B65-10070	05
Combination ranging system and mapping radar NPO-11001	B69-10325	01	Fresnel zone plate forms images at wavelengths below 1000 angstroms GSFC-231	B65-10171	02
TRANSMITTERS			Respiratory transfer value has fail-safe feature ARC-1	B65-10369	01
Emission tester for high-power vacuum tubes JPL-628	B64-10158	01	One-piece transparent shell improves design of helmet assembly MSC-187	B66-10390	05
Subminiature biotelemetry unit permits remote physiological investigations ARC-39	B64-10171	01	Scribble coating for plastic films MSC-11194	B67-10409	03
Helical coaxial-resonator makes excellent RF filter GSFC-243	B65-10012	01	Projection transparencies from printed material M-FS-14608	B68-10112	01
Solid-state laser transmitter is amplitude modulated MSC-121	B65-10238	01	Improved atomic resonance gas cell for use in frequency standards MSC-11666	B68-10230	01
System locates randomly placed remote objects LANGLEY-209	B66-10315	01	Fluorescent particles enable visualization of gas flow M-FS-14583	B68-10259	02
Helmet system broadcasts electroencephalograms of wearer ARC-70	B66-10536	01	Improved radiographic image amplifier panel M-FS-14522	B68-10363	02
Ultraminiature television camera M-FS-11967	B67-10469	01	Direct reading of electrocardiograms and respiration rates KSC-10233	B69-10188	04
Multichannel implantable telemetry system ARC-10083	B68-10065	01	TRANSPLANTATION		
Communication system features dual mode range acquisition plus time delay measurement M-FS-14323	B68-10306	01	Heparin insolubilized with crosslinking agent NPO-10834	B69-10299	03
A 35 GHz solid state transmitter/driver M-FS-20152	B68-10545	01	TRANSPONDERS		
Low-loss C-band parasitic probe KSC-09348	B69-10251	01	Oceanborne transponder platform has good stability M-FS-171	B65-10035	05
Self-shielding printed circuit boards for high frequency amplifiers and transmitters HQ-10433	B69-10314	01	Frequency offset in linear FM/CW transponder eliminates clutter M-FS-249	B65-10146	01
Automatic calorimetry system monitors RF power NPO-11033	B69-10384	01	Interference effects eliminated in random oriented space station antenna system MSC-11004	B67-10435	01
Estimation of signal-to-noise ratios XNP-05254	B69-10557	01	Communication system features dual mode range acquisition plus time delay measurement M-FS-14323	B68-10306	01
Versatile telemonitoring system ARG-10339	B69-10655	01	Combination ranging system and mapping radar NPO-11001	B69-10325	01
PCM synchronization by word stuffing NPO-10688	B69-10695	01	TRANSPORT PROPERTIES		
Pocket-sized tone-modulated FM transmitter NPO-11180	B69-10725	01	Computer programs for thermodynamic and transport properties of hydrogen NUC-10537	B68-10150	06
TRANSONIC FLOW			High-speed pulse camera MSC-11353	B68-10329	02
Computer program calculates peripheral water injection cooling of axisymmetric subsonic diffuser NUC-10541	B67-10543	06	Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06
TRANSONIC WIND TUNNELS			GAMBIT program NUC-10243	B69-10433	06
Experimental program to investigate transonic flow around protuberances M-FS-20037	B69-10609	05	Ionene membrane battery separator NPO-11091	B69-10501	03
TRANSPARENCY			Properties of air and combustion products of fuels with air LEWIS-11030	B69-10711	03
Variable-transparency wall regulates temperatures of structures LANGLEY-25	B63-10528	03	Surface-renewal models for heat-transfer between walls and fluidized beds ARG-10372	B69-10772	02
Use of photographs speeds inspection of printed-circuit boards MSC-72	B64-10118	01			
Simple scale interpolator facilitates					

SUBJECT INDEX

TRIGGER CIRCUITS

TRANSPORT THEORY

Computer program /P1-GAS/ calculates the
P-0 and P-1 transfer matrices for neutron
moderation in a monatomic gas
NUC-10141 B67-10678 06

TRANSPORTATION

Universal transloader moves delicate equipment
without stress
MSC-654 B66-10384 05

Carriage system remotely moves drawer over
extended distance
NU-0092 B66-10711 05

Swing-out rail system separates overhead
crane rails
NU-0094 B66-10713 05

Hydrostatic force used to handle outsized,
heavy objects
HQ-90 B67-10167 05

Instrumentation monitors transported
material through variety of parameters
M-FS-12938 B67-10545 01

Packaging criteria for transportation and
handling shock and vibration
M-FS-13007 B68-10219 05

Computer graphics data conditioning
M-FS-14695 B68-10296 06

Weight Control System
M-FS-15028 B69-10041 06

TRANSURANIUM ELEMENTS

Nitric acid-organic mixtures surveyed for
use in separation by anion exchange methods
ARG-10065 B68-10425 03

TRANSVERSE WAVES

Computer program for determination of
natural frequencies of closed spherical
sandwich shells
MSC-1246 B67-10279 06

TRAPEZOIDS

Antenna configurations provide polarization
diversity
GSFC-74 B66-10066 01

TRAPPING

Method for determining properties of
microinstabilities of a magnetized plasma
HQ-10447 B69-10462 02

TRAVELING WAVE MASERS

Superconductor magnets used for stagger-tuning
traveling-wave maser
GSFC-292 B65-10165 01

Parametric up-converter increases flexibility
of maser
KSC-67-98 B67-10104 01

Apparatus makes klystron operating
frequency adjustable from remote point
NPO-09831 B67-10514 01

Highly stable microwave delay line
NPO-09828 B67-10642 01

Thermal short improves sensitivity of
cryogenically cooled maser
NPO-09975 B68-10059 01

Improved traveling wave maser amplifier
NPO-10548 B68-10244 01

RF noise suppression using the
photodielectric effect in semiconductors
MSC-12259 B69-10225 01

TRAVELING WAVE TUBES

Traveling-wave tube circuit simplifies
microwave relay
GSFC-299 B65-10127 01

A positive taper traveling-wave tube
LANGLEY-10263 B69-10407 01

TRAYS

Viscous-pendulum damper suppresses structural
vibrations
LANGLEY-45 B64-10272 05

Mass culture of photobacteria to obtain
luciferase
GSFC-10563 B69-10294 04

TREADS

Lateral ring metal elastic wheel absorbs
shock loading
M-FS-1312 B66-10663 05

TRIANGULATION

Apparatus of small size can be extended into
long, rigid boom
JPL-305 B63-10200 05

TRIGGER CIRCUITS

Unmanned seismometer levels self, corrects
drift errors
GSFC-100 B63-10551 01

Transistorized trigger circuit is frequency-
controllable
GSFC-111 B63-10553 01

System selects framing rate for spectrophotograph
camera
LANGLEY-55 B65-10086 01

Compact SCR trigger circuit for ignitron
switch operates efficiently
M-FS-371 B65-10347 01

Security warning system monitors up to
fifteen remote areas simultaneously
KSC-66-39 B66-10548 01

Circuit multiplies pulse width modulation,
exhibits linear transfer function
HQ-56 B67-10055 01

TV synchronization system features
stability and noise immunity
JPL-915 B67-10118 01

Modified univibrator compensates for output
timing errors
ARG-85 B67-10130 01

Laboratory pulse modulator uses minority
carrier storage diodes
M-FS-2442 B67-10226 01

A calibration means for spectrum analyzers
MSC-10987 B67-10254 01

Multichannel pulse height analyzer is
inexpensive, features low power
requirements
HQN-10020 B67-10258 01

SiC/Si diode trigger circuit provides
automatic range switching for log amplifier
M-FS-1879 B67-10314 01

Logic circuit detects both present and
missing negative pulses in superimposed
wave trains
M-FS-12518 B67-10565 01

Temperature-stabilized, triggerable
microelectronic astable multivibrator
starts reliably
MSC-1173 B67-10624 01

Unique frequency-shift-keyed demodulation
system
GSFC-217 B67-10668 01

High-speed camera synchronization
M-FS-18062 B68-10282 02

Transistorized Marx bank pulse circuit

TRIGONOMETRIC FUNCTIONS

SUBJECT INDEX

provides voltage multiplication with nanosecond rise-time ARG-10110	B68-10328	01	KSC-10060	B69-10215	01
Schmitt trigger multivibrator MSC-10955	B69-10143	01	TUBE GRIDS		
Positive and negative output circuits LEWIS-10715	B69-10151	01	Solar X-ray spectrum reproduced in vacuum MSC-228	B67-10164	02
TRIGONOMETRIC FUNCTIONS			X-ray source uses interchangeable target anodes to vary X-ray wavelength NPO-10036	B67-10218	02
Circuit operates as sine function generator MSC-255	B66-10038	01	High-temperature, gas-filled ceramic rectifiers, thyratrons, and voltage-reference tubes LEWIS-90271	B69-10376	01
Wide-band doubler and sine wave quadrature generator NPO-11133	B69-10383	01	TUBE HEAT EXCHANGERS		
TRIGONOMETRY			Complementary system vaporizes subcooled liquid, improves transformer efficiency M-FS-550	B66-10045	02
Instrument accurately measures weld angle and offset M-FS-12849	B67-10563	05	Heat exchanger tubes supported in high vibration environment M-FS-1401	B66-10567	05
TRIODES			Ultra-high-flux heat exchanger M-FS-18135	B69-10201	02
Meter accurately measures flow of low-conductivity fluids JPL-0021	B63-10280	01	TUBES		
Application of the solid lubricant molybdenum disulfide by sputtering LEWIS-10544	B68-10340	03	Break-up of metal tube makes one-time shock absorber, bars rebound LANGLEY-1A	B63-10304	05
TRIPODS			New nut and sleeve improve flared connections M-FS-194	B65-10180	05
Instrument quickly transposes ground reference target to eye level MSC-275	B66-10061	05	Strainer fits inside flared-tube fittings LANGLEY-180	B65-10388	05
Alignment tool facilitates pin placement on irregular horizontal surfaces LANGLEY-219	B66-10410	05	Metal tube can be folded for compact storage, is self-erecting LEWIS-288	B66-10450	05
TRITIUM			Selective tube roughening increases heat transfer capability M-FS-599	B66-10610	05
Combustion method for assay of biological materials labeled with carbon-14 or tritium, or double-labeled ARG-10331	B69-10208	04	New electron microscope employs new video display technique ARG-158	B67-10312	03
Direct in-vial collection for liquid-scintillation assay of carbon-14 and tritium ARG-10424	B69-10412	03	Simple switch actuated by force applied over wide solid angle XNP-09808	B69-10032	01
TRUCKS			Inflatable bladder to facilitate handling of heavy objects - A concept M-FS-14272	B69-10069	05
Fifth-wheel fork truck adapter M-FS-14460	B69-10021	05	Tube welding and brazing M-FS-20348	B69-10085	05
TRUNCATION ERRORS			Fuel element concept for long life high power nuclear reactors LEWIS-10309	B69-10154	03
Variable-mesh method of solving differential equations NPO-10515	B69-10017	02	Rectangular-bore, high-gain laser plasma tube HQ-10234	B69-10193	02
TRUSSES			Hydrogen flash lamps studied ARG-10419	B69-10411	02
Collapsible truss structure is automatically expandable GSFC-265	B65-10126	05	TUMORS		
TUBE ANODES			Uranyl phthalocyanines show promise in the treatment of brain tumors ARG-100	B67-10188	04
Solar X-ray spectrum reproduced in vacuum MSC-228	B67-10164	02	Compound equation developed for postnatal growth of birds and mammals ARG-10192	B68-10427	04
X-ray source uses interchangeable target anodes to vary X-ray wavelength NPO-10036	B67-10218	02	Neutron therapy of cancer ARG-10310	B69-10203	04
TUBE CATHODES			TUNERS		
Solar X-ray spectrum reproduced in vacuum MSC-228	B67-10164	02	Magnetron tuner has locking feature XNP-09771	B69-10119	05
Uranium isotopes quantitatively determined by modified method of atomic absorption spectrophotometry ARG-210	B67-10236	03	Tunable bandpass filter with variable		
Oscilloscope used as X-Y plotter or two-dimensional analyzer LEWIS-311	B67-10269	01			
Technique for tuning antenna systems producing negligible signal radiation					

SUBJECT INDEX

TUNGSTEN

selectivity ARC-10191	B69-10130	01	Thin carbon film serves as UV bandpass filter ERC-8	B66-10060	02
An improved atomic hydrogen frequency and time standard GSFC-10706	B69-10341	02	Refractory coating protects intricate graphite elements from high-temperature hydrogen NU-0027	B66-10084	01
TUNGSTATES Electrolytic separation of crystals of transition-metal oxides ARG-10506	B69-10642	03	High temperature thermocouple operates in reduction atmosphere NU-0046	B66-10134	01
TUNGSTEN Apparatus facilitates high-temperature tensile testing in vacuum LEWIS-42	B63-10345	03	Chromium oxide coatings improve thermal emissivity of alumina WOO-263	B66-10227	03
Novel clamps align large rocket cases, eliminate back-up bars M-FS-1	B63-10376	05	Chemical regeneration of emitter surface increases thermionic diode life LEWIS-17	B66-10435	02
New apparatus increases ion beam power density LEWIS-73	B63-10440	01	Study shows effect of surface preparations on improving thermionic emission JPL-SC-140	B66-10493	01
Precision gage measures ultrahigh vacuum levels GSFC-114	B63-10597	01	Tungsten insulated susceptor cup for high temperature induction furnace eliminates contamination LEWIS-283	B66-10538	03
Attachment converts microscope to point source autocollimator JPL-499	B64-10124	05	Tungsten fiber-reinforced copper composites form high strength electrical conductors LEWIS-338	B66-10572	03
Pressure molding of powdered materials improved by rubber mold insert WOO-100	B64-10270	03	Sensors measure surface ablation rate of reentry vehicle heat shield LANGLEY-287	B66-10592	01
Fine-mesh screen made by simplified method WOO-104	B64-10282	03	Plasma jet electrode has longer operating life NU-0098	B67-10024	02
Forming blocks speed production of strain gage grids LEWIS-182	B65-10009	05	Sensing disks for slug-type calorimeters have higher temperature stability M-FS-1867	B67-10161	01
Carbon arc ignition improved by simple auxiliary circuit MSC-103	B65-10018	01	Electron beam welder X-rays its own welds LEWIS-10111	B67-10216	02
Wire winding increases lifetime of oxide coated cathodes LEWIS-154	B65-10032	03	Welding, bonding, and sealing of refractory metals by vapor deposition LEWIS-123	B67-10232	03
Ceramic-coated boat is chemically inert, provides good heat transfer LANGLEY-90	B65-10063	05	Water cooled anode increases life of high temperature arc lamp NPO-10180	B67-10247	02
Jig and fixture aid fabrication of tungsten rivets LEWIS-185	B65-10101	05	Self-balancing line-reversal pyrometer automatically measures gas temperatures LEWIS-348	B67-10268	01
Tantalum cathode improves electron-beam evaporation of tantalum JPL-WOO-021	B65-10175	03	Portable spectrometer monitors inert gas shield in welding process M-FS-12144	B67-10326	02
Refractory metal shielding /insulation/ increases operating range of induction furnace LEWIS-202	B65-10188	02	Extrusion of small-diameter, thin-wall tungsten tubing LEWIS-90335	B67-10355	05
Thermoelectric elements diffusion-bonded to tungsten electrodes GSFC-346	B65-10309	01	Electron beam parallel X-ray generator MSC-11022	B67-10372	02
Wire bundle formed into grids with minute interstices WOO-089	B65-10372	03	Torque meter aids study of hysteresis motor rings M-FS-12215	B67-10412	01
Tungsten wire and tubing joined by nickel brazing M-FS-394	B65-10391	05	Thoriated tungsten tube provides improved high temperature thermocouple sheath NUC-10145	B67-10627	03
Electron beam seals outer surfaces of porous bodies M-FS-562	B66-10033	03	Reinforced thermal-shock resistant ceramics LEWIS-10376	B68-10085	03
Protective coating withstands high temperature in oxidizing atmosphere M-FS-529	B66-10044	03	High temperature alloy LEWIS-10377	B68-10253	03
Heated die facilitates tungsten forming LEWIS-25A	B66-10047	05	Fabrication techniques developed for small- diameter, thin-wall tungsten and tungsten alloy tubing ARG-10100	B68-10284	05

TUNGSTEN ALLOYS

SUBJECT INDEX

Application of the solid lubricant molybdenum disulfide by sputtering LEWIS-10544	B68-10340	03	ARG-10202	B69-10053	03
Nickel base alloy with improved stress rupture properties LEWIS-10283	B68-10344	03	TUNGSTEN CARBIDES		
Nickel-base superalloy*s excellent properties promote its service to 2200 degrees F LEWIS-10355	B68-10380	03	Continuous internal channels formed in aluminum fusion welds M-FS-2399	B67-10183	05
Grain growth inhibitor for porous tungsten materials LEWIS-10535	B68-10527	03	Flare angles measured with ball gage M-FS-14690	B68-10030	01
Method for controlling density and permeability of sintered powdered metals LEWIS-10393	B68-10528	03	TUNGSTEN FLUORIDES		
Cold machining of high density tungsten and other materials ARG-10289	B69-10110	05	Refractory-metal compound impregnation of polytetrafluoroethylene LEWIS-10733	B69-10072	03
Tungsten thermal neutron dosimeter LEWIS-10880	B69-10249	02	TUNGSTEN OXIDES		
Study of high temperature bearing materials LEWIS-10829	B69-10252	03	Multilayer refractory nozzles produced by plasma-spray process WOO-318	B66-10611	05
High strength, superplastic superalloy LEWIS-10805	B69-10293	03	TUNING		
Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03	Helical coaxial-resonator makes excellent RF filter GSFC-243	B65-10012	01
Conversion of continuous-direct-current TIG welder to pulse-arc operation M-FS-16411	B69-10393	05	Device for diode tuning in a stripline varactor harmonic multiplier M-FS-20153	B69-10013	01
Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01	Technique for tuning antenna systems producing negligible signal radiation KSC-10060	B69-10215	01
TUNGSTEN ALLOYS			Resonant microwave dichroic surface GSFC-10658	B69-10274	01
Brazing method produces solid-solution bond between refractory metals LEWIS-212	B65-10370	05	Simple, accurate automatic frequency control circuit KSC-10393	B69-10323	01
Nickel-base superalloys developed for high-temperature applications LEWIS-226	B66-10222	03	Automatic tuning of hydrogen masers GSFC-10127	B69-10452	01
Lower-cost tungsten-rhenium alloys LEWIS-332	B66-10528	03	Proposed accusto-optic filter HQ-10440	B69-10466	02
New tungsten alloy has high strength at elevated temperatures LEWIS-336	B66-10551	03	TUNNEL DIODES		
Low-energy gamma ray inspection of brazed aluminum joints MSC-1189	B67-10337	02	Monostable circuit with tunnel diode has fast recovery GSFC-132	B63-10603	01
High-strength tungsten alloy with improved ductility LEWIS-10257	B67-10340	03	Circuit converts AM signals to FM for magnetic recording GSFC-227	B65-10001	01
Cobalt-tungsten, ferromagnetic high-temperature alloy LEWIS-10378	B68-10095	03	Tunnel-diode circuit features zero-level clipping GSFC-241	B65-10002	01
Tungsten-rhenium alloy thermocouples effective for high-temperature measurement ARG-10059	B68-10109	03	Synchronized pulse generator needs no external power GSFC-274	B65-10072	01
Fabrication techniques developed for small-diameter, thin-wall tungsten and tungsten alloy tubing ARG-10100	B68-10284	05	Simple circuit produces high-speed, fixed duration pulses GSFC-285	B65-10228	01
Tungsten fiber-reinforced nickel superalloy LEWIS-10424	B68-10369	03	Constant-current regulator improves tunnel diode threshold-detector performance GSFC-239	B65-10282	01
Refractory oxide insulated thermocouple designed and analyzed for high temperature applications			Threshold detector produces narrow pulses at high repetition rates GSFC-383	B65-10310	01
			Hybrid circuit achieves pulse regeneration with low power drain GSFC-382	B65-10314	01
			Digitally controlled pulse-level discriminator operates over wide voltage range GSFC-324	B66-10129	01
			Circuit protects regulated power supply against overload current GSFC-453	B66-10292	01
			Solid-state time-to-pulse-height converter developed		

SUBJECT INDEX

TURBOMACHINERY

ARG-170	B67-10053	01	Design and testing of liquid hydrogen-cooled, ultrahigh-speed ball bearings	B69-10178	05
Tunnel diode circuit used as nanosecond-range time marker					
ARG-90164	B68-10173	01	TURBINE WHEELS		
Pressure-sensitive bonded junction transducers			Ball bearing used in design of rugged flowmeter		
ERC-10087	B68-10563	01	LEWIS-159	B64-10170	05
Simple tunnel diode circuit for accurate zero crossing timing			Simple key locks turbine rotor blades		
ARG-10309	B69-10116	01	W00-103	B66-10023	05
Manganese-56 coincidence-counting facility precisely measures neutron-source strength			Turbine blade root design concept promises superior alignment		
ARG-90261	B69-10621	01	M-FS-1685	B66-10620	05
Miniature backward-diode pressure sensor features stability and low power consumption			Inflatable bladder to facilitate handling of heavy objects - A concept		
ERC-10229	B69-10690	01	M-FS-14272	B69-10069	05
TURBIDITY			TURBINES		
Life detection			Air brake-dynamometer accurately measures torque		
NPO-10510	B69-10475	04	LEWIS-163	B65-10312	05
TURBINE BLADES			Design eliminates radial thermal expansion in turbine stator components		
Turbine blade root design concept promises superior alignment			M-FS-18146	B68-10531	05
M-FS-1685	B66-10620	05	Combination probe for airflow measurements		
Nickel base alloy with improved stress rupture properties			LEWIS-10281	B68-10558	01
LEWIS-10283	B68-10344	03	Radial inflow turbine design charts		
Computer program for off-design performance of radial inflow turbines			LEWIS-10720	B68-10567	05
LEWIS-10764	B69-10267	06	Channel-wall limitations in the magnetohydrodynamic induction generator		
TURBINE INSTRUMENTS			ARG-10128	B69-10255	02
A theoretical model for determining turbine flowmeter sensitivity			Computer program for off-design performance of radial inflow turbines		
M-FS-1172	B67-10179	01	LEWIS-10764	B69-10267	06
Circuit automatically calibrates flowmeter against liquid-level gage reference			Automatic calorimetry system monitors RF power		
M-FS-2194	B67-10376	01	NPO-11033	B69-10384	01
Performance of turbine-type flowmeters in liquid hydrogen			TURBOCOMPRESSORS		
LEWIS-10137	B67-10506	01	Simple key locks turbine rotor blades		
High-pressure gas facilitates calibration of turbine flowmeters for liquid hydrogen			W00-103	B66-10023	05
LEWIS-10402	B68-10145	01	Noise study of single stage compressor rotor-stator interaction		
Dynamic calibration of turbine flowmeters			LANGLEY-137	B67-10516	02
LEWIS-11014	B69-10764	01	Computer programs for axial flow compressor design		
TURBINE PUMPS			LEWIS-10765	B69-10174	06
Fluid pressure used to test turbopump bearings			TURBOGENERATORS		
NU-0001	B65-10024	03	Potassium plasma cell facilitates thermionic energy conversion process		
Run-in with chemical additive protects gear surface			ARG-10010	B67-10399	01
M-FS-548	B66-10069	05	Study of high temperature bearing materials		
Auxiliary titanium sublimation pump produces ultrahigh /10 to the minus 11 torr/ vacuum			LEWIS-10829	B69-10252	03
LANGLEY-212	B66-10388	02	TURBOJET ENGINES		
Thin plastic sheet eliminates need for expensive plating			Simple key locks turbine rotor blades		
M-FS-1896	B66-10681	03	W00-103	B66-10023	05
Honeycomb seal backing ring increases turbopump disk life			TURBOMACHINE BLADES		
M-FS-13303	B67-10607	05	MAGNTY - Program for calculating velocities in magnified region of turbomachines		
Between-bearing shaft seal, a concept			LEWIS-10789	B69-10132	06
M-FS-18179	B68-10286	05	FORTAN 4 program calculates velocities and streamlines in a tandem blade turbomachine		
Heat transfer coefficients for liquid hydrogen turbopumps			LEWIS-10743	B69-10219	06
M-FS-18345	B68-10517	02	TURBOMACHINERY		
Design eliminates radial thermal expansion in turbine stator components			Computer program performs flow analysis through turbines		
M-FS-18146	B68-10531	05	LEWIS-236	B66-10496	01
			Computer program simplifies design of rotating components of turbomachinery		
			NUC-10046	B67-10235	06

TURBULENCE

SUBJECT INDEX

Computer program calculates velocities and streamlines in turbomachines
LEWIS-10252 B68-10097 06

Computer program analyzes whirl critical speeds and bearing loads for shafts coupled by nonlinear springs to machine housing
NUC-10308 B69-10034 06

Improved design of item in high speed rotating machinery
M-FS-18441 B69-10373 05

A rotating, noncapillary heat pipe
LEWIS-10298 B69-10684 05

TURBULENCE
Large volume continuous counterflow dialyzer has high efficiency
HQ-10055 B67-10395 04

Fast-response cup anemometer features cosine response
ARG-90193 B68-10202 01

TURBULENCE EFFECTS
Experimental design for research on shock-turbulence interaction
M-FS-20031 B69-10604 02

TURBULENCE METERS
Study of hot wire techniques in low density flows with high turbulence levels
M-FS-1269 B66-10687 01

Laser-Doppler gas-velocity instrument
M-FS-20039 B68-10349 02

TURBULENT BOUNDARY LAYER
Binary fluid amplifier solves stability and load problems
ERC-15 B66-10177 01

Thin-film gage measures low heat-transfer rates
LANGLEY 205 B66-10180 01

Experimental program to investigate transonic flow around protuberances
M-FS-20037 B69-10609 05

TURBULENT DIFFUSION
Characteristics of fluidized-packed beds
ARG-10049 B68-10278 03

TURBULENT FLOW
Concept for passive system to control gas flow independently of temperature
M-FS-982 B66-10343 05

Stationary device produces homogeneous mixture of fluids
M-FS-525 B66-10570 05

Study of hot wire techniques in low density flows with high turbulence levels
M-FS-1269 B66-10687 01

Local measurements in turbulent flows through cross correlation of optical signals
M-FS-1268 B67-10030 01

Study made of thin-walled pipe response to turbulent fluids
M-FS-1321 B67-10518 05

Prediction of friction coefficients for gases
LEWIS-10774 B69-10112 02

FORTRAN 4 program calculates velocities and streamlines in a tandem blade turbomachine
LEWIS-10743 B69-10219 06

TURBULENT HEAT TRANSFER
Variable-mesh method of solving differential equations
NPO-10515 B69-10017 02

TURRET
Metallographic holding fixture permits polishing of soft metals on vibratory lapping machine
ARG-42 B66-10562 05

TURRET LATHES
Tool post modification allows easy turret lathe cutting-tool alignment
M-FS-581 B66-10191 05

TWISTING
Improved electromechanical master-slave manipulator
ARG-10027 B68-10372 05

TWO BODY PROBLEM
Computer program for mass optional solutions of some endpoint trajectory problems
M-FS-12976 B67-10310 06

TWO DIMENSIONAL FLOW
Study of hot wire techniques in low density flows with high turbulence levels
M-FS-1269 B66-10687 01

TWO PHASE FLOW
Helium tube separates nitrogen gas from liquid nitrogen
JPL-398 B63-10251 05

Mixer conditions temperature of liquified gas streams
M-FS-1784 B66-10565 02

Self-sustained hydrodynamic oscillations in a natural-circulation two-phase-flow boiling loop
ARG-10461 B69-10620 02

TYPEWRITERS
On-line computer system for use with low-energy nuclear physics experiments is reported
ARG-10257 B69-10094 01

U

UDINET ALLOYS
Technique for predicting the thermal expansion coefficients of cryogenic metallic alloys
NUC-10554 B69-10707 02

ULLAGE
Thermodynamic properties related to expansion of two-component gas
MSC-1133 B67-10112 03

Test instrumentation evaluates electrostatic hazards in fluid system
M-FS-2277 B67-10145 01

Elimination of dissolved gases in hypergolic engine propellants
M-FS-16179 B69-10692 03

ULTRAHIGH FREQUENCIES
Increased junction lead inductance ballasts high-frequency transistors
GSFC-387 B65-10259 01

Mechanical device accurately measures rf phase differences in vhf or uhf ranges
M-FS-1738 B66-10694 05

Experimental coherent fractional frequency multiplier at S-band
M-FS-2427 B67-10250 01

Ultraminiature television camera
M-FS-11967 B67-10469 01

Reflectometer for receiver input system
NPO-10843 B67-10657 01

Improved traveling wave maser amplifier
NPO-10548 B68-10244 01

SUBJECT INDEX

ULTRASONIC WAVE TRANSDUCERS

Survey of man-made electrical noise affecting radio broadcasting HQ-10290	B69-10308	01	ULTRASONIC TESTS	Fatigue cracks detected and measured without test interruption LEWIS-266	B66-10178	02
ULTRAHIGH VACUUM			Ultrasonic recording scanner used for nondestructive weld inspection M-FS-284		B66-10220	01
Ion pump provides increased vacuum pumping speed NEO-13	B65-10239	02	Ultrasonic hand tool allows convenient scanning of spot welds M-FS-539		B66-10289	02
Baking enables McLeod gauge to measure in ultrahigh vacuum range GSFC-440	B65-10329	01	Ultrasonic emission method enables testing of adhesive bonds M-FS-799		B66-10341	01
Special treatment reduces helium permeation of glass in vacuum systems HQ-25	B66-10372	02	Ultrasonic quality inspection of bonded honeycomb assemblies is automated MSC-859		B66-10544	01
Auxiliary titanium sublimation pump produces ultrahigh /10 to the minus 11 torr/ vacuum LANGLEY-212	B66-10388	02	Ultrasonic water column probe speeds up testing of welds HQ-58		B66-10577	01
High-temperature thermionic emission microscope NPO-10584	B68-10516	01	Correlation established between heat transfer and ultrasonic transmission properties of copper braze bonds ARG-247		B67-10037	02
Liquid gallium rotary electric contract LEWIS-10828	B69-10138	03	Calibrating ultrasonic test equipment for checking thin metal strip stock NUC-10009		B67-10127	01
ULTRAPURE METALS			Improved ultrasonic TV images achieved by use of Lamb-wave orientation technique ARG-203		B67-10295	02
Process yield Co-Fe alloys with superior high temperature magnetic properties LEWIS-333	B66-10535	03	Braze joint quality tested electromagnetically M-FS-12795		B67-10333	01
ULTRASONIC AGITATION			Study of stress corrosion in aluminum alloys M-FS-13906		B67-10533	03
High purity electroforming yields superior metal models ARC-6	B63-10007	05	Plastic shoe facilitates ultrasonic inspection of thin wall metal tubing NUC-10010		B67-10542	02
Metals plated on fluorocarbon polymers JPL-544	B63-10612	03	Nondestructive testing techniques used in analysis of honeycomb structure bond strength M-FS-1214		B67-10574	01
Miniature bearings lubricated by sonic dispersion method M-FS-202	B65-10106	03	Ballpoint probe gives optimum results in ultrasonic testing M-FS-13590		B67-10620	01
Ultrasonic cleaning restores depth-type filters M-FS-540	B66-10298	03	Evaluation of methods for nondestructive testing of brazed joints ARG-90175		B68-10191	03
Silver-palladium braze alloy recovered from masking materials M-FS-1845	B66-10631	03	Automatic system nondestructively monitors and records fatigue crack growth LANGLEY-10091		B68-10379	01
Ionene membrane battery separator NPO-11091	B69-10501	03	Nondestructive testing of brazed rocket engine components M-FS-18191		B68-10394	03
ULTRASONIC MACHINING			Stress-corrosion-induced property changes in aluminum alloys M-FS-20209		B68-10568	03
Ultrasonic wrench produces leaktight connections M-FS-12561	B67-10353	05	Handbooks for nondestructive testing using ultrasonics M-FS-20409		B69-10108	03
Elimination of dissolved gases in hypergolic engine propellants M-FS-16179	B69-10692	03	Effects of high-pressure hydrogen on storage vessel materials M-FS-18605		B69-10730	03
ULTRASONIC RADIATION			ULTRASONIC WAVE TRANSDUCERS			
Improved ultrasonic TV images achieved by use of Lamb-wave orientation technique ARG-203	B67-10295	02	Fatigue cracks detected and measured without test interruption LEWIS-266		B66-10178	02
Ultrasonics used to measure residual stress M-FS-12449	B67-10428	02	Ultrasonic recording scanner used for			
One hundred angstrom niobium wire LEWIS-10128	B68-10279	03				
Stress-corrosion-induced property changes in aluminum alloys M-FS-20209	B68-10568	03				
Generation of sonic power during welding M-FS-20339	B69-10404	05				
ULTRASONIC SOLDERING						
Inspection criteria ensure quality control of parallel gap soldering M-FS-14530	B68-10257	05				

ULTRASONICS

SUBJECT INDEX

nondestructive weld inspection H-FS-284	B66-10220	01	Self-supported aluminum thin films produced by vacuum deposition process ARC-58	B66-10387	03
An ultrasonic method for studying elastic moduli as a function of temperature ARG-10187	B69-10082	02	Dielectrometer design permits measurement in vacuum under irradiation M-FS-359	B66-10401	01
Nondestructive testing of welds on thin-walled tubing M-FS-18144	B69-10402	01	A continuously operating source of vacuum ultraviolet below 500 angstrom GSFC-545	B66-10576	01
ULTRASONICS			Photosensitive filler minimizes internal stresses in epoxy resins M-FS-1830	B67-10227	03
Ultrasonics permits brazing complex stainless steel assembly without flux NU-0115	B67-10094	05	Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations ARG-251	B67-10305	04
Development of mechanized ultrasonic scanning system M-FS-13638	B68-10004	05	Lamp enables measurement of oxygen concentration in presence of water vapor MSC-10043	B67-10387	01
New camera tube improves ultrasonic inspection system ARG-90237	B68-10088	01	Tool samples subsurface soil free of surface contaminants MSC-10988	B67-10473	05
Ultrasonic temperature measuring device LEWIS-10446	B68-10319	01	Fluorescent particles enable visualization of gas flow M-FS-14583	B68-10259	02
Stress-corrosion-induced property changes in aluminum alloys M-FS-20209	B68-10568	03	High-voltage pulse generator developed for wide-gap spark chambers ARG-10136	B68-10283	01
An ultrasonic method for studying elastic moduli as a function of temperature ARG-10187	B69-10082	02	Coolants with selective optical filtering characteristics for ruby laser applications M-FS-20188	B68-10508	02
Technique for ultrasonic cleaning with volatile solvents eliminates need for hoods or condensers MSC-15611	B69-10552	03	Imprinting of confining sites for cell cultures on thermoplastic substrates LANGLEY-10495	B69-10236	04
ULTRAVIOLET FILTERS			The Quantasyn, an improved quantum detector ERC-10148	B69-10443	01
PTFE-aluminum films serve as neutral density filters LANGLEY-189	B66-10017	02	Ion mass spectrometer for special uses HQ-10418	B69-10510	02
Thin carbon film serves as UV bandpass filter ERC-8	B66-10060	02	Multichannel spectroscopy guide HQ-10441	B69-10550	01
Improved method of optical design GSFC-10743	B69-10405	02	Two-color holography HQ-10349	B69-10662	02
ULTRAVIOLET MICROSCOPY			ULTRAVIOLET REFLECTION		
Ultraviolet microscopy aids in cytological and biomedical research ARG-178	B67-10590	04	Self-supported aluminum thin films produced by vacuum deposition process ARC-58	B66-10387	03
ULTRAVIOLET PHOTOMETRY			Uniform reflective films deposited on large surfaces GSFC-507	B66-10483	02
Ultraviolet photographic pyrometer used in rocket exhaust analysis M-FS-499	B66-10095	02	ULTRAVIOLET SPECTRA		
UV detector monitors organic contamination of optical surfaces M-FS-20246	B68-10413	01	Design concept for improved photo-scan tube JPL-818	B67-10157	01
ULTRAVIOLET RADIATION			ULTRAVIOLET SPECTROMETERS		
Oil-smeared models aid wind tunnel measurements LANGLEY-4	B63-10311	03	Thin carbon film serves as UV bandpass filter ERC-8	B66-10060	02
Instrument accurately measures extremely low air densities M-FS-193	B65-10221	01	Glancing incidence telescope for far ultraviolet and soft X-rays GSFC-10052	B67-10508	02
Improved carbon electrode reduces arc sputtering MSC-219	B66-10026	01	ULTRAVIOLET SPECTROPHOTOMETERS		
Sensor detects hydrocarbon oil contaminants in fluid lines M-FS-522	B66-10068	01	Spectrophotometric technique quantitatively determines NaMBT inhibitor in ethylene glycol-water solutions MSC-11496	B67-10573	03
Plastic scintillator converts standard photomultiplier to ultraviolet range ERC-9	B66-10108	02	ULTRAVIOLET SPECTROSCOPY		
Hydrogen fire detection system features sharp discrimination M-FS-643	B66-10368	01	The preparation, identification and properties of chlorophyll derivatives ARG-10205	B68-10409	03

SUBJECT INDEX

URANIUM COMPOUNDS

UMBILICAL CONNECTORS

Lock-disconnect mechanism gives positive release to joined bodies
M-FS-2147 B67-10123 05

UNDAMPED OSCILLATIONS

Damping technique gives accelerometer flat frequency response
M-FS-471 B66-10293 01

A modal combination computer program for dynamic analysis of structures
NPO-10129 B67-10217 06

UNDERGROUND EXPLOSIONS

Transplutonium elements processed from rock debris of underground detonations
ARG-10222 B69-10054 03

UNDERWATER ACOUSTICS

System locates randomly placed remote objects
LANGLEY-209 B66-10315 01

UNDERWATER ENGINEERING

Electronic skewing circuit monitors exact position of object underwater
NUC-10146 B67-10629 01

Multi-purpose tool mitten
HQ-10047 B69-10483 05

UNDERWATER STRUCTURES

Flexible fastener effects airtight material closure
JPL-684 B66-10304 05

UNDERWATER TESTS

Colloidal suspension simulates linear dynamic pressure profile
WOO-266 B66-10214 05

UNDERWATER VEHICLES

Device measures fluid drag on test vehicles
LANGLEY-34 B65-10195 01

Electrically heated diaphragm eliminates use of pyrotechnics
MSC-241 B65-10400 01

Ballast barge concept for underwater structures
KSC-10196 B68-10168 05

UNIFORM FLOW

Brazing retort manifold design concept may minimize air contamination and enhance uniform gas flow
M-FS-707 B66-10371 05

UNIONS (CONNECTORS)

Union would facilitate joining of tubing, minimize braze contamination
MSC-777 B66-10311 05

Ultrasonic wrench produces leaktight connections
M-FS-12561 B67-10353 05

Hand-tightened, high-pressure seal
M-FS-18416 B68-10417 05

Tube joint leak repair coupling
MSC-15022 B68-10540 05

Teflon-packed flexible joint
LEWIS-90252 B69-10049 03

UNIVAC 1107 COMPUTER

New computer system simplifies programming of mathematical equations
M-FS-441 B66-10361 01

Fortran 4 program for two-impulse rendezvous analysis
M-FS-13971 B67-10479 06

Mass spectograph analysis
MSC-13239 B69-10134 06

UNIVAC 1108 COMPUTER

CINDA - Chrysler Improved Numerical Differencing Analyzer computer program
M-FS-2298 B67-10278 06

Mass spectograph analysis
MSC-13239 B69-10134 06

JFLIP-JPL FORTRAN language with interval pre-processor
NPO-10835 B69-10187 06

Buckling Of Shells Of Revolution /BOSOR/ with various wall constructions
LANGLEY-10441 B69-10300 06

LM lookangle program
MSC-13179 B69-10370 06

UNMANNED SPACECRAFT

Rotor position sensor switches currents in brushless dc motors
GSFC-315 B65-10151 01

Feasibility study of wireless power transmission systems
M-FS-14691 B68-10309 01

An overview of electromagnetic interference problems in spacecraft
NPO-11170 B69-10362 01

UNSTEADY STATE

Method for determining properties of microinstabilities of a magnetized plasma
HQ-10447 B69-10462 02

UPSETTING

Electrical upsetting of metal sheet forms weld edge
M-FS-720 B66-10248 05

URANIUM

Use of steel and tantalum apparatus for molten Cd-Hg-Zn alloys
ARG-199 B66-10594 03

Magnesium-zinc reduction is effective in preparation of metals
ARG-10050 B67-10579 03

Simple colorimetric method determines uranium in tissue
ARG-10039 B67-10580 03

Ignition of binary alloys of uranium
ARG-10057 B68-10280 01

Study of actinide chemistry in saturated potassium fluoride solution
ARG-10204 B69-10004 03

Abrasion and resistant discharge valve developed
ARG-10219 B69-10044 05

URANIUM ALLOYS

Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels
ARG-232 B67-10032 03

Ignition of binary alloys of uranium
ARG-10057 B68-10280 01

Niobium-uranium alloys with voids of predetermined size and total volume
ARG-10490 B69-10641 03

URANIUM COMPOUNDS

Study of mechanical properties of uranium compounds
ARG-10074 B68-10197 03

Sintering characteristics and properties of PuS and PuP are determined
ARG-10228 B69-10058 03

Effect of interparticle forces on the

URANIUM FLUORIDES

SUBJECT INDEX

fluidization of fine particles ARG-10264	B69-10195	03	ARG-208	B67-10129	04
URANIUM FLUORIDES			Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry NPO-10149	B67-10245	04
Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels ARG-232	B67-10032	03	Microdetermination of urea in urine using p-dimethylaminobenzaldehyde /PDAB/ NPO-10715	B69-10317	04
Study of fluoride corrosion of nickel alloys ARG-10224	B69-10048	03	UTILIZATION		
URANIUM ISOTOPIES			Computer program conducts facilities utilization and occupancy survey NPO-10326	B67-10476	06
Uranyl phthalocyanines show promise in the treatment of brain tumors ARG-100	B67-10188	04	Computer program conducts facilities utilization and occupancy survey NPO-10438	B68-10137	06
Uranium isotopes quantitatively determined by modified method of atomic absorption spectrophotometry ARG-210	B67-10236	03	V		
URANIUM OXIDES			V GROOVES		
Crucible cast from beryllium oxide and refractory cement is impervious to flux and molten metal ARG-22	B66-10527	03	Labyrinth-type valve seat increases valve life by decreasing fluid velocity M-FS-1051	B66-10424	05
Characteristics of fluidized-packed beds ARG-10049	B68-10278	03	Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133	B67-10437	03
URANIUM 232			VACANCIES (CRYSTAL DEFECTS)		
Daughter growth in freshly separated Ra-226, Ac-227 and U-232 ARG-10226	B69-10003	02	Reaction rates of graphite with ozone measured by etch decoration ARG-10086	B68-10101	03
URANIUM 235			VACUUM		
Computer program FPIP-REV calculates fission product inventory for U-235 fission NUC-10089	B67-10450	06	Indium foil with beryllia washer improves transistor heat dissipation GSFC-42	B63-10033	01
Neutron therapy of cancer ARG-10310	B69-10203	04	New method forms bond line free of voids LANGLEY-20	B63-10558	05
UREAS			Multiple port pressure scanner valve features greater accuracy, quicker data JPL-555	B64-10031	05
Large volume continuous counterflow dialyzer has high efficiency HQ-10055	B67-10395	04	Encapsulation process sterilizes and preserves surgical instruments JPL-484	B64-10066	05
Microdetermination of urea in urine using p-dimethylaminobenzaldehyde /PDAB/ NPO-10715	B69-10317	04	Simple control device senses solar position JPL-638	B65-10061	01
URETHANES			Vibrating diaphragm measures high electrostatic field strengths MSC-189	B65-10352	01
Composite seal reduces alkaline battery leakage GSFC-337	B65-10271	01	Portable tool removes burrs from pipe and tubing MSC-237	B65-10360	05
White primer permits a corrosion-resistant coating of minimum weight M-FS-304	B66-10207	03	Wire bundle formed into grids with minute interstices WOO-089	B65-10372	03
Grit blasting nozzle fabricated from mild tool steel proves satisfactory M-FS-1420	B66-10597	05	Transducer measures force in vacuum environment LEWIS-218	B66-10161	01
New class of thermosetting plastics has improved strength, thermal and chemical stability LEWIS-10108	B67-10197	03	Welds chilled by liquid coolant manifold M-FS-679	B66-10354	05
Adhesive for cryogenic temperature applications LEWIS-10264	B69-10074	03	Brushless dc motor has high efficiency, long life GSFC-181	B66-10355	01
Balloon batteries, charged and heated by solar energy GSFC-10769	B69-10585	01	Modular Porous Plate Sublimator /NPPS/ requires only water supply for coolant M-FS-1374	B66-10409	01
URINALYSIS			Leak locator for vacuum jacketed pipelines eliminates need for removal of outer jacket M-FS-888	B66-10412	01
Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry NPO-10149	B67-10245	04	Rubber and alumina gaskets retain vacuum seal in high temperature EMF cell ARG-17	B66-10472	05
URINE					
Ion exchange determines iodine-131 concentration in aqueous samples					

SUBJECT INDEX

VACUUM CHAMBERS

Technique for measuring absorptance and emittance by using cyclic incident radiation LEWIS-321 B66-10630	02	Low rate flow switch can be used for gas or liquid JPL-867 B66-10696	01
Predicting surface heating rates and pressures resulting from hot exhaust gases MSC-971 B66-10633	05	Aspirator increases relief valve poppet stroke HQ-77 B67-10154	05
Study made of destructive sectioning of complex structures for examination LEWIS-341 B66-10676	05	Fixture facilitates helium leak testing of pipe welds M-FS-2167 B67-10178	05
Inexpensive cryogenic insulation replaces vacuum jacketed line NUC-10061 B67-10264	02	Jacketed cryogenic piping is stress relieved M-FS-985 B67-10308	05
Improved compression molding process LANGLEY-10027 B67-10302	03	Precision capacitor has improved temperature and operational stability ARG-189 B67-10313	01
Scribable coating for plastic films MSC-11194 B67-10409	03	Machine tests slow-speed sliding friction in high vacuum M-FS-12341 B67-10379	05
Fuel cell life improved by metallic sinter activation after electrode assembly welding MSC-10965 B67-10436	03	Vacuum-jacketed transfer line installation technique M-FS-14496 B68-10125	05
Fortran 4 program for two-impulse rendezvous analysis M-FS-13971 B67-10479	06	Vacuum probe sampler removes micron-sized particles from surfaces SAN-10003 B68-10231	04
Variable-speed, portable routing skate M-FS-13772 B67-10525	05	Conceptual dead weight device to provide pressure calibration M-FS-14672 B68-10264	01
Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide ARG-10154 B68-10293	02	A new method for fabrication of flexible vacuum purge jackets M-FS-12646 B69-10564	03
Food products for space applications MSC-11697 B68-10324	04	VACUUM CHAMBERS	
Rating of electrical wires in vacuum environments MSC-15108 B68-10362	01	Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen LEWIS-15 B63-10340	05
Insertion device for pressure testing MSC-15185 B69-10061	03	Apparatus facilitates high-temperature tensile testing in vacuum LEWIS-42 B63-10345	03
Coatings decrease metal fatigue failure ARC-10015 B69-10176	03	Vacuum-type backup bar speeds weld repairs M-FS-12 B63-10384	05
Continuous analysis of nitrogen dioxide in gas streams of plants ARG-10356 B69-10254	03	Low-cost tape system measures velocity of acceleration GSFC-85 B63-10512	01
Report on a cryogenic gyroscope NPO-11200 B69-10504	02	Test device prevents molecular bounce-back GSFC-82 B63-10546	03
Measurement of gas flow at extremely low pressures MSC-13261 B69-10522	03	Modified RF coaxial connector ends vacuum chamber wiring problem GSFC-150 B64-10010	01
Niobium-uranium alloys with voids of predetermined size and total volume ARG-10490 B69-10641	03	Ceramic-coated boat is chemically inert, provides good heat transfer LANGLEY-90 B65-10063	05
VACUUM APPARATUS		Vapor pressure measured with inflatable plastic bag GSFC-281 B65-10136	03
Connector for vacuum-jacketed lines cuts tubing system cost LEWIS-66 B63-10367	05	Heater decomposes oil backstreaming from high-vacuum pumps GSFC-356 B65-10224	02
Spherical electrode eliminates high-voltage breakdown LEWIS-155 B65-10139	01	Plastic bags in evacuated chamber make lightweight gas sampling system FRC-31 B65-10264	01
Burst diaphragm protects vacuum vessel from internal pressure transients JPL-687 B65-10236	05	Electron bombardment improves vacuum chamber efficiency LEWIS-160 B65-10280	02
Feed-through connector withstands high temperatures in vacuum environment GSFC-442 B65-10328	01	Rugged pressed disk electrode has low contact potential MSC-158 B65-10320	01
Fixed vacuum plate clamps styrofoam for machining M-FS-683 B66-10283	05	Vacuum chamber provides improved insulation and support for cryostat	
Composite bulkhead fabrication development M-FS-1264 B66-10582	05		

VACUUM DEPOSITION

SUBJECT INDEX

M-FS-415	B65-10368	02	Application of the solid lubricant molybdenum disulfide by sputtering	LEWIS-10544	B68-10340	03	
Rod and dish cathode improves penning-type vacuum gage	GSFC-447	B66-10082	01	Miniaturized King furnace permits absorption spectroscopy of small samples	ARG-10177	B68-10418	02
Apparatus measures thermal conductivity of honeycomb-core panels	LANGLEY-202	B66-10127	01	High-temperature thermionic emission microscope	NPO-10584	B68-10516	01
Vacuum test fixture improves leakage rate measurements	MSC-271	B66-10286	01	Epitaxial crystalline growth upon cold substrates	MSC-11196	B69-10494	01
Gas-injection valve operates at high speed	HQ-49	B66-10381	05	Pulsed high-voltage dc RF sputtering	LEWIS-10920	B69-10699	01
Auxiliary titanium sublimation pump produces ultrahigh /10 to the minus 11 torr/ vacuum	LANGLEY-212	B66-10388	02	VACUUM DEPOSITION			
Thin-film ferrites vapor deposited by one-step process in vacuum	MSC-259	B66-10398	03	Vacuum forming of thermoplastic sheet results in low-cost investment casting patterns	ARC-7	B63-10008	05
Dielectrometer design permits measurement in vacuum under irradiation	M-FS-359	B66-10401	01	Thermistor connector assembly increases accuracy of measurements	LANGLEY-62	B65-10045	01
Uniform reflective films deposited on large surfaces	GSFC-507	B66-10483	02	Efficient thin film heating element takes minimum space	GSFC-289	B65-10123	01
Cryogenic cooling reduces high voltage arcing between electrodes operating in a vacuum	ARG-109	B66-10499	02	Aluminized fiberglass insulation conforms to curved surfaces	M-FS-477	B66-10024	03
Feed-thru flange is useful in vacuum applications to cryogenic temperatures	JPL-846	B66-10615	02	Capacitive system detects and locates fluid leaks	M-FS-478	B66-10099	01
Volume-ratio calibration system for vacuum gages	LEWIS-303	B66-10640	01	Thin-film gage measures low heat-transfer rates	LANGLEY 205	B66-10180	01
Process reduces secondary resonant emission in electronic components	JPL-934	B66-10685	01	Self-supported aluminum thin films produced by vacuum deposition process	ARC-58	B66-10387	03
Combination double door high-vacuum valve provides access to vacuum chamber	JPL-849	B66-10697	05	Uniform reflective films deposited on large surfaces	GSFC-507	B66-10483	02
Feed-through connector couples RF power into vacuum chamber	NU-0096	B67-10027	01	Low rate flow switch can be used for gas or liquid	JPL-867	B66-10696	01
Irradiated gases transferred without contamination or dilution	LEWIS-278	B67-10044	03	Thin film process forms effective electrical contacts on semiconductor crystals	M-FS-2343	B67-10142	01
Vacuum chamber is remotely sealed by eutectic metal	NU-0091	B67-10059	05	Graphite cloth facilitates vacuum evaporation of silicon monoxide	M-FS-14764	B68-10256	03
Solar X-ray spectrum reproduced in vacuum	MSC-228	B67-10164	02	Preparation of silver-activated zinc sulfide thin films	GSFC-10687	B68-10271	03
Quartz crystals detect gas contaminants during vacuum chamber evacuation	NPO-10144	B67-10205	01	Superconductive thin film makes convenient liquid helium level sensor	LANGLEY-10289	B68-10341	01
Electron beam welder X-rays its own welds	LEWIS-10111	B67-10216	02	Multilayer infrared beamsplitter film system	XGS-11036	B69-10260	02
Evaporant feed device facilitates flash vapor deposition process in vacuum	NPO-10232	B67-10320	03	Improved vacuum deposition apparatus	NPO-11009	B69-10365	02
Technique eliminates high voltage arcing at electrode-insulator contact area	LEWIS-10133	B67-10470	01	Preparation of superconducting thin films of transition-metal interstitial compounds	HQ-10445	B69-10470	01
Method for X-ray study under extreme temperature and pressure conditions	MSC-11232	B67-10474	02	VACUUM EFFECTS			
Feed-thru conduit minimizes heat pickup	JPL-847	B67-10619	05	Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics	LEWIS-320	B66-10373	03

SUBJECT INDEX

VACUUM SYSTEMS

Study made of transfer of heat energy through metal joints in vacuum environment M-FS-12534	B67-10465	02	speed NEO-13	B65-10239	02
Multiple-orifice throttle valve XNF-09698	B69-10030	05	Flexible plastic ring assembly makes durable shaft seal WOO-227	B65-10367	05
VACUUM FURNACES			Mount makes liquid nitrogen-cooled gamma ray detector portable LEWIS-259	B66-10103	01
Radiant heater for vacuum furnaces offers high structural rigidity, low heat loss LEWIS-39	B63-10342	01	Dispenser leak-tests and sterilizes rubber gloves MSC-285	B66-10166	03
New cobalt alloys have high-temperature strength and long life in vacuum environments LEWIS-47	B63-10351	03	Modified McLeod gage records automatically LEWIS-290	B66-10290	02
Brazing retort manifold design concept may minimize air contamination and enhance uniform gas flow M-FS-707	B66-10371	05	Automatic protective vent has fail-safe feature LANGLEY-218	B66-10369	05
Braze alloy holds bonding strength over wide temperature range LEWIS-337	B66-10519	03	Auxiliary titanium sublimation pump produces ultrahigh /10 to the minus 11 torr/ vacuum LANGLEY-212	B66-10388	02
Antechamber facilitates loading and unloading of vacuum furnace LEWIS-10265	B68-10135	02	Seal-off assembly permits rapid evacuation of air from containers GSFC-513	B66-10446	05
Miniaturized King furnace permits absorption spectroscopy of small samples ARG-10177	B68-10418	02	Reliable method for testing gross leaks in semiconductor component packages ERC-10150	B68-10562	01
An ultrasonic method for studying elastic moduli as a function of temperature ARG-10187	B69-10082	02	Combustion method for assay of biological materials labeled with carbon-14 or tritium, or double-labeled ARG-10331	B69-10208	04
VACUUM GAGES			VACUUM SPECTROSCOPY		
Ionization vacuum gage starts quickly, is unaffected by spurious currents JPL-304	B65-10036	02	Thin carbon film serves as UV bandpass filter ERC-8	B66-10060	02
Rod and dish cathode improves penning-type vacuum gage GSFC-447	B66-10082	01	VACUUM SYSTEMS		
Materials physically tested in variable-environment chamber JPL-789	B66-10130	01	Packless valve with all-metal seal handles wide temperature, pressure range JPL-361	B63-10228	05
Dispenser leak-tests and sterilizes rubber gloves MSC-285	B66-10166	03	Instrument accurately measures extremely low air densities M-FS-193	B65-10221	01
Modified McLeod pressure gage eliminates measurement errors ARC-62	B66-10481	01	Portable tool cleans pipes and tubing MSC-238	B65-10375	05
Absolute low-pressure calibration system M-FS-13085	B68-10160	02	Rubber-coated bellows improves vibration damping in vacuum lines LEWIS-273	B66-10187	02
Vacuum gage system for radiation environment LEWIS-10797	B69-10156	01	Portable sandblaster cleans small areas MSC-523	B66-10242	05
Vacuum gage calibration system for 10 to the minus 8th power to 10 torr LEWIS-11032	B69-10713	01	Versatile machine mills, saws light materials M-FS-827	B66-10364	05
VACUUM PUMPS			Automatic protective vent has fail-safe feature LANGLEY-218	B66-10369	05
Fine-particle filter prevents damage to vacuum pumps LEWIS-106	B63-10489	05	Special treatment reduces helium permeation of glass in vacuum systems HQ-25	B66-10372	02
Test device prevents molecular bounce-back GSFC-82	B63-10546	03	Precise doping of metals by small gas flows LEWIS-10444	B68-10526	03
Fine-mesh screen made by simplified method WOO-104	B64-10282	03	Thermal radiation shields for piping in vacuum environments LEWIS-10899	B69-10262	03
Vapor pressure measured with inflatable plastic bag GSFC-281	B65-10136	03	Tool repairs tube components in situ MSC-15348	B69-10379	05
Heater decomposes oil backstreaming from high-vacuum pumps GSFC-356	B65-10224	02	Self-lubricating gear M-FS-14971	B69-10408	05
Ion pump provides increased vacuum pumping			Accurate nine-decade temperature-compensated logarithmic amplifier ARG-10480	B69-10429	01

VACUUM TUBES

SUBJECT INDEX

Control for maintaining constant level of a cryogenic liquid NPO-11177	B69-10573	05	Pressure responsive seal handles static and dynamic loads GSFC-441	B65-10327	05
VACUUM TUBES			Improved poppet valve provides positive damageproof seal M-FS-293	B65-10346	05
Cesium iodide crystals fused to vacuum tube faceplates GSFC-67	B63-10476	03	Respiratory transfer valve has fail-safe feature ARC-1	B65-10369	01
Emission tester for high-power vacuum tubes JPL-628	B64-10158	01	Centrifugal device separates liquid from gas MSC-282	B65-10394	05
Ion pump provides increased vacuum pumping speed NEO-13	B65-10239	02	Tensile-strength apparatus applies high strain-rate loading with minimum shock JPL-28	B66-10063	05
Chromium oxide coatings improve thermal emissivity of alumina WOO-263	B66-10227	03	Transmission system isolates pressure transducer from severe environment WOO-239	B66-10064	01
X-ray source uses interchangeable target anodes to vary X-ray wavelength NPO-10036	B67-10218	02	Soft-seal valve holds hazardous fluids safely LEWIS-275	B66-10216	05
Electron beam parallel X-ray generator MSC-11022	B67-10372	02	Flexible fastener effects airtight material closure JPL-684	B66-10304	05
Concept for improved vacuum pressure measuring device M-FS-20172	B69-10421	02	Valve seat pores sealed with thermosetting monomer M-FS-900	B66-10322	03
VALUE			Matching flow characteristics of standard shutoff valves eliminates need for custom fabricated valves M-FS-1069	B66-10416	05
Properties of optics at high temperature and their measurement, a study M-FS-14696	B68-10240	02	Labyrinth-type valve seat increases valve life by decreasing fluid velocity M-FS-1051	B66-10424	05
VALVES			Apparatus enables automatic microanalysis of body fluids JPL-962	B66-10515	04
Vented piston seal prevents fluid leakage between two chambers JPL-179	B63-10141	05	Positive displacement cylinder measures corrosive liquid volume MSC-1038	B66-10589	05
Packless valve with all-metal seal handles wide temperature, pressure range JPL-361	B63-10228	05	Fluid logic control circuit operates nutator actuator motor LEWIS-294	B66-10593	05
Design of valve permits sealing even if the stem is misaligned LEWIS-38	B63-10341	05	Actuator device schedules rate of valve closure M-FS-1556	B66-10686	05
High-temperature, high-pressure spherical segment valve provides quick opening ARC-13	B63-10431	05	Combination double door high-vacuum valve provides access to vacuum chamber JPL-849	B66-10697	05
Miniature oxygen-hydrogen cutting torch constructed from hypodermic needle JPL-545	B63-10517	05	Teflon sheet permits valve and valve operator to move as a single unit in a cryogenic pipe line NU-0077	B66-10702	05
Gate valve with ceramic-coated base operates at high temperatures ARC-23	B63-10562	03	Simple pump maintains liquid helium level in cryostat M-FS-1763	B67-10039	05
Multiple port pressure scanner valve features greater accuracy, quicker data JPL-555	B64-10031	05	Improved fluid control circuit operates on low power input LEWIS-325	B67-10042	01
Blade valve isolates compartment in pipe, opens to allow free flow JPL-585	B64-10188	05	Irradiated gases transferred without contamination or dilution LEWIS-278	B67-10044	03
Two-part valve acts as quick coupling JPL-478	B64-10223	05	Temperature responsive valve withstands high impact loading NPO-10186	B67-10225	05
Apparatus measures concentration of suspended droplets in gas streams LANGLEY-31	B64-10237	01	Cut-through tester accurately measures insulation failure rates M-FS-12506	B67-10354	03
Compressed gas system operates semitrailer brakes during winching operation JPL-0036	B64-10306	05			
Valve designed with elastic seat JPL-442	B65-10040	05			
Simple control device senses solar position JPL-638	B65-10061	01			
Averaging probe reduces static-pressure sensing errors LANGLEY-36	B65-10114	05			

SUBJECT INDEX

VAPOR DEPOSITION

Stabilizing stainless steel components for cryogenic service M-FS-13127	B67-10377	05	cryogenic liquid NPO-11177	B69-10573	05
Improved sample capsule for determination of oxygen in hemolyzed blood MSC-11017	B67-10408	04	Sealed container sampling device GSFC-10690	B69-10682	03
Temperature-sensed cryogenic bleed maintains liquid state in transfer line M-FS-12681	B67-10424	01	Improved solenoid valve design GSFC-10607	B69-10704	05
Study made of acoustical monitoring for mechanical checkout M-FS-13372	B67-10430	02	Fluid sample collection and storage device MSC-10962	B69-10816	05
Pump simulator provides variable pressure-flow characteristics LEWIS-10122	B67-10453	05	VAN DER WAAL FORCES		
Hand-operated plug insertion valve M-FS-12019	B67-10466	05	Study of behavior of sterols at interfaces ARG-10085	B68-10281	03
Accumulator isolator prevents malfunctioning of faulty hydraulic system M-FS-1415	B67-10528	05	VANADIUM		
Butterfly valve with metal seals controls flow of hydrogen from cryogenic through high temperatures MUC-10034	B67-10567	05	Silver plating ensures reliable diffusion bonding of dissimilar metals M-FS-1975	B67-10124	03
Dynamic captive plastic seal M-FS-12988	B67-10600	03	Vanadium diaphragm electrode serves as hydrogen diffuser in lithium hydride cell ARG-10048	B67-10499	01
Eddy current disk valve LEWIS-10123	B67-10638	05	Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/ ARG-10148	B68-10368	03
Pressure variable orifice for hydraulic control valve MSC-11323	B68-10120	05	An ultrasonic method for studying elastic moduli as a function of temperature ARG-10187	B69-10082	02
Dynamically stable check valve concept for wide flow range M-FS-14579	B68-10247	05	High strength, superplastic superalloy LEWIS-10805	B69-10293	03
High-torque power wrench, a concept M-FS-18194	B68-10299	05	VANADIUM ALLOYS		
Fluidic-thermochromic display device ERC-10031	B68-10350	01	Nickel-base superalloys developed for high- temperature applications LEWIS-226	B66-10222	03
Evaluation of a fluorocarbon plastic used in cryogenic valve seals M-FS-18189	B68-10523	03	Metal tube reducer is inexpensive and simple to operate ARG-49	B67-10401	05
Multiple-orifice throttle valve XNP-09698	B69-10030	05	Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/ ARG-10148	B68-10368	03
Propagation of density disturbances in air-water flow ARG-10260	B69-10043	02	VANELESS DIFFUSERS		
Abrasion and resistant discharge valve developed ARG-10219	B69-10044	05	Prediction of performance of centrifugal pumps during starts under pressure LEWIS-10900	B69-10263	05
Inflatable bladder to facilitate handling of heavy objects - A concept M-FS-14272	B69-10069	05	VANES		
Calibrated water tank facilitates proof- loading of cranes and derricks M-FS-15059	B69-10109	05	Noise study of single stage compressor rotor-stator interaction LANGLEY-137	B67-10516	02
Leakage measuring method M-FS-14722	B69-10438	01	Flow angle sensor and readout system LEWIS-90298	B69-10050	01
Piezoelectric linear actuator MSC-13194	B69-10469	02	A compact rotary vane attenuator NPO-10562	B69-10427	01
Burst diaphragm leak detector M-FS-14500	B69-10543	03	VAPOR DEPOSITION		
Integral valve provides automatic relief and remote venting M-FS-12134	B69-10545	05	Fresnel cup reflector directs maximum energy from light source JPL-424	B63-10263	03
Control for maintaining constant level of a			Economical fabrication process produces high quality junction transistors JPL-SC-065	B64-10330	01
			Tantalum cathode improves electron-beam evaporation of tantalum JPL-WOO-021	B65-10175	03
			Boron carbide whiskers produced by vapor deposition HQ-24	B65-10261	03
			Thin-film resistors used in functional electronic blocks GSFC-380	B65-10305	01
			Plated nickel wire mesh makes superior catalyst bed MSC-216	B65-10321	03

VAPOR PHASES

SUBJECT INDEX

Automatic fluid separator supplies own driving power WOO-085	B66-10008	02	ARG-113	B67-10185	03
Thin-film semiconductor rectifier has improved properties MSC-207	B66-10012	01	Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters M-FS-13594	B67-10527	03
PTFE-aluminum films serve as neutral density filters LANGLEY-189	B66-10017	02	Dispensing graduate for butadiene NFO-10070	B68-10524	03
Refractory coating protects intricate graphite elements from high-temperature hydrogen NU-0027	B66-10084	01	Liquid-metal-piston MHD generator ARG-10500	B69-10771	02
Vapor grown silicon dioxide improves transistor base-collector junctions GSFC-389	B66-10091	01	VAPOR PRESSURE Vapor pressure measured with inflatable plastic bag GSFC-281	B65-10136	03
Single-crystal semiconductor films grown on foreign substrates WOO-076	B66-10225	01	Niobium thin films are superconductive in strong magnetic fields at low temperatures JPL-SC-174	B66-10122	02
Brazing process provides high-strength bond between aluminum and stainless steel M-FS-803	B66-10352	05	Gallium alloy films investigated for use as boundary lubricants LEWIS-245	B66-10165	03
Submicron holes in thin films increase sampling range of mass spectrometers JPL-SC-097	B66-10380	03	New electrolyte may increase life of polarographic oxygen sensors MSC-1049	B67-10003	03
Thin-film ferrites vapor deposited by one-step process in vacuum MSC-259	B66-10398	03	New class of compounds have very low vapor pressures ARG-115	B67-10184	03
Uniform reflective films deposited on large surfaces GSFC-507	B66-10483	02	Thermodynamic properties of solid palladium-silver alloys and other alloys are investigated by torsion-effusion technique ARG-277	B67-10324	03
Combustion chamber struts can be effectively transpiration cooled M-FS-1830	B66-10643	03	Development of dual solid cryogenics for high reliability refrigeration system GSFC-10188	B67-10644	02
Mechanism facilitates coating of inner surfaces of metal cylinders GSFC-515	B66-10698	05	Quasi-static vapor pressure measurements on reactive systems in inert atmosphere box ARG-90142	B68-10236	01
Sensing disks for slug-type calorimeters have higher temperature stability M-FS-1867	B67-10161	01	Sintering characteristics and properties of PuS and PuP are determined ARG-10228	B69-10058	03
Welding, bonding, and sealing of refractory metals by vapor deposition LEWIS-123	B67-10232	03	Performance of low-pressure thermionic converters is evaluated ARG-10276	B69-10090	01
Evaporant feed device facilitates flash vapor deposition process in vacuum NFO-10232	B67-10320	03	Liquid gallium rotary electric contract LEWIS-10828	B69-10138	03
Method of improving contact bonds in silicon integrated circuits M-FS-1753	B67-10335	01	Calibration of a resistance thermometer down to 0.04 degrees K ARG-10318	B69-10149	01
Vapor deposition process provides new method for fabricating high temperature thermocouples NUC-10152	B67-10616	01	Fuel element concept for long life high power nuclear reactors LEWIS-10309	B69-10154	03
An investigation of particle mixing in a gas-fluidized bed ARG-10182	B68-10407	05	Metallic diffusion measured by a modified Knudsen technique HQ-10145	B69-10309	03
Controlled substrate cooling improves reproducibility of vapor deposited semiconductor composites ERC-10161	B69-10732	01	VAPORIZERS New apparatus increases ion beam power density LEWIS-73	B63-10440	01
VAPOR PHASES Coaxial capacitor used to determine fluid density LEWIS-232	B65-10296	02	Reaction heat used in static water removal from fuel cells M-FS-532	B66-10013	01
Combustion chamber inlet manifold separates vapor from liquid M-FS-531	B66-10052	05	Modified cryogenic storage tank subsystem KSC-10380	B69-10556	02
Xenon fluorides show potential as fluorinating agents			VAPORIZING Complementary system vaporizes subcooled liquid, improves transformer efficiency M-FS-550	B66-10045	02
			Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons LEWIS-263	B66-10104	03

SUBJECT INDEX

VELOCITY

Cryogenic trap valve has no moving parts M-FS-487	B66-10136	05	HQ-23	B66-10344	01
Cryogenic liquid transfer system reduces residual boiloff LEWIS-274	B66-10157	02	Computer program for network synthesis by frequency response fit M-FS-12686	B67-10406	06
Vapor diffusion electrode improves fuel cell operation LEWIS-187	B66-10281	03	Tunable bandpass filter with variable selectivity ARC-10191	B69-10130	01
Radial furnace shows promise for growing straight boron carbide whiskers BQ-50	B67-10070	03	VARIABLE Computer program utilizes FORTRAN 4 subroutines for contour plotting NPO-10127	B67-10323	06
Thermodynamic properties related to expansion of two-component gas MSC-1133	B67-10112	03	VARIABLE SWEEP WINGS Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds LANGLEY-10191	B67-10666	06
Control apparatus for spectral energy source LEWIS-391	B67-10404	01	VARIATIONAL PRINCIPLES Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations NUC-10052	B67-10345	06
Viscosity and density of methanol/water mixtures at low temperatures M-FS-14991	B68-10274	03	VARIATIONS Magnetically coupled emission regulator GSFC-10056	B69-10213	01
Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide ARG-10154	B68-10293	02	VARISTORS Basic suppression techniques are evaluated M-FS-867	B66-10449	01
Dispensing graduate for butadiene NPO-10070	B68-10524	03	VARNISHES White primer permits a corrosion-resistant coating of minimum weight M-FS-304	B66-10207	03
Levitation-melting technique for metals and alloys ARG-10240	B69-10006	03	Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01
Technical report on galvanic cells with fused-salt electrolytes ARG-10297	B69-10155	01	VECTOR ANALYSIS Study of optimum discrete estimators in measurement analysis M-FS-14915	B68-10348	02
Technique for ultrasonic cleaning with volatile solvents eliminates need for hoods or condensers MSC-15611	B69-10552	03	VECTOR SPACES Computer program for mass optional solutions of some endpoint trajectory problems M-FS-12976	B67-10310	06
Control for maintaining constant level of a cryogenic liquid NPO-11177	B69-10573	05	VECTORS (MATHEMATICS) Device measures reaction engine thrust vector deviations JPL-SC-163	B66-10642	05
Liquid-metal-piston MHD generator ARG-10500	B69-10771	02	Improved computer program for elastic analysis of highly redundant structural configurations M-FS-13087	B67-10330	06
VAPORS Magnetohydrodynamic generators using two-phase liquid-metal flows ARG-10168	B69-10162	01	Gimbal angle sensor GSFC-10305	B68-10315	01
Improved high-temperature silicide coatings LEWIS-10817	B69-10266	03	Numerical inversion of finite Toeplitz matrices and vector Toeplitz matrices ARG-10445	B69-10415	02
Cryogenic fluid flow instabilities in heat exchangers M-FS-20438	B69-10541	02	VEGETABLES Inhibition of browning in foodstuffs HQ-10177	B69-10493	04
VARACTOR DIODES Efficient millimeter wave 1140 GHz/ diode for harmonic power generation HQ-61	B67-10166	01	VEHICULAR TRACKS Economical and maintenance-free gas system operates railroad switches NU-0045	B66-10124	05
Development of reliability prediction technique for semiconductor diodes GSFC-10231	B67-10651	06	VELOCITY Digital system accurately controls velocity of electromechanical drive GSFC-287	B65-10096	01
Device for diode tuning in a stripline varactor harmonic multiplier M-FS-20153	B69-10013	01	Study made to establish parameters and limitations of explosive welding M-FS-13006	B67-10393	05
An improved atomic hydrogen frequency and time standard GSFC-10706	B69-10341	02			
Automatic tuning of hydrogen masers GSFC-10127	B69-10452	01			
VARIABILITY Phase inverter provides variable reference push-pull output					

VELOCITY DISTRIBUTION

SUBJECT INDEX

Interference effects eliminated in random oriented space station antenna system MSC-11004	B67-10435	01	factor and velocity information MSC-1045	B67-10248	01
Fortran 4 program for two-impulse rendezvous analysis M-FS-13971	B67-10479	06	Ultrasonics used to measure residual stress M-FS-12449	B67-10428	02
Computer program analyzes and designs supersonic wing-body combinations ARC-10141	B68-10335	06	Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02
Study of optimum discrete estimators in measurement analysis M-FS-14915	B68-10348	02	A mass flux probe for measurement in a supersonic stream LEWIS-10695	B68-10533	02
Axisymmetric two-phase perfect gas performance program MSC-11774	B68-10374	06	Mossbauer-effect data-collection system ARG-10282	B69-10027	01
Internal velocity factors MSC-15002	B68-10403	06	Mossbauer vibration calibration systems evaluated M-FS-20014	B69-10125	01
Midcourse maneuver operations program NPO-10735	B69-10105	06	Experimental program to investigate transonic flow around protuberances M-FS-20037	B69-10609	05
Computer programs for axial flow compressor design LEWIS-10765	B69-10174	06	VENTILATION		
Design and testing of liquid hydrogen-cooled, ultrahigh-speed ball bearings M-FS-18453	B69-10178	05	One-piece transparent shell improves design of helmet assembly MSC-187	B66-10390	05
Prediction of performance of centrifugal pumps during starts under pressure LEWIS-10900	B69-10263	05	Spray-on electrodes enable EKG monitoring of physically active subjects FRC-36	B66-10649	04
VELOCITY DISTRIBUTION			Improved atmospheric particle analyzer ERC-33	B67-10231	01
Study made of large amplitude fuel sloshing M-FS-12381	B67-10439	03	Technique for ultrasonic cleaning with volatile solvents eliminates need for hoods or condensers MSC-15611	B69-10552	03
Proposed method of rotary dynamic balancing by laser M-FS-12422	B67-10452	02	VENTING		
Computer program calculates velocities and streamlines in turbomachines LEWIS-10252	B68-10097	06	Helium tube separates nitrogen gas from liquid nitrogen JPL-398	B63-10251	05
Large-amplitude inviscid fluid motion in an accelerating container MSC-11560	B68-10170	02	Automatic fluid separator supplies own driving power WOO-085	B66-10008	02
Dynamics of moving bubbles in single and binary component systems M-FS-14845	B68-10339	02	Ring valve responds to differential pressure changes WOO-247	B66-10022	05
Design of fluid-duct bends with low pressure loss M-FS-20176	B68-10395	05	Cryogenic liquid transfer system reduces residual boiloff LEWIS-274	B66-10157	02
MAGNTY - Program for calculating velocities in magnified region of turbomachines LEWIS-10789	B69-10132	06	Magnetic latches provide positive overpressure control NU-0057	B66-10279	05
FORTTRAN 4 program calculates velocities and streamlines in a tandem blade turbomachine LEWIS-10743	B69-10219	06	Device removes hydrogen gas from enclosed spaces GSFC-495	B66-10340	03
VELOCITY MEASUREMENT			Automatic protective vent has fail-safe feature LANGLEY-218	B66-10369	05
Low-cost tape system measures velocity of acceleration GSFC-85	B63-10512	01	Closed loop operation eliminates need for auxiliary gas in high pressure pumping station M-FS-893	B66-10408	05
Ion pump provides increased vacuum pumping speed NBO-13	B65-10239	02	Two-fluid, impinging-sheet injector NPO-10547	B68-10338	05
Photographic method measures particle size and velocity in fluid stream M-FS-1536	B66-10668	01	Battery-package design provides for cell cooling and constraint MSC-11839	B68-10398	05
Laser Doppler flowmeter measures gas velocity M-FS-1747	B66-10693	02	Integral valve provides automatic relief and remote venting M-FS-12134	B69-10545	05
Rectilinear display gives acceleration load			Modified cryogenic storage tank subsystem KSC-10380	B69-10556	02

SUBJECT INDEX

VIBRATION

VENTS

Vented piston seal prevents fluid leakage between two chambers
JPL-179 B63-10141 05

High speed blowdown system provides rapid pressure loss
LEWIS-375 B67-10043 05

Toroidal ring prevents gas ignition at vent stack outlet
M-FS-2042 B67-10098 05

Concept for cryogenic liquid reclamation system
NPO-10322 B67-10420 02

Temperature-sensed cryogenic bleed maintains liquid state in transfer line
M-FS-12681 B67-10424 01

Vent and relief valve maintains low leakage rate over broad temperature range
M-FS-12807 B68-10014 05

Device damps fluid pressure oscillations in vent valve
M-FS-13290 B68-10078 05

Control for maintaining constant level of a cryogenic liquid
NPO-11177 B69-10573 05

VENTURI TUBES

Mixer conditions temperature of liquified gas streams
M-FS-1784 B66-10565 02

Venturi meter with separable diffuser
LEWIS-10483 B68-10295 05

Piezoelectric linear actuator
MSC-13194 B69-10469 02

VENUS (PLANET)

Space trajectories program for IBM 7090
NPO-10125 B67-10172 06

Molecular radiation - Its application in physical measurements and analyses
M-FS-14816 B69-10562 02

VERSATILITY

Metal-bending brake facilitates lightweight, close-tolerance fabrication
ARC-29 B64-10069 05

Offset lenses add versatility to phototypesetting machine
HQ-9 B66-10173 02

Versatile impact hand tool
M-FS-20140 B68-10371 05

Improved mouse cage provides versatility and ease in handling laboratory mice
MSC-12250 B69-10124 04

VERTICAL DISTRIBUTION

Proposed technique for vertical alignment of a crane's cable
M-FS-16496 B69-10202 05

VERTICAL MOTION

Remotely operated gripper provides vertical control rod movement
ARG-10160 B68-10359 05

Air-cushion lift pad
M-FS-14685 B69-10448 05

VERY HIGH FREQUENCIES

Mechanical device accurately measures rf phase differences in vhf or uhf ranges
M-FS-1738 B66-10694 05

Survey of man-made electrical noise affecting radio broadcasting
HQ-10290 B69-10308 01

Self-shielding printed circuit boards for high frequency amplifiers and transmitters
HQ-10433 B69-10314 01

Improved VHF direction finding system
M-FS-20439 B69-10378 01

VESSELS

Method of welding joint in closed vessel improves quality of seam
JPL-170 B63-10139 05

Method prevents secondary radiation in radiographic inspection
M-FS-13383 B67-10391 02

VESTIBULAR TESTS

Two devices for analysis of nystagmus
HQ-10273 B69-10224 01

VHF OMNIRANGE NAVIGATION

Literal readout of identification signals in Morse code
LANGLEY-10222 B69-10479 01

VIABILITY

Technique for highly efficient recovery of microbiological contaminants
MSC-13250 B69-10273 04

VIBRATION

Adhesive for vacuum environments resists shock and vibration
MSC-56 B65-10016 03

Improved holder protects crystal during high acceleration and impact
JPL-463 B65-10037 05

Vibrating-membrane electrometer has high conversion gain
ARC-38 B65-10056 01

Internal cooling increases range of immersion-type temperature probe
LEWIS-171 B65-10157 02

Rack mount device quickly inserts or extracts chassis units
MSC-244 B65-10385 05

Electrical cabling withstands severe environmental conditions
M-FS-1585 B66-10427 01

Plastic tubing protects flexible copper hose
M-FS-772 B66-10588 05

Instrument continuously measures density of flowing fluids
LEWIS-309 B67-10080 01

Device enables calibration of microphones at high sound pressure levels
M-FS-11980 B67-10336 01

Coaxial cable stripping device facilitates RF cabling fabrication
NPO-10315 B67-10419 05

Ultrasonics used to measure residual stress
M-FS-12449 B67-10428 02

Study made of acoustical monitoring for mechanical checkout
M-FS-13372 B67-10430 02

Stable ac phase and amplitude comparator
M-FS-13086 B67-10459 01

Double copper sheath multiconductor instrumentation cable is durable and easily installed in high thermal or nuclear radiation area
NUC-10007 B67-10538 01

Bacteriostatic conformal coating for electronic components
GSFC-10007 B67-10599 03

VIBRATION DAMPING

SUBJECT INDEX

Pneumatic pressure wave generator provides economical, simple testing of pressure transducers NUC-10024	B67-10664	05	and sliding wear problem M-FS-14079	B67-10667	05
Packaging criteria for transportation and handling shock and vibration M-FS-13007	B68-10219	05	Identification and evaluation of linear damping models in beam vibrations ARG-10275	B69-10196	03
Between-bearing shaft seal, a concept M-FS-18179	B68-10286	05	Nondestructive determination of cohesive strength of adhesive-bonded composites M-FS-20397	B69-10464	03
Mass loading effects on vibrated ring and shell structures M-FS-14979	B68-10532	03	Hermetically sealed vibration damper MSC-10959	B69-10634	05
Fatigue failure in metal bellows due to flow-induced vibrations M-FS-18383	B69-10071	05	VIBRATION EFFECTS Angular acceleration measured by deflection in sensing ring MSC-250	B66-10105	01
Mounting method improves electrical and vibrational characteristics of screen electrodes M-FS-20169	B69-10097	01	Vibrator improves spark erosion cutting process NU-0071	B66-10333	01
Precision mounting for instrument optical elements provided by polyimide bonding M-FS-20293	B69-10310	05	Variable reluctance switch avoids contact corrosion and contact bounce MSC-1178	B67-10137	01
Analysis of space vehicle structures using the transfer-function concept NPO-11162	B69-10337	06	Application of distorted models in developing scaled structural models M-FS-2540	B67-10321	05
Air-cushion lift pad M-FS-14685	B69-10448	05	Study made of thin-walled pipe response to turbulent fluids M-FS-1321	B67-10518	05
Improved inorganic ion exchange membranes LEWIS-10737	B69-10451	03	Eutectic fuse provides current and thermal protection under high vibration M-FS-13664	B67-10535	01
Optimum structural design based on reliability and proof-load testing NPO-11228	B69-10723	31	VIBRATION ISOLATORS Wire mesh isolator protects sensitive electronic components GSFC-347	B65-10216	05
VIBRATION DAMPING Thermally conductive metal wool-silicone rubber material can be used as shock and vibration damper JPL-321	B63-10207	03	Tensile-strength apparatus applies high strain-rate loading with minimum shock JPL-28	B66-10063	05
Shock mount isolates pressure transducers from vibration JPL-631	B65-10113	05	Friction brake cushions acceleration and vibration loads MSC-715	B66-10608	05
Lightweight load support serves as vibration damper JPL-661	B65-10144	05	Metal flame spray coating protects electrical cables in extreme environment NUC-10077	B67-10351	03
Oil-damped mercury pool makes precise optical alignment tool GSFC-353	B65-10253	02	Machining heavy plastic sections M-FS-12720	B67-10381	03
Rubber-coated bellows improves vibration damping in vacuum lines LEWIS-273	B66-10187	02	Sleeved damper limits spring surging MSC-12071	B68-10111	05
Fluid damping reduces bellows seal fatigue failures M-FS-565	B66-10249	05	Improved active vibration isolator LANGLEY-10106	B68-10123	05
Miniature capacitive accelerometer is especially applicable to telemetry ARC-72	B66-10491	01	Vibration dampener for Niles vertical boring mill ram MSC-15529	B69-10348	05
Resonant frequency can be adjusted on vibration mount JPL-SC-134	B66-10672	05	Modular packaging technique for combining integrated circuits and discrete components GSFC-10369	B69-10453	01
Tester for study of rolling element bearings LEWIS-305	B67-10009	01	Hermetically sealed vibration damper MSC-10959	B69-10634	05
Post-stressed concrete foundation may reduce machinery vibration ARG-130	B67-10237	05	VIBRATION MEASUREMENT Device calibrates vibration transducer at amplitudes up to 20 g M-FS-86	B63-10572	01
Vibration damping composition has flush-away feature M-FS-597	B67-10432	03	Transducer senses displacements of panels subjected to vibration ARC-37	B65-10085	01
Solenoid valve design minimizes vibration			Noncontacting vibration transducer has constant sensitivity LANGLEY-99	B65-10392	01

SUBJECT INDEX

VIBRATIONAL STRESS

Monitoring system determines amplitude and time of vibration channel peaks JPL-879	B66-10699	01	JPL-884	B67-10029	01
Instrument sequentially samples ac signals from several accelerometers JPL-884	B67-10029	01	A power-spectral-density computer program NPO-10126	B67-10160	01
Vibration analysis utilizing Mossbauer effect M-FS-11974	B67-10339	01	Mechanical properties of wire insulation automatically determined MSC-10983	B67-10370	01
Reliable, self-calibrating vibration transducer LANGLEY-89	B68-10124	01	Vibration damping composition has flush-away feature M-FS-597	B67-10432	03
Mossbauer vibration calibration systems evaluated M-FS-20014	B69-10125	01	Vibration testing and dynamic studies of relays M-FS-14542	B68-10268	01
Seismographic recording of large rocket engine operation M-FS-20545	B69-10756	01	Shock and vibration response of multistage structure M-FS-14972	B68-10353	05
VIBRATION METERS			Automatic Gaussian random-noise limiter NPO-10169	B69-10349	01
Interferometer combines laser light source and digital counting system MSC-151	B65-10161	01	Instrumentation for nondestructive testing of composite honeycomb materials M-FS-20405	B69-10366	03
Precision capacitor has improved temperature and operational stability ARG-189	B67-10313	01	Electronic analog equalization for vibrational testing NPO-10544	B69-10472	01
VIBRATION MODE			Shaker slip-plate adapter M-FS-14063	B69-10785	05
Viscous-pendulum damper suppresses structural vibrations LANGLEY-45	B64-10272	05	VIBRATIONAL SPECTRA		
Study of dynamic response of elastic space stations NPO-10124	B67-10169	06	Nonresonant support facilitates vibration testing of structures M-FS-224	B65-10039	05
A modal combination computer program for dynamic analysis of structures NPO-10129	B67-10217	06	Multicolor stroboscope pinpoints resonances in vibrating components JPL-0033	B66-10223	01
Study of lattice defect vibration ARG-10221	B69-10078	02	Monitoring system determines amplitude and time of vibration channel peaks JPL-879	B66-10699	01
VIBRATION SIMULATORS			Quartz crystals detect gas contaminants during vacuum chamber evacuation NPO-10144	B67-10205	01
System transmits mechanical vibration into hazardous environment NU-0025	B65-10248	05	Post-stressed concrete foundation may reduce machinery vibration ARG-130	B67-10237	05
Air bearing provides friction-free support for shaker system slip table NU-0086	B66-10708	05	System precisely controls oscillation of vibrating mass M-FS-1875	B67-10276	01
VIBRATION TESTS			Study made of thin-walled pipe response to turbulent fluids M-FS-1321	B67-10518	05
Nonresonant support facilitates vibration testing of structures M-FS-224	B65-10039	05	Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters M-FS-13594	B67-10527	03
Vibration tests on vidicons made by improved method JPL-SC-115	B66-10042	01	Computer program calculates the effective temperature for a crystalline solid /DETS/ NUC-10161	B69-10036	06
Electrolytic etching process provides effective bonding surface on stainless steel GSFC-484	B66-10299	03	VIBRATIONAL STRESS		
Solid state detectors monitor relay contacts JPL-785	B66-10396	01	Wire material reduces compressor blade vibration LEWIS-357	B66-10666	03
An improved method for testing performance of vidicons during vibration JPL-SC-113	B66-10442	01	Pipe joints reinforced in place with fitted aluminum sleeves MSC-11109	B67-10271	05
Instrument automatically selects peak acceleration signal from several accelerometers JPL-816	B66-10462	01	Nondestructive testing of brazed rocket engine components M-FS-18191	B68-10394	03
Rocket engine vibration accurately measured by photography M-FS-1916	B66-10652	02	Fatigue of reinforced concrete beams under dynamic loading M-FS-1498C	B68-10515	05
Instrument sequentially samples ac signals from several accelerometers					

VIBRATORY LOADS

SUBJECT INDEX

VIBRATORY LOADS

Pressure-welded flange assembly provides
leaktight seal at reduced bolt loads
M-FS-640 B66-10247 05

Heat exchanger tubes supported in high
vibration environment
M-FS-1401 B66-10567 05

Highly linear, sensitive analog-to-digital
converter
MSC-13110 B69-10230 01

VIBRATORY POLISHING

Metallographic holding fixture permits
polishing of soft metals on vibratory
lapping machine
ARG-42 B66-10562 05

VIDEO DATA

Recording and time expansion technique for
high-speed, single-shot transient video
signal
ARC-10003 B67-10139 01

Video synchronization processor overcomes
poor signal-to-noise ratio
KSC-10002 B67-10515 01

Computer program for Video Data Processing
System /VDPs/
NPO-10042 B67-10630 06

Scan rate converter for tape recording and
playback of TV pictures
NPO-10166 B67-10676 01

Technique for improving solid state
mosaic images
M-FS-20532 B69-10676 01

System converts slow-scan to standard
fast-scan TV signals
MSC-90534 B69-10748 01

VIDEO EQUIPMENT

Vibration tests on vidicons made by improved
method
JPL-SC-115 B66-10042 01

Screen of cylindrical lenses produces
stereoscopic television pictures
M-FS-273 B66-10086 02

Video signal processing system uses gated
current mode switches to perform high speed
multiplication and digital-to-analog
conversion
MSC-781 B66-10429 01

Security warning system monitors up to
fifteen remote areas simultaneously
KSC-66-39 B66-10548 01

Miniature electrometer preamplifier
effectively compensates for input
capacitance
ARC-69 B66-10549 01

Recording and time expansion technique for
high-speed, single-shot transient video
signal
ARC-10003 B67-10139 01

Design concept for improved photo-scan tube
JPL-818 B67-10157 01

New electron microscope employs new video
display technique
ARG-158 B67-10312 03

System remotely inspects, measures, and
records internal irregularities in piping
M-FS-14545 B68-10149 01

Facsimile video enhancement device
GSFC-10185 B68-10207 01

Solid state high-voltage pulser operates

with low supply voltage
M-FS-14034 B68-10308 01

Selective video blanking technique
M-FS-20013 B68-10434 01

VIDICONS

Electromechanically operated camera shutter
provides uniform exposure
JPL-357 B63-10227 01

Raster linearity of video cameras calibrated
with precision tester
GSFC-200 B64-10209 01

Temperature-compensation circuit stabilizes
performance of vidicons
JPL-486 B64-10226 01

Detector circuit compensates for vidicon beam
current variations
GSFC-310 B65-10212 01

Vibration tests on vidicons made by improved
method
JPL-SC-115 B66-10042 01

New television camera eliminates vidicon tube
M-FS-472 B66-10112 01

Infrared television used to detect hydrogen
fires
M-FS-654 B66-10363 01

An improved method for testing performance of
vidicons during vibration
JPL-SC-113 B66-10442 01

Subminiature deflection circuit operates
integrated sweep circuits in TV camera
MSC-1263 B67-10155 01

Closed circuit TV system monitors welding
operations
MSC-11002 B67-10162 01

Plotter design simplifies determination of
image sensor transfer characteristic
NPO-10164 B67-10206 01

Improved television signal processing system
NPO-10140 B67-10246 01

IR vidicon scanner monitors many test
points
M-FS-1937 B67-10277 01

Ultraminiature television camera
M-FS-11967 B67-10469 01

Color-televised medical microscopy
MSC-13086 B68-10314 01

An infrared television system for hydrogen
flame detection
KSC-10368 B69-10354 01

VIEWING

Library of documents compressed into lap-held
display kit
MSC-125 B65-10030 01

Optical projectors simulate human eyes to
establish operator's field of view
WOO-250 B66-10010 02

Pocket-size manual tape reader device aids
computer tape checking
KSC-10058 B67-10361 01

VIGNETTING

Selective vignetting of Type 1 X-ray
telescopes
GSFC-10682 B69-10075 02

VINYL COPOLYMERS

Quick don-doff electrode pastes
MSC-13249 B69-10598 04

SUBJECT INDEX

VISUAL AIDS

Production of crystalline polymers via liquid crystal monomers HQ-10235	B69-10744	03	WSO-321	B66-10550	05
VINYL POLYMERS			Viscous damper MSC-12072	B68-10110	05
Static electricity of polymers reduced by treatment with iodine NPO-10062	B67-10132	03	Identification and evaluation of linear damping models in beam vibrations ARG-10275	B69-10196	03
Heparin insolubilized with crosslinking agent NPO-10834	B69-10299	03	VISCOUS DRAG		
VIRTUAL PROPERTIES			Improved strain-wire flowmeter has fast response time LEWIS-241	B65-10304	01
Improved circularly polarized planar-array antenna NPO-10301	B69-10382	01	Flowmeter measures flow rates of high temperature fluids LEWIS-328	B66-10521	01
VIRUSES			VISCOUS FLUIDS		
Cytology is advanced by studying effects of deuterium environment ARG-205	B67-10304	04	Viscous-pendulum damper suppresses structural vibrations LANGLEY-45	B64-10272	05
VISCOELASTICITY			Damper reduces effects of resonance on force transducer WSO-321	B66-10550	05
Finite element formulation for linear thermoviscoelastic materials NPO-11229	B69-10660	03	Improved gyro-flotation /damping/ fluids MSC-13217	B69-10360	03
VISCOMETERS			VISIBILITY		
Absolute viscosity measured using instrumented parallel plate system JPL-874	B67-10041	01	Split glass tube assures quality in electron beam brazing M-FS-564	B66-10151	05
Viscosity and density of methanol/water mixtures at low temperatures M-FS-14991	B68-10274	03	Scanning photometer system automatically determines atmospheric layer height MSC-245	B66-10170	01
VISCOSITY			Special tool kit aids heavily garmented workers MSC-163	B66-10403	05
Irradiation improves properties of an aromatic polyester LANGLEY-115	B65-10164	03	Improved head-controlled TV system produces high-quality remote image ARG-128	B67-10317	01
Study made of destructive sectioning of complex structures for examination LEWIS-341	B66-10676	05	Thermal protective visor for entering high temperature areas MSC-10285	B68-10277	05
Absolute viscosity measured using instrumented parallel plate system JPL-874	B67-10041	01	Improved combustion chamber optical probe MSC-10953	B69-10142	02
Flowmeter determines mix ratio for viscous adhesives M-FS-2308	B67-10378	01	An infrared television system for hydrogen flame detection KSC-10368	B69-10354	01
Viscosity and density of methanol/water mixtures at low temperatures M-FS-14991	B68-10274	03	VISORS		
Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06	One-piece transparent shell improves design of helmet assembly MSC-187	B66-10390	05
Flow properties of suspensions rich in solids ARG-10481	B69-10622	02	Thermal protective visor for entering high temperature areas MSC-10285	B68-10277	05
Production of crystalline polymers via liquid crystal monomers HQ-10235	B69-10744	03	VISUAL AIDS		
VISCOUS DAMPING			Single projector accommodates slides of different size and format GSFC-439	B66-10016	02
Viscous-pendulum damper suppresses structural vibrations LANGLEY-45	B64-10272	05	Chart case opens to form briefing easel MSC-349	B66-10135	05
Nonresonant support facilitates vibration testing of structures M-FS-224	B65-10039	05	Multicolor stroboscope pinpoints resonances in vibrating components JPL-0033	B66-10223	01
Oil-damped mercury pool makes precise optical alignment tool GSFC-353	B65-10253	02	Simple scale interpolator facilitates reading of graphs LEWIS-92	B66-10302	05
Damping technique gives accelerometer flat frequency response M-FS-471	B66-10293	01	Sea dye marker provides visibility for 20 hours MSC-714	B66-10313	03
Damper reduces effects of resonance on force transducer			Chart system simplifies identification of complex design assemblies		

VISUAL CONTROL

SUBJECT INDEX

MSC-752	B66-10460	05	Screen of cylindrical lenses produces stereoscopic television pictures	B66-10086	02
Visual attitude orientation and alignment system			M-FS-273		
MSC-647	B67-10120	02	Torque wrench allows readings from inaccessible locations	B66-10204	05
Vis-A-Plan /visualize a plan/ management technique provides performance-time scale			M-FS-598		
KSC-10073	B67-10240	06	Instrument transmits vanishing point to illustration point	B66-10324	01
New electron microscope employs new video display technique			MSC-267A		
ARG-158	B67-10312	03	Infrared television used to detect hydrogen fires	B66-10363	01
Low cost SCR lamp driver indicates contents of digital computer registers			M-FS-654		
GSFC-10221	B67-10656	01	Three-axis attitude and direction reference instrument has only one moving part	B66-10644	01
			M-FS-1819		
VISUAL CONTROL			Polarized light reveals stress in machined laminated plastics	B67-10383	03
Visual attitude orientation and alignment system			LEWIS-10018		
MSC-647	B67-10120	02			
VISUAL FIELDS			VISUAL SIGNALS		
Optical projectors simulate human eyes to establish operator's field of view			Speed-sensing device aids crane operators		
WOO-250	B66-10010	02	WS-4	B64-10006	05
Optical device enables small detector to see large field of view			Device detects unbonded areas in plastic laminates	B65-10380	01
WOO-253	B66-10263	02	WOO-206		
One-piece transparent shell improves design of helmet assembly			Conceptual apparatus for detecting leaks of nonconductive liquids	B68-10303	01
MSC-187	B66-10390	05	M-FS-14713		
VISUAL OBSERVATION			Automatic patient respiration failure detection system with wireless transmission	B68-10365	01
Use of photographs speeds inspection of printed-circuit boards			ARC-10174		
MSC-72	B64-10118	01	Use of both linear and logarithmic transfer functions to increase dynamic range of visual channel		
High-speed furnace uses infrared radiation for controlled brazing			GSFC-10675	B69-10037	01
NU-0047	B66-10268	02	Occulting-filter method for obtaining flashing-light visibility data	B69-10107	02
High pressure cryogenic liquid flow sight assembly provides streamlined flow for easy observation			MSC-13097		
LEWIS-310	B66-10394	01			
Quality control criteria for acceptance testing of cross-wire welds			VITREOUS MATERIALS		
MSC-627	B66-10587	05	Selenium bond decreases ON resistance of light-activated switch	B65-10324	01
Fused diode provides visual indication of fuse condition			JPL-SC-101		
KSC-67-16	B67-10230	01	VLASOV EQUATIONS		
Simplified technique demonstrates magnetic domain switching			Computer programs calculate potential and charge distributions in a plasma	B66-10553	01
M-FS-13153	B67-10342	02	M-FS-871		
Automatic patient respiration failure detection system with wireless transmission			VOCODERS		
ARC-10174	B68-10365	01	Analog voicing detector responds to pitch	B67-10571	01
Visual task analysis /VISTA/			GSFC-10085		
M-FS-14716	B69-10394	06	VOICE		
Cryogenic fluid flow instabilities in heat exchangers			Electronic dummy for acoustical testing	B67-10298	01
M-FS-20438	B69-10541	02	MSC-206		
A method for precision anodize stripping			VOICE COMMUNICATION		
MSC-15040	B69-10581	03	Electrocardiograph transmitted by RF and telephone links in emergency situations	B68-10233	01
Long range holographic contour mapping concept			FRC-10031		
HQ-10350	B69-10700	02	Pocket-sized tone-modulated FM transmitter	B69-10725	01
			NPO-11180		
VISUAL PERCEPTION			VOID RATIO		
Distant objects detected visually with optical filters			Mathematical relation predicts achievable densities of compacted particles	B67-10592	03
LANGLEY-166	B65-10252	02	ARG-10082		
Instrument quickly transposes ground reference target to eye level			Fuel element concept for long life high power nuclear reactors	B69-10154	03
MSC-275	B66-10061	05	LEWIS-10309		
			VOIDS		
			Liquid crystals detect voids in fiber glass laminates	B67-10286	03
			LEWIS-10104		

SUBJECT INDEX

VOLTAGE REGULATORS

Vibration damping composition has flush-away feature M-FS-597	B67-10432	03	image sensor transfer characteristic NPO-10164	B67-10206	01
Plastic shoe facilitates ultrasonic inspection of thin wall metal tubing NUC-10010	B67-10542	02	Amplifier provides dual outputs from a single source with complete isolation NUC-10056	B67-10221	01
Niobium-uranium alloys with voids of predetermined size and total volume ARG-10490	B69-10641	03	Vibrator elapsed time is automatically controlled M-FS-2573	B67-10284	01
VOIGT EFFECT A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voight line profile ARC-10221	B69-10232	06	Limit circuit prevents overdriving of operational amplifier NUC-10082	B67-10343	01
VOLATILITY New cobalt alloys have high-temperature strength and long life in vacuum environments LEWIS-47	B63-10351	03	Current pulse amplifier transmits detector signals with minimum distortion and attenuation NUC-10055	B67-10347	01
Solvent residue content measured by light scattering technique M-FS-850	B66-10320	01	Adaptive control circuit prevents amplifier saturation ERC-10026	B67-10648	02
Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels ARG-232	B67-10032	03	Improved dc voltage multiplier M-FS-14042	B68-10074	01
Improved compression molding process LANGLEY-10027	B67-10302	03	Highly linear, sensitive analog-to-digital converter MSC-13110	B69-10230	01
Technological survey of tellurium and its compounds ARG-10119	B68-10201	03	VOLTAGE GENERATORS Pressure sensor responds only to shock wave M-FS-238	B65-10184	01
Characteristics of fluidized-packed beds ARG-10049	B68-10278	03	Modular thermoelectric cell is easily packaged in various arrays GSPC-339	B65-10199	01
Dispensing graduate for butadiene NPO-10070	B68-10524	03	Electron-beam deflection controlled by digital signals GSPC-385	B65-10283	02
Apparatus automatically measures soluble residue content of volatile solvents SAN-10032	B69-10292	03	Dual-voltage power supply has increased efficiency LEWIS-107A	B66-10002	01
A method for observing gas evolution during plastic laminate cure MSC-15592	B69-10530	03	Simple, one transistor circuit boosts pulse amplitude GSPC-501	B66-10480	01
Technique for ultrasonic cleaning with volatile solvents eliminates need for hoods or condensers MSC-15611	B69-10552	03	Circuit increases capability of hysteresis synchronous motor MSC-1080	B67-10084	01
VOLT-AMPERE CHARACTERISTICS Didymium compound improves nickel-cadmium cell GSPC-295	B65-10083	03	Superconducting switch permits measurement of small voltages at cryogenic temperatures ARG-90260	B68-10087	01
Adaptive control circuit prevents amplifier saturation ERC-10026	B67-10648	02	System measures response time of photomultiplier tubes LEWIS-10437	B68-10382	01
Simple quasi-exponential slope generator NPO-11130	B69-10439	01	Linear voltage-to-frequency converter GSPC-10546	B69-10220	01
VOLTAGE AMPLIFIERS Field effect transistor presents high input impedance in ac amplifier JPL-500	B65-10232	01	Synchronizing redundant power oscillators XGS-09377	B69-10546	01
Solid state thermostat has integral probe and circuitry M-FS-434	B66-10193	01	VOLTAGE REGULATORS Field effect transistors used as voltage controlled resistors M-FS-174	B64-10163	01
MOSFET analog memory circuit achieves long duration signal storage M-FS-860	B66-10603	01	Transistorized converter provides nondissipative regulation GSPC-238	B64-10305	01
Voltage regulator/amplifier is self-regulated MSC-1240	B67-10156	01	Variable frequency magnetic multivibrator generates stable square-wave output GSPC-AE-21	B65-10124	01
Plotter design simplifies determination of			Inductor flyback characteristic gives voltage regulator fast response GSPC-361	B65-10257	01
			Constant-current regulator improves tunnel diode threshold-detector performance GSPC-239	B65-10282	01

VOLTMETERS

SUBJECT INDEX

Dual-voltage power supply has increased efficiency
LEWIS-107A B66-10002 01

Circuit exhibits power efficiency greater than 75 percent
MSC-254 B66-10034 01

Improved chopper circuit uses parallel transistors
M-FS-468 B66-10113 01

Soldering iron temperature is automatically reduced
ARC-57 B66-10203 01

Circuit protects regulated power supply against overload current
GSFC-453 B66-10292 01

Circuit prevents overcharging of secondary cell batteries
GSFC-454 B66-10492 01

Preregulator feedback circuit utilizes Light Actuated Switch
M-FS-1180 B66-10542 01

Electronic circuit provides accurate sensing and control of dc voltage
NU-0089 B66-10591 01

Low input voltage converter/regulator minimizes external disturbances
GSFC-527 B66-10689 01

Voltage regulator/amplifier is self-regulated
MSC-1240 B67-10156 01

Switching-type regulator circuit has increased efficiency
MSC-1063 B67-10190 01

An efficient, temperature-compensated subcarrier oscillator
JPL-SC-091 B67-10251 01

Circuit provides overcurrent protection to push-pull amplifier
MSC-12033 B67-10300 01

Digital-to-analog converter operates from low level inputs
JPL-907 B67-10357 01

Battery charge regulator is coulometer controlled
GSFC-561 B67-10446 01

Digital voltage-controlled oscillator
GSFC-512 B67-10449 01

MOSFET improves performance of power supply regulator
GSFC-10022 B67-10569 01

Circuit detects voltage decrease in computer power supply
KSC-67-120 B68-10019 01

Deep space FM system, a concept
MSC-11825 B68-10289 01

Current-limiting voltage regulator
MSC-11824 B68-10305 01

Analysis and design of a class-D amplifier
M-FS-14803 B68-10313 01

Concept to convert electrical power
GSFC-10222 B68-10321 01

Improved limiter for turn-on current transient
GSFC-10413 B68-10384 01

High-efficiency step-up regulator
M-FS-20049 B68-10432 01

Isolated, multiple-output voltage dc-to-dc converter
M-FS-14976 B69-10014 01

Millivolt signal limiter
LEWIS-90297 B69-10015 01

Improved dc voltage regulator
XKS-06467 B69-10369 01

High-temperature, gas-filled ceramic rectifiers, thyratrons, and voltage-reference tubes
LEWIS-90271 B69-10376 01

Constant-frequency, variable-duty-cycle multivibrator
XGS-10033 B69-10512 01

VOLTMETERS

Emission tester for high-power vacuum tubes
JPL-628 B64-10158 01

Improved magnetometer uses toroidal gating coil
GSFC-249 B65-10103 01

Piezoresistive gage tests pin-connector sockets
JPL-675 B65-10128 01

Digital-output cardiometer measures rapid changes in heartbeat rate
MSC-133 B65-10143 01

Spiral spring/strain gage combination accurately measures shock induced deflection
MSC-789 B66-10488 01

Magnetoresistor monitors relay performance
M-FS-1754 B66-10650 01

Test instrumentation evaluates electrostatic hazards in fluid system
M-FS-2277 B67-10145 01

Potassium plasma cell facilitates thermionic energy conversion process
ARG-10010 B67-10399 01

Transient sensor development
M-FS-13370 B67-10471 01

Recharge unit provides for optimum recharging of battery cells
GSFC-10688 B68-10273 01

System measures arc energy dissipated in relay contact cycling
M-FS-14541 B68-10312 01

Identification of thermocouple material
M-FS-18540 B69-10356 01

Optimum FM pre-emphasis
KSC-10151 B69-10359 01

Automatic calorimetry system monitors RF power
NPO-11033 B69-10384 01

Instrumentation for potentiostatic corrosion studies with distilled water
ARG-10409 B69-10413 03

VOLUME

Volumetric system calibrates meters for large flow rates
WOO-130 B65-10323 05

Concept for passive system to control gas flow independently of temperature
M-FS-982 B66-10343 05

Automated microsyringe is highly accurate and reliable
NPO-10142 B67-10203 01

Large volume continuous counterflow

dialyzer has high efficiency HQ-10055	B67-10395	04	impurities into semiconductor wafers GSFC-523	B67-10303	01
SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield NUC-10142	B67-10537	06	Test and inspection for process control of monolithic circuits M-FS-13084	B67-10507	01
Leakage tester for flat conductor cable connector M-FS-20427	B69-10284	05	High-temperature /1100 degrees F/ capacitors operate without supplement cooling LEWIS-10324	B67-10550	01
A laboratory method for precisely determining the micro-volume-magnitudes of liquid efflux ARC-10052	B69-10295	05	Broadband choke suppresses spurious currents in antenna structure MSC-10013	B67-10675	01
VOLUMETRIC ANALYSIS Computer circuit calculates cardiac output MSC-274	B66-10006	01	Improved method of dicing integrated circuit wafers into chips ERC-10138	B69-10441	01
Method of improving contact bonds in silicon integrated circuits M-FS-1753	B67-10335	01	Reducing contact resistance at semiconductor to metal or aluminum to metal interfaces ERC-10254	B69-10689	01
VORTEX INJECTORS Study of vortex valve for medium temperature solid propellants LANGLEY-204	B66-10524	01	WAKES Acoustic wave analysis M-FS-18076	B68-10265	02
VORTICES Fluid logic control circuit operates nutator actuator motor LEWIS-294	B66-10593	05	WALKING Integrated mobility measurement and notation system MSC-726	B67-10114	04
Experimental scaling study of fluid amplifier elements M-FS-1882	B67-10088	02	WALL TEMPERATURE Variable-transparency wall regulates temperatures of structures LANGLEY-25	B63-10528	03
VORTICITY Experimental design for research on shock-turbulence interaction M-FS-20031	B69-10604	02	Computer optimization program finds values for several independent variables that minimize a dependent variable M-FS-13030	B67-10328	06
VOTING Logic realization of simple majority voting connectives JPL-727	B67-10511	06	WALLS Variable-transparency wall regulates temperatures of structures LANGLEY-25	B63-10528	03
VULCANIZED ELASTOMERS Compressible sleeve provides automatic centering for grinding or turning of cylinders SAN-10021	B68-10318	05	Metal tube reducer is inexpensive and simple to operate ARG-49	B67-10401	05
VULCANIZING Rubber-coated bellows improves vibration damping in vacuum lines LEWIS-273	B66-10187	02	Buckling Of Shells Of Revolution /BOSOR/ with various wall constructions LANGLEY-10441	B69-10300	06
Encapsulation technique eliminates thermal stresses in welded electronic modules M-FS-14581	B68-10307	01	Surface-renewal models for heat-transfer between walls and fluidized beds ARG-10372	B69-10772	02
VYCOR Laboratory arc furnace features interchangeable hearths ARG-125	B67-10052	05	WARNING SYSTEMS Fuel cell serves as oxygen level detector JPL-SC-072	B65-10066	01
Precision capacitor has improved temperature and operational stability ARG-189	B67-10313	01	Pressure sensor responds only to shock wave M-FS-238	B65-10184	01
WAFERS Stepping switch with simple actuator provides many contacts in small space JPL-122	B63-10118	01	Detection system ensures positive alarm activation in digital message loss WOO-208	B66-10287	01
System for etching thick aluminum layers minimizes bridging and undercutting M-FS-1366	B66-10400	03	Security warning system monitors up to fifteen remote areas simultaneously KSC-66-39	B66-10548	01
Efficient millimeter wave 1140 GHz/ diode for harmonic power generation HQ-61	B67-10166	01	Multiple meter monitoring circuits served by single alarm MSC-10984	B67-10369	01
Process controls introduction of selected			Silicon solar cell monitors high temperature furnace operation NUC-10163	B68-10148	01
			Automatic patient respiration failure detection system with wireless transmission ARC-10174	B68-10365	01
			WARPAGE Concealed hinge permits flush mounting of doors and hatches		

W

WASHERS

SUBJECT INDEX

MSC-623	B66-10336	03	Electrolytic silver ion cell sterilizes water supply MSC-11827	B68-10555	01
Heat-treatment of metal parts facilitated by sand embedment M-FS-1543	B66-10616	03	WASTES Analytical technique characterizes all trace contaminants in water MSC-11032	B67-10243	03
Stabilizing stainless steel components for cryogenic service M-FS-13127	B67-10377	05	Replacement of fluid-filter elements without interruption of flow MSC-15499	B69-10245	05
Precision metal molding M-FS-13305	B67-10423	05	WATER Inorganic paint is durable, fireproof, easy to apply GSFC-366	B65-10156	03
Warpage eliminated in copper-clad microwave circuit laminates M-FS-13892	B67-10454	03	Infrared shield facilitates optical pyrometer measurements LANGLEY-133	B65-10272	02
Asbestos and Inconel combined to form hot-gas seal M-FS-14004	B68-10162	05	Reaction heat used in static water removal from fuel cells M-FS-532	B66-10013	01
Techniques for controlling warpage and residual stresses in welded structures M-FS-20307	B69-10086	05	Microorganisms detected by enzyme-catalyzed reaction JPL-782	B66-10117	04
WASHERS Bimetallic devices help maintain constant sealing forces down to cryogenic temperatures M-FS-800	B66-10325	02	Electropneumatic transducer automatically limits motor current LEWIS-253	B66-10160	01
WASHERS (SPACERS) Indium foil with beryllia washer improves transistor heat dissipation GSFC-42	B63-10033	01	Coating permits use of strain gage in water and liquid hydrogen M-FS-594	B66-10192	01
New package for Belleville spring permits rate change, easy disassembly JPL-392	B63-10247	05	Simple, nondestructive test identifies metals MSC-525	B66-10305	03
Composite seal reduces alkaline battery leakage GSFC-337	B65-10271	01	Modular Porous Plate Sublimator /MPPS/ requires only water supply for coolant M-FS-1374	B66-10409	01
Mounting improves heat-sink contact with beryllia washer MSC-194	B66-10144	01	Ultrasonic water column probe speeds up testing of welds HQ-58	B66-10577	01
Design concept for pressure switch calibrator HQ-36	B66-10598	01	Ion exchange determines iodine-131 concentration in aqueous samples ARG-208	B67-10129	04
Friction brake cushions acceleration and vibration loads MSC-715	B66-10608	05	Water cooled anode increases life of high temperature arc lamp NPO-10180	B67-10247	02
Miniature capacitor functions as pressure sensor JPL-903	B67-10020	01	Computer program predicts thermal and flow transients experienced in a reactor loss-of-flow accident NUC-10054	B67-10281	06
Aluminum and stainless steel tubes joined by simple ring and welding process M-FS-13120	B67-10472	05	Trace hydrazines in aqueous solutions accurately determined by gas chromatography MSC-11222	B67-10290	03
Electrothermal linear actuator NPO-10637	B69-10296	05	Scribable coating for plastic films MSC-11194	B67-10409	03
Removal of retaining washers of the waffle-spring type MSC-15531	B69-10350	05	Vibration damping composition has flush-away feature M-FS-597	B67-10432	03
Pressure transducer NPO-10853	B69-10364	01	Fuel cell life improved by metallic sinter activation after electrode assembly welding MSC-10965	B67-10436	03
WASPALLOY Technique for predicting the thermal expansion coefficients of cryogenic metallic alloys NUC-10554	B69-10707	02	Reaction of steam with molybdenum is studied ARG-295	B67-10502	03
WASTE DISPOSAL Rock bit requires no flushing medium to maintain drilling speed JPL-W00-031	B65-10109	05	Performance of turbine-type flowmeters in liquid hydrogen LEWIS-10137	B67-10506	01
WASTE UTILIZATION Concept for cryogenic liquid reclamation system NPO-10322	B67-10420	02	Viscosity and density of methanol/water mixtures at low temperatures M-FS-14991	B68-10274	03

SUBJECT INDEX

WATERPROOFING

Electrochemical study of aluminum corrosion in boiling high purity water ARG-10306	B69-10033	03	determined by emission spectrography MSC-1193	B66-10701	03
Calibrated water tank facilitates proof-loading of cranes and derricks M-FS-15059	B69-10109	05	Effects of surface preparation on quality of aluminum alloy weldments M-FS-13152	B68-10302	03
Primary radical yields in pulse irradiated alkaline aqueous solution ARG-10322	B69-10167	02	Electrolytic silver ion cell sterilizes water supply MSC-11827	B68-10555	01
Reduction by monovalent zinc, cadmium, and nickel cations ARG-10328	B69-10170	03	Improved pH buffering agent for sodium hypochlorite MSC-15443	B69-10084	03
Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna ARG-10345	B69-10258	02	A method for precision anodize stripping MSC-15040	B69-10581	03
Technique for highly efficient recovery of microbiological contaminants MSC-13250	B69-10273	04	Self-sustained hydrodynamic oscillations in a natural-circulation two-phase-flow boiling loop ARG-10461	B69-10620	02
Rate of heat extraction controller for environmental control HQ-10318	B69-10516	01	WATER VAPOR Apparatus measures concentration of suspended droplets in gas streams LANGLEY-31	B64-10237	01
Measurement of gas flow at extremely low pressures MSC-13261	B69-10522	03	Reaction heat used in static water removal from fuel cells M-FS-532	B66-10013	01
Water-glycol system volume calculation MSC-15193	B69-10563	02	Lamp enables measurement of oxygen concentration in presence of water vapor MSC-10043	B67-10387	01
Quick don-doff electrode pastes MSC-13249	B69-10598	04	Welding of commercial base plates is investigated M-FS-13649	B68-10192	03
Device separates hydrogen from solution in water at ambient temperatures MSC-13335	B69-10635	03	Plume radiation program M-FS-13202	B68-10447	06
WATER FLOW Transducer measures temperature differentials in presence of strong electromagnetic fields ARC-27	B65-10089	01	High conductance vapor thermal switch GSFC-10109	B68-10519	02
Studies reveal effects of pipe bends on fluid flow cavitation M-FS-516	B66-10228	05	Reliable method for testing gross leaks in semiconductor component packages ERC-10150	B68-10562	01
Low rate flow switch can be used for gas or liquid JPL-867	B66-10696	01	Two systems developed for purifying inert atmospheres ARG-10234	B69-10026	03
Corrosion reduction of aluminum alloys in flowing high-temperature water ARG-10244	B69-10029	03	Dewpoint temperature inversions analyzed ARG-10316	B69-10057	02
Propagation of density disturbances in air-water flow ARG-10260	B69-10043	02	Coatings decrease metal fatigue failure ARC-10015	B69-10176	03
WATER INJECTION Computer program calculates peripheral water injection cooling of axisymmetric subsonic diffuser NUC-10541	B67-10543	06	Prediction of thermal radiation from a rocket's exhaust plume M-FS-20414	B69-10371	02
WATER MODERATED REACTORS Portable, high intensity isotopic neutron source provides increased experimental accuracy ARG-90250	B68-10243	02	Molecular radiation - Its application in physical measurements and analyses M-FS-14816	B69-10562	02
WATER POLLUTION Reduction by monovalent zinc, cadmium, and nickel cations ARG-10328	B69-10170	03	Millimeter-wave atmospheric loss prediction method NPO-11054	B69-10584	01
Airborne Fraunhofer Line Discriminator MSC-13146	B69-10594	02	WATERPROOFING Inexpensive electrical connector is moisture and corrosion-proof MSC-164	B65-10196	01
WATER TREATMENT Emergency solar still desalts seawater MSC-135	B65-10214	03	Coating permits use of strain gage in water and liquid hydrogen M-FS-594	B66-10192	01
Trace levels of metallic corrosion in water			Electrical cabling withstands severe environmental conditions M-FS-1585	B66-10427	01
			High energy forming facility M-FS-14026	B67-10588	05

WATTMETERS

SUBJECT INDEX

WATTMETERS

Circuit measures hysteresis loop areas at 30 Hz
M-FS-13069 B67-10519 01

Calibration technique for electromagnetic flowmeters
LEWIS-10328 B67-10554 01

WAVE ATTENUATION
System precisely controls oscillation of vibrating mass
M-FS-1875 B67-10276 01

Stress-corrosion-induced property changes in aluminum alloys
M-FS-20209 B68-10568 03

WAVE DIFFRACTION
Optical frequency waveguide and ion transmission system
HQ-10541 B69-10746 01

WAVE DRAG
Program computes zero lift wave drag of entire aircraft
LANGLEY-10079 B67-10530 06

WAVE EQUATIONS
Acoustic wave analysis
M-FS-18076 B68-10265 02

Solution of differential equations by application of transformation groups
M-FS-14802 B68-10276 02

WAVE EXCITATION
Antenna configurations provide polarization diversity
GSFC-74 B66-10066 01

Glow discharge density sensor probe life is extended
M-FS-1707 B67-10229 01

Vibration testing and dynamic studies of relays
M-FS-14542 B68-10268 01

Evaluation of magnetic materials for static inverters and converters
LEWIS-10343 B69-10306 01

WAVE FUNCTIONS
Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters
M-FS-13594 B67-10527 03

WAVE GENERATION
Variable frequency magnetic multivibrator generates stable square-wave output
GSFC-AE-21 B65-10124 01

Glow discharge density sensor probe life is extended
M-FS-1707 B67-10229 01

A phonocardiogram simulator
KSC-67-94 B67-10239 01

Signal generator converts direct current to multiphase supplies
MSC-11043 B67-10368 01

Development of detonation reaction engine
M-FS-14020 B67-10652 01

Pneumatic pressure wave generator provides economical, simple testing of pressure transducers
NUC-10024 B67-10664 05

Simple quasi-exponential slope generator
NPO-11130 B69-10439 01

WAVE INTERACTION
One-dimensional Coulomb-damped wave motion in prismatic bars

M-FS-14815 B68-10548 02

WAVE PROPAGATION
Ultrasonics used to measure residual stress
M-FS-12449 B67-10428 02

Study made of large amplitude fuel sloshing
M-FS-12381 B67-10439 03

Propagation of density disturbances in air-water flow
ARG-10260 B69-10043 02

Damping of thermoelastic structures
M-FS-20002 B69-10467 02

Millimeter-wave atmospheric loss prediction method
NPO-11054 B69-10584 01

WAVE REFLECTION
The effect of mismatched components on microwave noise-temperature calibrations
NPO-11163 B69-10333 01

WAVEFORMS
Low-power transistorized circuit provides staircase waveform
GSFC-48 B64-10007 01

Improved electrode gives high-quality biological recordings
MSC-17 B64-10025 04

Analog device simulates physiological waveforms
MSC-51 B64-10109 01

Pneumotachometer counts respiration rate of human subject
MSC-92 B64-10259 01

Circuit converts AM signals to FM for magnetic recording
GSFC-227 B65-10001 01

Simulator produces physiological waveforms
MSC-94 B65-10091 01

Transistorized circuit clamps voltage with 0.1 percent error
GSFC-196 B65-10118 01

Auxiliary circuit enables automatic monitoring of EKG'S
MSC-106 B65-10142 01

Frequency discriminator with binary output eliminates tuned circuits
M-FS-376 B65-10349 01

Function generator eliminates necessity of series summation
GSFC-214 B66-10351 01

Feedback loop compensates for rectifier nonlinearity
M-FS-384 B66-10382 01

Parallel line raster eliminates ambiguities in reading timing of pulses less than 500 microseconds apart
JPL-805 B66-10386 01

Subminiature deflection circuit operates integrated sweep circuits in TV camera
MSC-1263 B67-10155 01

Fast-response frequency-to-analog converter
M-FS-709 B67-10257 01

Electronic test instrument generates extremely small current signals
ARG-276 B67-10318 01

Logic circuit detects both present and missing negative pulses in superimposed wave trains
M-FS-12518 B67-10565 01

SUBJECT INDEX

WAVELENGTHS

Pneumatic pressure wave generator provides economical, simple testing of pressure transducers NUC-10024	B67-10664	05	NPO-10843	B67-10657	01
Ultraminiature manometer-tipped cardiac catheter ARC-10054	B67-10669	01	Improved traveling wave maser amplifier NPO-10548	B68-10244	01
Dynamic linearity measurement technique KSC-10186	B68-10290	01	Optically induced free carrier light modulator GSFC-10216	B69-10114	01
Nondestructive test determines overload destruction characteristics of current limiter fuses XGS-08566	B68-10364	01	Sweep frequency detector NPO-10669	B69-10289	01
Operational integrator NPO-10230	B68-10547	01	Phase multiplying electronic scanning array NPO-10302	B69-10381	01
Simple tunnel diode circuit for accurate zero crossing timing ARG-10309	B69-10116	01	A compact rotary vane attenuator NPO-10562	B69-10427	01
Schmitt trigger multivibrator MSC-10955	B69-10143	01	Rotary antenna attenuator NPO-10648	B69-10502	01
Two devices for analysis of nystagmus HQ-10273	B69-10224	01	Optical frequency waveguide and ion transmission system HQ-10541	B69-10746	01
Simplified system displays complex curves corresponding to input data HQ-10073	B69-10247	01	WAVELENGTHS		
Combination ranging system and mapping radar NPO-11001	B69-10325	01	Fresnel zone plate forms images at wavelengths below 1000 angstroms GSFC-231	B65-10171	02
Improved circularly polarized planar-array antenna NPO-10301	B69-10382	01	Beam splitter used in dual filming technique M-FS-501	B66-10072	02
Simple quasi-exponential slope generator NPO-11130	B69-10439	01	Inexpensive infrared source improvised from flashlight M-FS-494	B66-10096	02
WAVEGUIDE ANTENNAS			A continuously operating source of vacuum ultraviolet below 500 angstrom GSFC-545	B66-10576	01
Improved circularly polarized planar-array antenna NPO-10301	B69-10382	01	A radiometer-pyrometer LEWIS-284	B66-10606	01
WAVEGUIDE WINDOWS			Solar X-ray spectrum reproduced in vacuum MSC-228	B67-10164	02
Cryogenic waveguide window is sealed with plastic foam JPL-559	B63-10613	01	X-ray source uses interchangeable target anodes to vary X-ray wavelength NPO-10036	B67-10218	02
WAVEGUIDES			Blood oxygen saturation determined by transmission spectrophotometry of hemolyzed blood samples MSC-11018	B67-10252	04
Novel horn antenna reduces side lobes, improves radiation pattern JPL-425	B63-10264	01	Self-balancing line-reversal pyrometer automatically measures gas temperatures LEWIS-348	B67-10268	01
Ferroelectric bolometer measures RF absolute power at submillimeter wavelengths GSFC-422	B66-10051	01	Measuring coplanarity of surfaces MSC-12044	B67-10371	02
Omnidirectional antennas transmit and receive over large bandwidth GSFC-436	B66-10133	01	Ultrasonics used to measure residual stress M-FS-12449	B67-10428	02
Composite filter steepens rejection slopes in microwave application GSFC-480	B66-10393	01	Glancing incidence telescope for far ultraviolet and soft X-rays GSFC-10052	B67-10508	02
Process reduces secondary resonant emission in electronic components JPL-934	B66-10685	01	Broadband choke suppresses spurious currents in antenna structure MSC-10013	B67-10675	01
Liquid hydrogen densitometer utilizes open-ended microwave cavity LEWIS-390	B67-10115	01	Electro-optic modulator for infrared laser using gallium arsenide crystal GSFC-10686	B68-10255	02
Efficient millimeter wave 1140 GHz/ diode for harmonic power generation HQ-61	B67-10166	01	Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01
Dielectric prisms would improve performance of quasi-optical microwave components ERC-10011	B67-10416	01	Fluorescent photography of spray droplets using a laser light source LEWIS-10777	B69-10122	02
Reflectometer for receiver input system			A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voigt		

WAVES

SUBJECT INDEX

line profile ARC-10221	B69-10232	06	Gallium alloy films investigated for use as boundary lubricants LEWIS-245	B66-10165	03
Continuous analysis of nitrogen dioxide in gas streams of plants ARG-10356	B69-10254	03	Intermediate rotating ring improves reliability of dynamic shaft seal M-FS-575	B66-10197	05
Laser action from a terbium beta-ketoenolate at room temperature GSFC-10593	B69-10324	02	Valve seat pores sealed with thermosetting monomer M-FS-900	B66-10322	03
Hydrogen flash lamps studied ARG-10419	B69-10411	02	Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics LEWIS-320	B66-10373	03
The Quantasyn, an improved quantum detector ERC-10148	B69-10443	01	Visco seal design offers zero-leakage and wear-free characteristics WSO-329	B67-10047	05
Discrimination of fish oil and mineral oil slicks on sea water HQ-10412	B69-10673	01	High-temperature bearing lubricants LEWIS-10408	B68-10249	05
Long range holographic contour mapping concept HQ-10350	B69-10700	02	WEAR TESTS Gallium alloy films investigated for use as boundary lubricants LEWIS-245	B66-10165	03
WAVES Improved gas ring laser MSC-11584	B68-10304	02	Environmental study of miniature slip rings M-FS-2443	B67-10210	05
One-dimensional Coulomb-damped wave motion in prismatic bars M-FS-14815	B68-10548	02	Cut-through tester accurately measures insulation failure rates M-FS-12506	B67-10354	03
WAXES Silazane polymers show promise for high- temperature application M-FS-466	B66-10194	03	Mechanical properties of wire insulation automatically determined MSC-10983	B67-10370	01
Proposed method of rotary dynamic balancing by laser M-FS-12422	B67-10452	02	Study of high temperature bearing materials LEWIS-10829	B69-10252	03
Synthesis of polyethers of hexafluorobenzene and hexafluoropentenediol M-FS-14962	B69-10636	03	WEATHER FORECASTING Crossed-beam technique for measuring horizontal winds M-FS-20160	B69-10447	02
WEAPONS DEVELOPMENT Rolamite - A new mechanical design concept SAN-10001	B67-10611	05	Balloon batteries, charged and heated by solar energy GSFC-10769	B69-10585	01
WEAR Fatigue tester achieves true axial motion through flex plates and bars NU-0021	B66-10164	01	WEATHERING Simulated hailstone fabrication and use in testing weatherability of structures NPO-10783	B68-10552	03
Modified drill permits one-step drilling operation M-FS-559	B66-10169	05	WEAVING Composite weld rod corrects individual filler weaknesses M-FS-1923	B67-10107	05
Wire material reduces compressor blade vibration LEWIS-357	B66-10666	03	Nonwoven glass fiber mat reinforces polyurethane adhesive M-FS-2309	B67-10113	03
Composites of porous metal and solid lubricants increase bearing life LEWIS-307	B67-10007	03	WEBBING Portable flooring protects finished surfaces, is easily moved M-FS-15	B63-10387	05
Solenoid valve design has one moving part NPO-10039	B67-10219	05	Novel shock absorber features varying yield strengths MSC-63A	B64-10138	03
Wear studies made of slip rings and gas bearing components M-FS-12882	B67-10403	05	Nylon shock absorber prevents injury to parachute jumpers MSC-226	B66-10080	05
Solenoid valve design minimizes vibration and sliding wear problem M-FS-14079	B67-10667	05	Web belt load measuring instrument has excellent stability MSC-921	B67-10242	01
Spiral-grooved shaft seals substantially reduce leakage and wear LEWIS-10397	B68-10270	05	WEDGES Frictional wedge shock mount is inexpensive, has good damping characteristics JPL-IT-1001	B63-10289	05
A new solid lubricant LEWIS-10812	B69-10250	03	Heavy duty precision leveling jacks expedite		
WEAR INHIBITORS Compact retractor protects cabling loops M-FS-561	B66-10018	05			

SUBJECT INDEX

WELD STRENGTH

setup time on horizontal boring mill
M-FS-1084 B66-10411 05

WEIGHT
Aluminum/steel wire composite plates exhibit high tensile strength
M-FS-401 B66-10262 05

WEIGHT (MASS)
Lightweight magnesium-lithium alloys show promise
M-FS-17 B63-10389 03

Regenerative fuel cell combines high efficiency with low cost
WOO-090 B65-10363 01

White primer permits a corrosion-resistant coating of minimum weight
M-FS-304 B66-10207 03

Pneumatic separator gives quick release to heavy loads
KSC-66-10 B66-10294 05

High-performance RC bandpass filter is adapted to miniaturized construction
ARC-60 B66-10309 01

Rotary valve controls multiple hydraulic leveling cylinders
M-FS-361 B66-10402 05

Heavy duty precision leveling jacks expedite setup time on horizontal boring mill
M-FS-1084 B66-10411 05

Simple motor drive system operates heavy hinged door
NU-0093 B66-10712 05

Hydrostatic force used to handle outsized, heavy objects
HQ-90 B67-10167 05

System enables dimensional inspection of very large structures
M-FS-2477 B67-10214 05

SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield
NUC-10142 B67-10537 06

Advances in aluminum anodizing
M-FS-14600 B69-10144 05

Electronic analog equalization for vibrational testing
NPO-10544 B69-10472 01

WEIGHT ANALYSIS
Weight Control System
M-FS-15028 B69-10041 06

WEIGHT INDICATORS
A design procedure for the weight optimization of straight finned radiators
GSFC-547 B66-10618 05

Digital servo readout system increases recording accuracy of servo-balance scales
NUC-10125 B67-10496 01

WEIGHT MEASUREMENT
Mechanism isolates load weighing cell during lifting of load
MSC-297 B66-10071 05

Three-axis attitude and direction reference instrument has only one moving part
M-FS-1819 B66-10644 01

Remote balance weighs accurately amid high radiation
ARG-10387 B69-10242 05

Metallic diffusion measured by a modified Knudsen technique

HQ-10145 B69-10309 03

WEIGHTING FUNCTIONS
Procedure developed for reporting fast-neutron exposure
ARG-10035 B68-10190 02

WEIGHTLESSNESS
Magnetic fluid readily controlled in zero gravity environment
LEWIS-126 B65-10335 03

Automatic fluid separator supplies own driving power
WOO-085 B66-10008 02

Simulator effects partial gravity conditions
MSC-152 B66-10339 05

Hole saw drill attachment has zero force reaction
MSC-543 B66-10604 05

Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry
NPO-10149 B67-10245 04

Food products for space applications
MSC-11697 B68-10324 04

WELD STRENGTH
Probe tests microweld strength
WOO-118 B65-10111 05

Shoulder adapter steadies spot welding gun
M-FS-321 B66-10076 05

Ultrasonic recording scanner used for nondestructive weld inspection
M-FS-284 B66-10220 01

Dot patterns provide reproducible flaw areas for study of adhesive bonds
M-FS-862 B66-10367 05

Braze alloy holds bonding strength over wide temperature range
LEWIS-337 B66-10519 03

Quality control criteria for acceptance testing of cross-wire welds
MSC-627 B66-10587 05

Composite weld rod corrects individual filler weaknesses
M-FS-1923 B67-10107 05

Fixture facilitates helium leak testing of pipe welds
M-FS-2167 B67-10178 05

High-strength braze joints between copper and steel
M-FS-2519 B67-10211 05

Welding, bonding, and sealing of refractory metals by vapor deposition
LEWIS-123 B67-10232 03

Portable machine welding head automatically controls arc
M-FS-12763 B67-10272 05

Welder analyzer
MSC-12068 B68-10242 01

Pre-weld heat treatment improves welds in Rene 41
M-FS-18174 B68-10285 03

Standards for compatibility of printed circuit and component lead materials
M-FS-14531 B68-10310 01

Automatic, nondestructive test monitors in-process weld quality
M-FS-14996 B68-10333 01

WELD TESTS

SUBJECT INDEX

Calibration standard for dynamic evaluation of a profile-plotter M-FS-16476	B69-10458	05	M-FS-18144	B69-10402	01
WELD TESTS			Radiographic threshold detection levels of aluminum weld defects M-FS-20487	B69-10418	01
Magnets position X-ray film for weld inspection M-FS-253	B65-10110	05	WELDABILITY		
Probe tests microweld strength WOO-118	B65-10111	05	Tantalum alloys resist creep deformation at elevated temperatures LEWIS-350	B66-10558	03
Force controlled solenoid drives microweld tester WOO-125	B65-10182	01	New weldable high strength aluminum alloy developed for cryogenic service M-FS-737	B66-10613	05
Ultrasonic recording scanner used for nondestructive weld inspection M-FS-284	B66-10220	01	Controlled ferrite content improves weldability of corrosion-resistant steel M-FS-568	B67-10069	03
Ultrasonic hand tool allows convenient scanning of spot welds M-FS-539	B66-10289	02	Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133	B67-10437	03
Inflatable holding fixture permits X-rays to be taken of inner weld areas M-FS-856	B66-10327	03	Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03
Ultrasonic water column probe speeds up testing of welds BQ-58	B66-10577	01	High temperature alloy LEWIS-10377	B68-10253	03
Fixture facilitates helium leak testing of pipe welds M-FS-2167	B67-10178	05	Hot-cracking studies of Inconel 718 weld-heat-affected zones M-FS-18211	B69-10052	05
Continuous internal channels formed in aluminum fusion welds M-FS-2399	B67-10183	05	WELDED JOINTS		
Electron beam welder X-rays its own welds LEWIS-10111	B67-10216	02	Sleeve and cutter simplify disconnecting welded joint in tubing JPL-384	B63-10240	05
Plastic shoe facilitates ultrasonic inspection of thin wall metal tubing NUC-10010	B67-10542	02	Portable display paneling has wide use, easy take down and assembly ARC-17	B63-10435	05
Gage monitors quality of cross-wire resistance welds GSFC-90549	B68-10002	01	Welding procedures improves quality of welds, offers other advantages M-FS-32	B64-10309	01
Development of mechanized ultrasonic scanning system M-FS-13638	B68-10004	05	Probe tests microweld strength WOO-118	B65-10111	05
System remotely inspects, measures, and records internal irregularities in piping M-FS-14545	B68-10149	01	Force controlled solenoid drives microweld tester WOO-125	B65-10182	01
Welding of commercial base plates is investigated M-FS-13649	B68-10192	03	Weld leaks rapidly and safely detected M-FS-362	B65-10265	01
Automatic, nondestructive test monitors in-process weld quality M-FS-14996	B68-10333	01	O-ring tube fittings form leakproof seal in hydraulic systems M-FS-481	B66-10020	05
Microprobe investigation of brittle segregates in aluminum MIG and TIG welds M-FS-14720	B68-10334	03	Capacitive system detects and locates fluid leaks M-FS-478	B66-10099	01
X-ray film holder permits single continuous picture of tubing joint LEWIS-10382	B68-10343	05	Aluminum oxide filler prevents obstructions in tubing during welding MSC-222	B66-10125	05
Hot-cracking studies of Inconel 718 weld-heat-affected zones M-FS-18211	B69-10052	05	Portable power tool machines weld joints in field M-FS-258	B66-10145	05
Quality-weld parameters for microwelding techniques and equipment M-FS-20484	B69-10303	05	Simple device facilitates inert-gas welding of tubes M-FS-558	B66-10155	05
Repair of weld defects in thin-walled stainless steel tubes M-FS-16293	B69-10305	05	Electron beam welding of copper-Monel facilitated by circular magnetic shields M-FS-569	B66-10215	05
Nondestructive testing of welds on thin-walled tubing			Ultrasonic recording scanner used for nondestructive weld inspection M-FS-284	B66-10220	01
			Brazing process using Al-Si filler alloy reliably bonds aluminum parts MSC-448	B66-10241	05

SUBJECT INDEX

WELDED STRUCTURES

Vacuum test fixture improves leakage rate measurements MSC-271	B66-10286	01	inspection of thin wall metal tubing NUC-10010	B67-10542	02
Union would facilitate joining of tubing, minimize braze contamination MSC-777	B66-10311	05	Instrument accurately measures weld angle and offset M-FS-12849	B67-10563	05
Special mandrel permits uniform welding of out-of-round tubing M-FS-706	B66-10323	05	Tube dimpling tool assures accurate dip-brazed joints MSC-533	B68-10036	05
Inflatable holding fixture permits X-rays to be taken of inner weld areas M-FS-856	B66-10327	03	Standards for compatibility of printed circuit and component lead materials M-FS-14531	B68-10310	01
Welds chilled by liquid coolant manifold M-FS-679	B66-10354	05	Closed circuit TV system automatically guides welding arc M-FS-20084	B68-10357	01
Diaphragm valve for corrosive and high temperature fluid flow control has unique features LEWIS-304	B66-10365	05	Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01
Hollow spherical rotors fabricated by electroplating JPL-SC-117	B66-10366	05	Nondestructive testing of brazed rocket engine components M-FS-18191	B68-10394	03
Electroplating eliminates gas leakage in brazed areas M-FS-923	B66-10415	05	Mixing weld gases offers advantages M-FS-16413	B69-10145	05
Preformed stiffeners used to fabricate structural components for pressurized tanks M-FS-1796	B66-10688	05	Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456	B69-10192	03
Silver plating technique seals leaks in thin wall tubing joints NU-0090	B66-10703	05	Quick-acting backup tool for welding ducts M-FS-18404	B69-10396	05
Closed circuit TV system monitors welding operations MSC-11002	B67-10162	01	Nondestructive testing of welds on thin-walled tubing M-FS-18144	B69-10402	01
Effect of welding position on porosity formation in aluminum alloy welds M-FS-2318	B67-10177	05	Breakaway electrical connector NPO-11140	B69-10474	01
Continuous internal channels formed in aluminum fusion welds M-FS-2399	B67-10183	05	WELDED STRUCTURES		
Weld procedure produces quality welds for thick sections of Hastelloy-X NUC-10048	B67-10195	05	Method of welding joint in closed vessel improves quality of seam JPL-170	B63-10139	05
High-strength braze joints between copper and steel M-FS-2519	B67-10211	05	Vacuum-type backup bar speeds weld repairs M-FS-12	B63-10384	05
Electron beam welder X-rays its own welds LEWIS-10111	B67-10216	02	Upsetting butt edge increases weld-joint strength M-FS-175	B64-10164	05
Welding, bonding, and sealing of refractory metals by vapor deposition LEWIS-123	B67-10232	03	Improved technique for localizing electropolishing features novel nozzles WOO-101	B64-10271	01
Portable machine welding head automatically controls arc M-FS-12763	B67-10272	05	Fastener provides cooling and compensates for thermal expansion NU-0003	B65-10038	05
Welding of AM350 and AM355 steel M-FS-2314	B67-10292	05	Magnets position X-ray film for weld inspection M-FS-253	B65-10110	05
Jacketed cryogenic piping is stress relieved M-FS-985	B67-10308	05	Electromagnetic hammer removes weld distortions from aluminum tanks M-FS-287	B65-10342	05
Test device prevents weld joint damage by eliminating axial pin forces on unpotted modules LEWIS-10201	B67-10359	01	Lifting clamp positively grips structural shapes M-FS-593	B66-10176	05
Tube-to-header joint for bimetallic construction LEWIS-10282	B67-10464	05	Nonhazardous acid etches weld samples M-FS-975	B66-10378	05
Plastic shoe facilitates ultrasonic			Metal tube can be folded for compact stowage, is self-erecting LEWIS-288	B66-10450	05
			Heat treatment stabilizes welded aluminum jigs and tool structures MSC-800	B66-10458	03
			Microminiature thermocouple monitors own installation		

WELDING

SUBJECT INDEX

M-FS-1111	B66-10463	05	Tool provides constant purge during tube welding		
Large seals fabricated from small segments reduce procurement lead time			M-FS-547	B66-10093	05
M-FS-1117	B66-10464	05	Compound improves thermal interface between thermocouple and sensed surface		
Tests show that aluminum welds are improved by bead removal			NU-0028	B66-10121	02
M-FS-1817	B67-10023	05	Aluminum oxide filler prevents obstructions in tubing during welding		
Effects of heat input rates on T-1 and T-1A steel welds			MSC-222	B66-10125	05
M-FS-2475	B67-10163	03	Pressure vessels fabricated with high-strength wire and electroformed nickel		
Transducer measures embedment stresses in electronic modules			M-FS-580	B66-10218	05
M-FS-13486	B67-10367	01	Electrical upsetting of metal sheet forms weld edge		
Study made of ductility limitations of aluminum-silicon alloys			M-FS-720	B66-10248	05
M-FS-12524	B67-10392	03	Flexible drive allows blind machining and welding in hard-to-reach areas		
Camera lens adapter magnifies image			MSC-524	B66-10428	05
M-FS-11955	B67-10431	02	New backup-bar groove configuration improves heliarc welding of 2014-T6 aluminum		
Study made of procedures for externally loading and corrosion testing stress corrosion specimens			MSC-806	B66-10443	05
M-FS-12064	B67-10451	03	Weldable aluminum alloy has improved mechanical properties		
Plastic preforms facilitate fabrication of welded cordwood electronic modules			M-FS-295	B66-10445	03
LEWIS-90339	B68-10063	01	Thermal stress-relief treatments for 2219 aluminum alloy are evaluated		
Encapsulation technique eliminates thermal stresses in welded electronic modules			M-FS-1213	B66-10448	03
M-FS-14581	B68-10307	01	Composite bulkhead fabrication development		
Techniques for controlling warpage and residual stresses in welded structures			M-FS-1264	B66-10582	05
M-FS-20307	B69-10086	05	Instrument accurately measures small temperature changes on test surface		
A biaxial weld strength prediction method			LANGLEY-174	B66-10637	01
M-FS-20019	B69-10471	05	Effects of heat input rates on T-1 and T-1A steel welds		
WELDING			M-FS-2475	B67-10163	03
Connector for vacuum-jacketed lines cuts tubing system cost			Apparatus for fabrication of americium-beryllium neutron sources prevents capsule contamination		
LEWIS-66	B63-10367	05	ARG-184	B67-10202	05
Composite, vacuum-jacketed tubing replaces bellows in cryogenic systems			Welding, bonding, and sealing of refractory metals by vapor deposition		
LEWIS-67	B63-10368	05	LEWIS-123	B67-10232	03
Novel clamps align large rocket cases, eliminate back-up bars			Portable spectrometer monitors inert gas shield in welding process		
M-FS-1	B63-10376	05	M-FS-12144	B67-10326	02
Flexible honeycomb structure can bend to fit compound curves			Welding torch and wire feed manipulator		
M-FS-13	B63-10385	05	M-FS-13102	B67-10385	05
Lightweight magnesium-lithium alloys show promise			Study made to establish parameters and limitations of explosive welding		
M-FS-17	B63-10389	03	M-FS-13006	B67-10393	05
Gate valve with ceramic-coated base operates at high temperatures			Fuel cell life improved by metallic sinter activation after electrode assembly welding		
ARC-23	B63-10562	03	MSC-10965	B67-10436	03
Compact coaxial connector for printed circuit adds reliability			Proposed method of rotary dynamic balancing by laser		
MSC-57	B64-10016	01	M-FS-12422	B67-10452	02
Miniature stress transducer has directional capability			Aluminum and stainless steel tubes joined by simple ring and welding process		
JPL-591	B65-10023	01	M-FS-13120	B67-10472	05
High permeability semiconductors permit close-tolerance soldering			Mechanical shielding reduces weld surface cracking in 6061 T6 aluminum		
GSFC-319	B65-10134	05	MSC-11494	B68-10022	05
Inert-gas welding and brazing enclosure fabricated from sheet plastic			Automatic contour welder incorporates speed control system		
LEWIS-220	B65-10338	05	M-FS-14574	B68-10091	01
Calibrated clamp facilitates pressure application			Proposed gas generation assembly would		
MSC-298	B66-10059	05			

SUBJECT INDEX

WETTING

recover deeply submerged objects SAN-10007	B68-10211	05	Automatic reel controls filler wire in welding machines MSC-416	B66-10236	05
Pre-weld heat treatment improves welds in Rene 41 M-FS-18174	B68-10285	03	Special mandrel permits uniform welding of out-of-round tubing M-FS-706	B66-10323	05
Effects of surface preparation on quality of aluminum alloy weldments M-FS-13152	B68-10302	03	Power arc welder touch-started with consumable electrode M-FS-1485	B66-10641	05
Standards for compatibility of printed circuit and component lead materials M-FS-14531	B68-10310	01	Portable machine welding head automatically controls arc M-FS-12763	B67-10272	05
Automatic, nondestructive test monitors in-process weld quality M-FS-14996	B68-10333	01	Eccentric drive mechanism is adjustable during operation M-FS-2576	B67-10373	05
Compact monitoring and control console for pressurized gas bottles M-FS-14874	B68-10401	05	Improved torch increases weld quality in refractory metals LEWIS-324	B68-10041	05
Weld preparation tool for pipes and tubing KSC-09955	B68-10551	05	Welder analyzer MSC-12068	B68-10242	01
Multiple-orifice throttle valve XNP-09698	B69-10030	05	Miniature pressure transducer for stressed member application MSC-11869	B68-10246	01
Welded repairs of punctured thin-walled aluminum pressure vessels M-FS-14836	B69-10051	05	Standards for compatibility of printed circuit and component lead materials M-FS-14531	B68-10310	01
Tube welding and brazing M-FS-20348	B69-10085	05	Closed circuit TV system automatically guides welding arc M-FS-20084	B68-10357	01
Renewal of corrosion protection of coated aluminum after welding M-FS-20361	B69-10150	05	Detachable caster adapter MSC-91215	B69-10164	05
J-beveling of pipe ends with a hand-held tool KSC-10356	B69-10229	05	Pressure-control purge panel for automatic butt welding M-FS-18465	B69-10403	05
Tool simplifies machining of pipe ends for precision welding KSC-10361	B69-10231	05	Gas Metal Arc /GMA/ weld torch proximity control M-FS-16327	B69-10533	01
Repair of honeycomb panels with welded breakaway studs MSC-15046	B69-10261	05	WET CELLS Regenerative fuel cell combines high efficiency with low cost WOO-090	B65-10363	01
Parameters for good welding of copper to nickel M-FS-20353	B69-10302	05	Primary cell uses neither liquid nor fused electrolytes NPO-10001	B67-10275	01
Quality-weld parameters for microwelding techniques and equipment M-FS-20484	B69-10303	05	Improved anode design for metal-oxygen cells LEWIS-10871	B69-10318	01
Improved table for cutting and welding MSC-15537	B69-10346	05	WETTABILITY Rotating magnetic poles used to pump mercury LEWIS-276	B66-10434	05
Effects of hydrogen on metals M-FS-20364	B69-10372	03	Study of high temperature bearing materials LEWIS-10829	B69-10252	03
Conversion of continuous-direct-current TIG welder to pulse-arc operation M-FS-16411	B69-10393	05	WETTING Inorganic paint is durable, fireproof, easy to apply GSFC-366	B65-10156	03
Pressure-control purge panel for automatic butt welding M-FS-18465	B69-10403	05	Etching process mills PH 14-8 Mo alloy steel to precise tolerances MSC-270	B66-10110	03
Generation of sonic power during welding M-FS-20339	B69-10404	05	Nozzles for size reclassification of microfog particles LEWIS-10705	B69-10076	05
WELDING MACHINES Refractory metals welded or brazed with tungsten inert gas equipment LEWIS-219	B65-10319	05	Mixing weld gases offers advantages M-FS-16413	B69-10145	05
Shoulder adapter steadies spot welding gun M-FS-321	B66-10076	05	Improved nickel plating of Inconel X-750 M-FS-18604	B69-10463	05
Fingertip current control facilitates use of arc welding gun MSC-289	B66-10092	05			

WHEATSTONE BRIDGES

SUBJECT INDEX

WHEATSTONE BRIDGES

Electronic ohmmeter provides direct digital output
GSPC-363 B65-10274 01

Differential pressure gauge has fast response
M-FS-358 B65-10285 05

Photoresistance analog multiplier has wide range
GSPC-360 B65-10287 01

Improved strain-wire flowmeter has fast response time
LEWIS-241 B65-10304 01

Angular acceleration measured by deflection in sensing ring
MSC-250 B66-10105 01

Subminiaturized gas chromatograph gives fast, efficient analysis
JPL-735 B66-10182 01

Detector measures power in 50 to 30,000 GHz radiation band
ERC-26 B66-10581 01

Resistance thermometer has linear resistance-temperature coefficient at low temperatures
WOO-190 B66-10612 01

Fast-acting calorimeter measures heat output of plasma gun accelerator
LEWIS-388 B67-10192 01

Electronic circuitry used to automate paper chromatography
JPL-840 B67-10201 01

Web belt load measuring instrument has excellent stability
MSC-921 B67-10242 01

Machine tests slow-speed sliding friction in high vacuum
M-FS-12341 B67-10379 05

Ratio matching of half-bridge weldable strain gages, computer program
FRC-10032 B69-10040 06

Design of a strain-gage probe
ARG-10338 B69-10343 05

WHEELS

Lateral ring metal elastic wheel absorbs shock loading
M-FS-1312 B66-10663 05

Shock-absorbing caster wheel is simple and compact
SAN-10019 B68-10266 05

Fifth-wheel fork truck adapter
M-FS-14460 B69-10021 05

WHISKER COMPOSITES

Radial furnace shows promise for growing straight boron carbide whiskers
HQ-50 B67-10070 03

WHISKERS (SINGLE CRYSTALS)

Boron carbide whiskers produced by vapor deposition
HQ-24 B65-10261 03

Efficient millimeter wave 1140 GHz/ diode for harmonic power generation
HQ-61 B67-10166 01

WHITE BLOOD CELLS

Foot-operated cell-counter
ARG-10315 B69-10351 01

WHITE NOISE

On the bound of first excursion probability
NPO-11158 B69-10334 06

Optimum FM pre-emphasis
KSC-10151 B69-10359 01

WICKS

Improved anode design for metal-oxygen cells
LEWIS-10871 B69-10318 01

WIDEBAND COMMUNICATION

Omnidirectional antennas transmit and receive over large bandwidth
GSPC-436 B66-10133 01

Wideband, high efficiency optical modulator requires less than 10 watts drive power
M-FS-12733 B67-10289 01

RF noise suppression using the photodielectric effect in semiconductors
MSC-12259 B69-10225 01

WIDTH

System enables dimensional inspection of very large structures
M-FS-2477 B67-10214 05

Eddy current probe measures size of cracks in nonmetallic materials
M-FS-14059 B67-10645 03

WINCHES

Compressed gas system operates semitrailer brakes during winching operation
JPL-0036 B64-10306 05

Hoisting frame facilitates handling of large objects
M-FS-16166 B68-10575 05

Two-axis winch installer for heavy ducts in confined space
M-FS-14254 B69-10062 05

Space-saving hoist for tank manholes
M-FS-16508 B69-10180 05

WIND (METEOROLOGY)

Small foamed polystyrene shield protects low-frequency microphones from wind noise
M-FS-123 B63-10579 01

WIND DIRECTION

Dewpoint temperature inversions analyzed
ARG-10316 B69-10057 02

WIND EFFECTS

Suspended chains damp wind-induced oscillations of tall flexible structures
LANGLEY-10193 B68-10042 05

WIND MEASUREMENT

New anemometer has fast response, measures dynamic pressure directly
LANGLEY-28 B63-10530 05

Fast-response cup anemometer features cosine response
ARG-90193 B68-10202 01

Wind tower influence study
M-FS-20239 B69-10653 01

WIND PROFILES

New anemometer has fast response, measures dynamic pressure directly
LANGLEY-28 B63-10530 05

Rough surface improves stability of air-sounding balloons
M-FS-320 B65-10326 05

A method of determining combustion gas flow
M-FS-13757 B67-10455 03

WIND SHEAR

Oil-smeared models aid wind tunnel measurements
LANGLEY-4 B63-10311 03

SUBJECT INDEX

WIRE

WIND TUNNEL APPARATUS

Electric arc heater is self starting
 LANGLEY-208 B66-10230 03

Jet engine powers large, high-temperature
 wind tunnel
 M-FS-13544 B67-10621 02

WIND TUNNEL MODELS

Welded pressure transducer made as small as
 1/8th-inch in diameter
 ARC-11 B63-10429 03

Built-in templates speed up process for making
 accurate models
 LANGLEY-23 B63-10526 05

Flexible fastener allows thermal expansion
 LANGLEY-40 B64-10145 05

Telescoping of instrumentation tubing
 eliminates swaging
 M-FS-546 B66-10116 05

WIND TUNNEL STABILITY TESTS

Rapid helium-air analyzer can measure other
 binary gas mixtures
 LANGLEY-16 B63-10557 03

WIND TUNNELS

Oil-smeared models aid wind tunnel
 measurements
 LANGLEY-4 B63-10311 03

Laser-Doppler gas-velocity instrument
 M-FS-20039 B68-10349 02

Experimental design for research on
 shock-turbulence interaction
 M-FS-20031 B69-10604 02

WIND VELOCITY

Dewpoint temperature inversions analyzed
 ARG-10316 B69-10057 02

Crossed-beam technique for measuring
 horizontal winds
 M-FS-20160 B69-10447 02

WIND VELOCITY MEASUREMENT

Independent doubly truncated gamma variables
 M-FS-20143 B68-10345 02

WINDING

Simple transducer measures low heat-transfer
 rates
 JPL-466 B64-10122 01

Variable frequency transistor inverters use
 multiple core transformers
 GSFC-183 B65-10119 01

Variable frequency magnetic multivibrator
 generates stable square-wave output
 GSFC-AE-21 B65-10124 01

Rotor position sensor switches currents in
 brushless dc motors
 GSFC-315 B65-10151 01

Spiral heater coils hand-formed with fixture
 LEWIS-208 B65-10192 05

High frequency wide-band transformer uses
 coax to achieve high turn ratio and flat
 response
 ARG-107 B66-10600 01

An improved magnetic tape recorder
 GSFC-08259 B67-10646 01

Improved control system power unit for
 large parachutes
 MSC-12052 B67-10677 05

Induction probe determines levels of
 liquid metals
 ARG-10348 B69-10256 03

WINDOWS (APERTURES)

Plastic scintillator converts standard
 photomultiplier to ultraviolet range
 ERC-9 B66-10108 02

High pressure cryogenic liquid flow sight
 assembly provides streamlined flow for easy
 observation
 LEWIS-310 B66-10394 01

Aluminized thin-window proportional-counter
 tube is stronger, more responsive in long
 wavelength region
 JPL-689 B67-10015 01

Detection of effect of deposits on optical
 windows of pyrometer measurements
 LEWIS-10366 B68-10367 01

WING CAMBER

Computer program analyzes and designs
 supersonic wing-body combinations
 ARC-10141 B68-10335 06

Modified Multhopp mean camber computer
 program
 LANGLEY-10376 B68-10446 06

WING PANELS

Computer program analyzes and designs
 supersonic wing-body combinations
 ARC-10141 B68-10335 06

WING PLANFORMS

Computer program calculates wing aerodynamic
 characteristics for fixed wings with dihedral
 and variable-sweep wings at subsonic speeds
 LANGLEY-10191 B67-10666 06

Modified Multhopp lifting surface loading
 program
 LANGLEY-10375 B68-10452 06

WING PROFILES

Computer program analyzes and designs
 supersonic wing-body combinations
 ARC-10141 B68-10335 06

WINGS

Program computes zero lift wave drag of
 entire aircraft
 LANGLEY-10079 B67-10530 06

WIRE

Thermocompression bonding produces efficient
 surface-barrier diode
 JPL-SC-066 B65-10007 05

Forming blocks speed production of strain gage
 grids
 LEWIS-182 B65-10009 05

Cantilever springs maintain tension in
 thermally expanded wires
 LEWIS-136 B65-10149 05

Improved solderless connector is easily
 disconnected
 JPL-SC-060 B65-10197 01

Improved wire memory matrix uses very little
 power
 JPL-SC-167 B65-10359 01

Vacuum chamber provides improved insulation
 and support for cryostat
 M-FS-415 B65-10368 02

Wire bundle formed into grids with minute
 interstices
 WOO-089 B65-10372 03

Tungsten wire and tubing joined by nickel
 brazing
 M-FS-394 B65-10391 05

Mechanism continuously measures static and
 dynamic cable loads
 MSC-217 B66-10107 05

WIRE BRIDGE CIRCUITS

SUBJECT INDEX

High temperature thermocouple operates in reduction atmosphere NU-0046	B66-10134	01	Weld procedure produces quality welds for thick sections of Hastelloy-X NUC-10048	B67-10195	05
Corrosion of metal samples rapidly measured NU-0041	B66-10140	03	Traveling wire electrode increases productivity of Electrical Discharge Machining /EDM/ equipment ARG-136	B67-10238	05
Flexible coiled spline securely joins mating cylinders WOC-270	B66-10172	05	Improved ultrasonic TV images achieved by use of Lamb-wave orientation technique ARG-203	B67-10295	02
Epoxy-coated containers easily opened by wire band M-FS-592	B66-10174	05	Method of improving contact bonds in silicon integrated circuits M-FS-1753	B67-10335	01
Coating permits use of strain gage in water and liquid hydrogen M-FS-594	B66-10192	01	Cut-through tester accurately measures insulation failure rates M-FS-12506	B67-10354	03
Pressure vessels fabricated with high-strength wire and electroformed nickel M-FS-580	B66-10218	05	Mechanical properties of wire insulation automatically determined MSC-10983	B67-10370	01
Automatic reel controls filler wire in welding machines MSC-416	B66-10236	05	Welding torch and wire feed manipulator M-FS-13102	B67-10385	05
Aluminum/steel wire composite plates exhibit high tensile strength M-FS-401	B66-10262	05	Current steering commutator offers versatility JPL-812	B67-10410	01
Fastener provides for bolt misalignment and quick release of flange NU-0074	B66-10275	05	Improved cavity-type absolute total-radiation radiometer JPL-807	B67-10557	01
Inspection of fine wires simplified by capillary tube wire holder MSC-358	B66-10329	01	Ferromagnetic core valve gives rapid action on minimum energy LEWIS-10135	B67-10623	05
Metal Oxide Silicon /MOS/ transistors protected from destructive damage by wire ARC-65	B66-10419	01	Multilayer plated wire shows promise as memory device MSC-11587	B68-10205	01
Silver-base ternary alloy proves superior for slip ring lead wires M-FS-1540	B66-10540	03	One hundred angstrom niobium wire LEWIS-10128	B68-10279	03
Emergency escape system uses self-braking mechanism on fixed cable KSC-66-44	B66-10575	05	Dual wire weld feed proportioner M-FS-18037	B68-10332	05
Electrical continuity scanner facilitates identification of wires for soldering to connectors MSC-626	B66-10605	01	Rating of electrical wires in vacuum environments MSC-15108	B68-10362	01
Improved memory word line configuration allows high storage density GSFC-559	B66-10617	01	Method for making small pointed thermocouples SAN-10014	B68-10389	01
Study of fast response thermocouple measurement of temperatures in cryogenic gases M-FS-1659	B66-10661	01	Novel terminal strips for transformers NPO-10842	B69-10246	01
Wire material reduces compressor blade vibration LEWIS-357	B66-10666	03	Parameters for good welding of copper to nickel M-FS-20353	B69-10302	05
Improved method of edge coating flat ribbon wire M-FS-902	B66-10684	03	An improved method for electrical cable terminations NPO-10694	B69-10327	01
Technique for stripping Teflon insulated wire M-FS-1774	B67-10048	05	Testing the flammability of materials exposed to arcs MSC-15225	B69-10531	03
Holding fixture facilitates pipe thread gage measurements M-FS-2009	B67-10066	05	Explosive bonding of metal-matrix composites M-FS-20657	B69-10804	05
Composite weld rod corrects individual filler weaknesses M-FS-1923	B67-10107	05	WIRE BRIDGE CIRCUITS		
Closed circuit TV system monitors welding operations MSC-11002	B67-10162	01	Thin-film gage measures low heat-transfer rates LANGLEY 205	B66-10180	01
			Wide-range instrument monitors flow rates of chemically active fluids MSC-186	B66-10205	01
			Pulse technique provides more accurate checkout of exploding bridge wire device HQ-62	B66-10561	01

SUBJECT INDEX

WRENCHES

WIRE CLOTH

Wire mesh isolator protects sensitive electronic components
GSFC-347 B65-10216 05

Plated nickel wire mesh makes superior catalyst bed
MSC-216 B65-10321 03

Three-dimensional wire-mesh capacitor system measures fluid density
WOO-194 B65-10379 01

Strainer fits inside flared-tube fittings
LANGLEY-180 B65-10388 05

Centrifugal device separates liquid from gas
MSC-282 B65-10394 05

Frangible electrochemical cell and sealing technique
XGS-10010 B69-10056 01

WIRE WINDING

Wire winding increases lifetime of oxide coated cathodes
LEWIS-154 B65-10032 03

Magnetic field test coils are temperature compensated
GSFC-294 B65-10081 02

Fiber glass parts cured during filament winding eliminates oven, saves time
M-FS-14 B65-10088 03

Automatic reel controls filler wire in welding machines
MSC-416 B66-10236 05

High transients suppressed in electromagnetic devices
KSC-66-13 B67-10031 01

Variable reluctance switch avoids contact corrosion and contact bounce
MSC-1178 B67-10137 01

WIRELESS COMMUNICATIONS

Phase shift frequency synthesizer is efficient, small in size
M-FS-250 B65-10169 01

Feasibility study of wireless power transmission systems
M-FS-14691 B68-10309 01

WIRING

Circuit reliability boosted by soldering pins of disconnect plugs to sockets
JPL-447 B64-10002 01

Modified RF coaxial connector ends vacuum chamber wiring problem
GSFC-150 B64-10010 01

Compact retractor protects cabling loops
M-FS-561 B66-10018 05

Copper wire plated with nickel and silver resists corrosion
M-FS-761 B66-10421 03

Electrical continuity scanner facilitates identification of wires for soldering to connectors
MSC-626 B66-10605 01

Instrument accurately measures small temperature changes on test surface
LANGLEY-174 B66-10637 01

Thermocouples easily installed in hard-to-get-to places
M-FS-1946 B66-10653 01

Logic circuitry used to automatically test shielded cables
HQ-60 B66-10659 01

Reparable, high-density microelectronic module provides effective heat sink
M-FS-13075 B67-10356 01

Flat pack interconnection structure simplifies modular electronic assemblies
JPL-819 B67-10560 01

Multichannel wireway adapter box
MSC-90645 B68-10052 05

Nondestructive evaluation of printed wiring boards by microhm resistance measurements
SAN-10034 B69-10272 01

Pressure transducer
NPO-10853 B69-10364 01

WOOD

Cork is used to make tooling patterns and molds
MSC-425 B66-10328 01

WOODEN STRUCTURES

Built-in templates speed up process for making accurate models
LANGLEY-23 B63-10526 05

Nylon bit removes cork insulation without damage to substrate
MSC-381 B66-10152 05

Alignment tool facilitates pin placement on irregular horizontal surfaces
LANGLEY-219 B66-10410 05

WOOL

Thermally conductive metal wool-silicone rubber material can be used as shock and vibration damper
JPL-321 B63-10207 03

WORDS (LANGUAGE)

Detection system ensures positive alarm activation in digital message loss
WOO-208 B66-10287 01

Improved memory word line configuration allows high storage density
GSFC-559 B66-10617 01

PCM synchronization by word stuffing
NPO-10688 B69-10695 01

WORK

Work platform is supported by self-locking blades
M-FS-2297 B67-10180 05

WORK FUNCTIONS

Photoelectric scanner makes detailed work function maps of metal surface
JPL-SC-176 B66-10440 01

Thermionic scanner pinpoints work function of emitter surfaces
JPL-SC-177 B66-10444 01

WORK HARDENING

Study made of explosive cutting in simulated space environments
M-FS-1597 B67-10040 01

Possible correlation between work-hardening and fatigue-failure
ARG-10371 B69-10414 03

WRENCHES

Torque wrench designed for restricted areas
LEWIS-246 B66-10011 05

T-handle wrench has torque-limiting action
MSC-280 B66-10065 05

Torque wrench allows readings from inaccessible locations
M-FS-598 B66-10204 05

Tool enables proper mating of accelerometer

WRINKLING

SUBJECT INDEX

and cable connector M-FS-611	B66-10208	05	MSC-11232	B67-10474	02
Hand tool permits shrink sizing of assembled tubing MSC-504	B66-10239	05	X RAY ASTRONOMY Imaging slitless spectrometer for X-ray astronomy M-FS-14309	B68-10546	02
Pneumatic wrench retains or discharges nuts or bolts as desired NU-0085	B66-10707	05	X RAY DIFFRACTION Spherical model provides visual aid for cubic crystal study LEWIS-108	B65-10065	03
Single wrench separates nuts from free-floating bolts NUC-10013	B67-10158	05	IR-transmission glasses formed from oxides of bismuth and tellurium M-FS-279	B65-10190	03
Ultrasonic wrench produces leaktight connections M-FS-12561	B67-10353	05	Ion pump provides increased vacuum pumping speed NEO-13	B65-10239	02
Magnetically controlled torque wrench prevents overtightening SAN-10002	B68-10209	05	Specimen holder design improves accuracy of X-ray powder analysis JPL-SC-165	B66-10075	02
High-torque power wrench, a concept M-FS-18194	B68-10299	05	Thin-film ferrites vapor deposited by one-step process in vacuum MSC-259	B66-10398	03
Adjustable wrench for electronic connectors M-FS-18547	B69-10184	05	Mass-spectrometric study of the rhenium-oxygen system ARG-10421	B69-10645	02
One-handed hammer-spanner for chucks M-FS-18581	B69-10398	05	X RAY FLUORESCENCE Nondispersive X-ray emission analysis for geochemical exploration GSFC-10568	B69-10011	02
Multi-purpose tool mitten HQ-10047	B69-10483	05	X RAY INSPECTION New method forms bond line free of voids LANGLEY-20	B63-10558	05
WRINKLING Shell design computer program LEWIS-10734	B69-10175	06	Magnets position X-ray film for weld inspection M-FS-253	B65-10110	05
X			Multiple test chamber exposes materials to various environments MSC-179	B65-10268	01
X RAY ABSORPTION Specimen holder design improves accuracy of X-ray powder analysis JPL-SC-165	B66-10075	02	Inflatable holding fixture permits X-rays to be taken of inner weld areas M-FS-856	B66-10327	03
X RAY ANALYSIS Ceramic materials purified by experimental method LEWIS-225	B65-10270	03	Polaroid film helps locate objects in inaccessible areas quickly MSC-960	B67-10008	02
Specimen holder design improves accuracy of X-ray powder analysis JPL-SC-165	B66-10075	02	Electron beam welder X-rays its own welds LEWIS-10111	B67-10216	02
Commercial film produces positive X-ray photo in ten seconds M-FS-521	B66-10307	02	Mechanized X-ray inspection system for large tanks M-FS-12867	B67-10564	02
Reidentifying hardware after loss of serial number M-FS-18133	B69-10059	05	X-ray film holder permits single continuous picture of tubing joint LEWIS-10382	B68-10343	05
Technique for pinpointing submicron particles in the electron microprobe HQ-10043	B69-10465	01	Mixing weld gases offers advantages M-FS-16413	B69-10145	05
Improved camera for better X-ray powder photographs HQ-10424	B69-10537	01	X RAY IRRADIATION Dielectrometer design permits measurement in vacuum under irradiation M-FS-359	B66-10401	01
Use of medical and dental X-ray equipment for nondestructive testing MSC-13389	B69-10553	01	Electronic shutter gates image orthicon on and off HQ-96	B67-10270	01
X RAY APPARATUS Densitometer system for liquid hydrogen has high accuracy, fast response M-FS-909	B66-10438	01	Study made of relationship between growth and metabolism ARG-10046	B67-10604	04
X-ray source uses interchangeable target anodes to vary X-ray wavelength NPO-10036	B67-10218	02	Production of crystalline polymers via liquid crystal monomers HQ-10235	B69-10744	03
Electron beam parallel X-ray generator MSC-11022	B67-10372	02			
Method for X-ray study under extreme temperature and pressure conditions					

SUBJECT INDEX

YIELD STRENGTH

X RAY SPECTROSCOPY

Glancing incidence telescope for far
ultraviolet and soft X-rays
GSFC-10052 B67-10508 02

Imaging slitless spectrometer for X-ray
astronomy
M-FS-14309 B68-10546 02

Nondispersive X-ray emission analysis
for geochemical exploration
GSFC-10568 B69-10011 02

X RAY STRESS ANALYSIS

Ultrasonics used to measure residual stress
M-FS-12449 B67-10428 02

X RAY TELESCOPES

Imaging slitless spectrometer for X-ray
astronomy
M-FS-14309 B68-10546 02

Selective vignetting of Type 1 X-ray
telescopes
GSFC-10682 B69-10075 02

X RAYS

Precision gage measures ultrahigh vacuum
levels
GSFC-114 B63-10597 01

Multiple element soft X-ray source produces
wide range of radiation
GSFC-286 B65-10082 02

An improved soft X-ray photoionization
detector
GSFC-540 B67-10072 02

Improved television signal processing system
NPO-10140 B67-10246 01

Training course for radiation safety
technicians
ARG-216 B67-10477 02

Numerical least-square method for resolving
complex pulse height spectra
GSFC-10142 B67-10480 06

Weld microfissuring in Inconel 718
minimized by minor elements
M-FS-18185 B68-10251 03

Rotary-knife stripper facilitates removal
of X-ray film from pack
M-FS-14837 B68-10509 05

Primary radical yields in pulse irradiated
alkaline aqueous solution
ARG-10322 B69-10167 02

Preferred-orientation analysis of
polycrystalline materials
NPO-10604 B69-10336 02

New shield for gamma-ray spectrometry
ARG-10388 B69-10344 02

A simple electrometer for measuring small
photoelectric currents
GSFC-10603 B69-10734 01

X-Y PLOTTERS

System remotely inspects, measures, and
records internal irregularities in piping
M-FS-14545 B68-10149 01

Two devices for analysis of nystagmus
HQ-10273 B69-10224 01

Automated plotting of equipotentials
NPO-11134 B69-10570 01

Direct determination of lead-210 by
liquid-scintillation counting
ARG-10462 B69-10611 03

XENON

Densitometer system for liquid hydrogen has
high accuracy, fast response
M-FS-909 B66-10438 01

An improved soft X-ray photoionization
detector
GSFC-540 B67-10072 02

High-temperature, gas-filled ceramic
rectifiers, thyratrons, and
voltage-reference tubes
LEWIS-90271 B69-10376 01

XENON COMPOUNDS

Xenon forms stable compound with fluorine
ARG-4 B66-10467 03

Xenon fluoride solutions effective as
fluorinating agents
ARG-217 B67-10133 03

Xenon fluorides show potential as
fluorinating agents
ARG-113 B67-10185 03

Pure xenon hexafluoride prepared for thermal
properties studies
ARG-10056 B67-10577 03

Metabolic and toxicological effects of
water-soluble xenon compounds are studied
ARG-90239 B68-10076 04

XENON LAMPS

High-intensity flashing beacon powered by
mercury cells
LANGLEY-8C B65-10361 01

Lamp enables measurement of oxygen
concentration in presence of water vapor
MSC-10043 B67-10387 01

Laser action from a terbium beta-ketoenolate
at room temperature
GSFC-10593 B69-10324 02

XEROGRAPHY

Shortened procedure for obtaining
reproducible copies of 35 mm color slides
KSC-09957 B68-10560 02

XYLENE

Special coatings control temperature of
structures
GSFC-444 B65-10337 03

Process produces chlorinated aromatic
isocyanate in high yield
M-FS-1658 B66-10646 03

Y

YAGI ANTENNAS

Modified interelement spacing improves Yagi
antenna array
LANGLEY-130 B65-10183 01

YAW

Knob linkage permits one-hand control of
several operations
MSC-30 B65-10022 05

Developmental instrument supplies accurate
attitude and attitude-rate data
HQ-57 B66-10607 01

YEAST

Ultraviolet microscopy aids in cytological
and biomedical research
ARG-178 B67-10590 04

YIELD STRENGTH

Novel shock absorber features varying yield
strengths
MSC-63A B64-10138 03

Lightweight aluminum casting alloy is useful
at cryogenic temperatures

YOKES

SUBJECT INDEX

M-FS-267	B65-10092	03	new magnetostatic echo mode ERC-37	B67-10153	01
Computer program simplifies selection of structural steel columns NU-0044	B66-10097	01	Improved traveling wave maser amplifier NPO-10548	B68-10244	01
Weldable aluminum alloy has improved mechanical properties M-FS-295	B66-10445	03	Z		
Tungsten fiber-reinforced copper composites form high strength electrical conductors LEWIS-338	B66-10572	03			
Treatment increases stress-corrosion resistance of aluminum alloys M-FS-1840	B66-10595	05	ZEEMAN EFFECT Vibration analysis utilizing Mossbauer effect M-FS-11974	B67-10339	01
Tests show that aluminum welds are improved by bead removal M-FS-1817	B67-10023	05	ZENER EFFECT Zener diode controls switching of large direct currents MSC-188	B65-10350	01
Heat treatment study of aluminum casting alloy M45 M-FS-2397	B67-10159	03	ZEOLITES Purification train produces ultrapure hydrogen gas M-FS-1913	B67-10078	03
Simplified method measures changes in tensile yield strength using least number of specimens NUC-10075	B67-10266	03	Improved inorganic ion exchange membranes LEWIS-10737	B69-10451	03
Magnesium-lithium alloys developed for low temperature use M-FS-1541	B67-10365	03	ZERO FORCE CURVES Hole saw drill attachment has zero force reaction MSC-543	B66-10604	05
Study made of ductility limitations of aluminum-silicon alloys M-FS-12524	B67-10392	03	ZERO LIFT Program computes zero lift wave drag of entire aircraft LANGLEY-10079	B67-10530	06
Study made of pneumatic high pressure piping materials /10,000 psi/ KSC-10133	B67-10437	03	ZINC Lightweight aluminum casting alloy is useful at cryogenic temperatures M-FS-267	B65-10092	03
Improved thermal treatment of aluminum alloy 7075 M-FS-20083	B68-10534	05	Adherent protective coatings plated on magnesium-lithium alloy M-FS-365	B65-10294	03
Weld joint strength and mechanical properties in 2219-T81 aluminum alloy LEWIS-10479	B68-10561	03	Hollow spherical rotors fabricated by electroplating JPL-SC-117	B66-10366	05
Development of structural test articles from magnesium-lithium and beryllium M-FS-14959	B69-10417	03	Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys ARG-199	B66-10594	03
YOKES			Efficient millimeter wave 1140 GHz/ diode for harmonic power generation HQ-61	B67-10166	01
Apparatus permits flexure testing of specimens at cryogenic temperatures M-FS-257	B65-10129	02	Magnesium-zinc reduction is effective in preparation of metals ARG-10050	B67-10579	03
Handtool facilitates extraction of circuit modules LANGLEY-38	B65-10231	05	Study made of resistance of stainless steels to zinc-vapor corrosion ARG-10055	B67-10582	03
Electron-beam deflection controlled by digital signals GSFC-385	B65-10283	02	Zinc-oxygen primary cell yields high energy density M-FS-14661	B68-10218	01
Subminiature deflection circuit operates integrated sweep circuits in TV camera MSC-1263	B67-10155	01	Preparation of thorium magnesium-zinc reduction ARG-10245	B69-10079	03
Safety yoke would protect construction workers from falling KSC-10075	B67-10445	05	Reduction by monovalent zinc, cadmium, and nickel cations ARG-10328	B69-10170	03
YTTRIUM			Metallic diffusion measured by a modified Knudsen technique HQ-10145	B69-10309	03
Refractory oxides evaluated for high-temperature use LANGLEY-121	B65-10167	03	Improved anode design for metal-oxygen cells LEWIS-10871	B69-10318	01
YTTRIUM COMPOUNDS			ZINC ALLOYS New brazing alloy eliminates metal-stress cracking WOO-249	B65-10397	03
High permeability semiconductors permit close-tolerance soldering GSFC-319	B65-10134	05			
YTTRIUM-IRON GARNET					
Study of yttrium iron garnet rods reveals					

SUBJECT INDEX

ZIRCONIUM COMPOUNDS

Aluminum core structures brazed without use of flux M-FS-659	B66-10360	05	Hot-wire detector for chemically active materials used in gas chromatography MSC-269	B66-10139	03
Solubility data are compiled for metals in liquid zinc ARG-149	B67-10191	03	New weldable high strength aluminum alloy developed for cryogenic service M-FS-737	B66-10613	05
Resistivity measurements of neutron-irradiated pure metals and Al-Zn alloys ARG-10108	B68-10200	03	Intergranular metal phase increases thermal shock resistance of ceramic coating M-FS-1862	B66-10651	03
ZINC COATINGS Galvanic corrosion reduced in aluminum fabrications M-FS-272	B65-10140	03	Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels ARG-232	B67-10032	03
ZINC COMPOUNDS New method used to fabricate gallium arsenide photovoltaic device HOO-062	B64-10019	01	Extrusion of small-diameter, thin-wall tungsten tubing LEWIS-90335	B67-10355	05
Inexpensive infrared source improvised from flashlight M-FS-494	B66-10096	02	Newly developed foam ceramic body shows promise as thermal insulation material at 3000 deg F M-FS-11968	B67-10441	03
White primer permits a corrosion-resistant coating of minimum weight M-FS-304	B66-10207	03	Reaction of steam with molybdenum is studied ARG-295	B67-10502	03
New class of compounds have very low vapor pressures ARG-115	B67-10184	03	Magnesium-zinc reduction is effective in preparation of metals ARG-10050	B67-10579	03
Aggregation of metallochlorophylls - Examination by spectroscopy ARG-10273	B69-10163	04	Studies in zirconium oxidation ARG-10099	B68-10199	03
ZINC OXIDES Anodization process produces opaque, reflective coatings on aluminum M-FS-348	B65-10336	03	High-speed camera synchronization M-FS-18062	B68-10282	02
Pigmented coating resists thermal shock JPL-SC-083	B65-10354	03	Nickel-base superalloy*s excellent properties promote its service to 2200 degrees F LEWIS-10355	B68-10380	03
Tool samples subsurface soil free of surface contaminants MSC-10988	B67-10473	05	High-emittance coatings on metal substrates LEWIS-10325	B68-10381	03
Concept for improved vacuum pressure measuring device M-FS-20172	B69-10421	02	Silicon carbide diode for increased light output M-FS-20063	B69-10096	01
ZINC SELENIDES Thin-film semiconductor rectifier has improved properties MSC-207	B66-10012	01	High strength, superplastic superalloy LEWIS-10805	B69-10293	03
ZINC SULFIDES Thermal neutron image intensifier tube provides brightly visible radiographic pattern ARG-120	B67-10296	02	Improved high-temperature-strength nickel-base superalloy LEWIS-10874	B69-10352	03
Preparation of silver-activated zinc sulfide thin films GSFC-10687	B68-10271	03	Improved inorganic ion exchange membranes LEWIS-10737	B69-10451	03
ZIPPER A new method for fabrication of flexible vacuum purge jackets M-FS-12646	B69-10564	03	ZIRCONIUM ALLOYS Nickel-base superalloys developed for high-temperature applications LEWIS-226	B66-10222	03
ZIRCALOYS (TRADEMARK) Metal tube reducer is inexpensive and simple to operate ARG-49	B67-10401	05	Brazing process provides high-strength bond between aluminum and stainless steel M-FS-803	B66-10352	05
ZIRCONATES Phonocardiograph microphone is rugged and moistureproof MSC-212	B66-10314	04	Zirconium alloys with small amounts of iron and copper or nickel show improved corrosion resistance in superheated steam ARG-226	B67-10050	03
ZIRCONIUM Refractory oxides evaluated for high-temperature use LANGLEY-121	B65-10167	03	Superconductivity in zirconium-rhodium alloys ARG-10223	B69-10010	03
			ZIRCONIUM COMPOUNDS Protective coating withstands high temperature in oxidizing atmosphere M-FS-529	B66-10044	03
			White primer permits a corrosion-resistant coating of minimum weight M-FS-304	B66-10207	03

ZIRCONIUM OXIDES

SUBJECT INDEX

ZIRCONIUM OXIDES

Ceramic-coated boat is chemically inert,
provides good heat transfer
LANGLEY-90 B65-10063 05

Refractory oxides evaluated for
high-temperature use
LANGLEY-121 B65-10167 03

Hydrogen-atmosphere induction furnace has
increased temperature range
LEWIS-153 B66-10055 05

Fibers of newly developed refractory ceramics
produced by improved process
WOO-169 B66-10196 03

Improved thermal insulation materials made of
foamed refractory oxides
M-FS-735 B66-10288 03

Oxide film on metal substrate reduced to
form metal-oxide-metal layer structure
ARG-48 B67-10187 03

A method of determining combustion gas
flow
M-FS-13757 B67-10455 03

Reinforced thermal-shock resistant ceramics
LEWIS-10376 B68-10085 03

ZONE MELTING

Single-crystal semiconductor films grown on
foreign substrates
WOO-076 B66-10225 01

Process yield Co-Fe alloys with superior
high temperature magnetic properties
LEWIS-333 B66-10535 03

Zone purification of potassium chloride
ARG-10377 B69-10241 03

Personal Author Index

This index is arranged alphabetically by author. The Tech Brief title is listed followed by the originating source number, e.g., MFS-293. The Tech Brief number, e.g., B65-10346 is followed by a two-digit number, e.g., 05, which designates the subject category.

A

- ABEL, R. S.
Analog voicing detector responds to pitch
GSFC-10085 B67-10571 01
- ABENS, S. G.
High-energy, high-power, long-life battery
LEWIS-10724 B69-10131 01
- ABLER, J.
Experimental scaling study of fluid
amplifier elements
M-FS-1882 B67-10088 02
- ABRAMSON, R. H.
Ion mass spectrometer for special uses
HQ-10418 B69-10510 02
- ABSALOM, J. G.
Analysis of dynamic systems with DAP4H
computer program
M-FS-13999 B67-10523 06
Dynamically stable check valve concept for
wide flow range
M-FS-14579 B68-10247 05
- ABU-SHUMAYS, I. K.
Structure of the isotropic transport
operators in three independent space
variables
ARG-10448 B69-10432 06
- ACKERMAN, R. J.
The thermodynamic properties of the wustite
phase are studied
ARG-10200 B68-10408 03
- ACORD, J. D.
Hydraulic drive system prevents backlash
JPL-371 B65-10351 05
- ADAMS, C. J.
Nondestructive testing of brazed rocket
engine components
M-FS-18191 B68-10394 03
- ADAMS, W. T.
Lightweight magnesium-lithium alloys show
promise
M-FS-17 B63-10389 03
- ADKINS, J. M.
Basal-plane metallography of deformed
pyrolytic carbon
NPO-11196 B69-10488 03
Automatic sample rotator for metallographic
polishing
NPO-11015 B69-10596 03
- ADLER, I.
Nondispersive X-ray emission analysis
for geochemical exploration
GSFC-10568 B69-10011 02
- ADUCCI, S. A.
Remotely operated clamping tool has positive
grip
NU-0020 B65-10254 05
- AFFENITO, F. J.
Phase plane displays detect incipient
failure in servo system testing
HQ-10018 B67-10662 01
- AFRICANO, R. C.
Algebraic Monte Carlo procedure reduces
statistical analysis time and cost factors
M-FS-1887 B67-10434 01
- AGEE, W. E.
LM lookangle program
MSC-13179 B69-10370 06
- AIRTH, H. B.
Circuit protects regulated power supply
against overload current
GSFC-453 B66-10292 01
- AISENBERG, S.
Optical integrating sphere operates at
visible and infrared wavelengths
M-FS-14248 B68-10126 02
- AKYUZ, F. A.
ELAS - A general purpose computer program
for the equilibrium problems of linear
structures
NPO-10598 B68-10187 06
- ALAN, A.
GERT EXCLUSIVE-OR combining paths and
loops of electrical networks
ERC-10206 B68-10435 06
GERT simulation program for GERT network
analysis
ERC-10209 B68-10457 06
- ALARIO, R.
Development of structural test articles
from magnesium-lithium and beryllium
M-FS-14959 B69-10417 03
- ALBRECHT, R. H.
White primer permits a corrosion-resistant
coating of minimum weight
M-FS-304 B66-10207 03
- ALBRIGHT, C. F.
New electrolyte may increase life of
polarographic oxygen sensors
MSC-1049 B67-10003 03
Electrolytic silver ion cell sterilizes
water supply
MSC-11827 B68-10555 01
Device separates hydrogen from solution in
water at ambient temperatures
MSC-13335 B69-10635 03
- ALBRIGHT, F. G.
Contact stresses calculated for miniature slip
rings
M-FS-280 B65-10098 05
- ALDRED, A. T.
Study reveals effect of aluminum on
saturation moment of Fe-Ni alloys
ARG-90259 B68-10172 03
- ALDRIDGE, C.
Development and test of flexible film
coupon strips for use as a sampling
technique
M-FS-20448 B69-10339 03
- ALEXANDER, M. J.
Computer program simulates design, test,
and analysis phases of sensitivity
experiments
M-FS-1496 B67-10077 01
Computer program reduces calculation time
of normal response functions
M-FS-1517 B67-10108 01
Computer program calculates monotonic

- maximum likelihood estimates using method of reversals
M-FS-1516 B67-10136 01
- ALEXANDER, W. M.
Microparticle impact sensor measures energy directly
GSFC-252 B65-10048 01
- ALFREDSON, P. G.
Computer program developed for flowsheet calculations and process data reduction
ARG-10134 B69-10023 06
- ALLAN, K. N.
Cooling of 2 kW H subscript 2-O subscript 2 fuel cell
M-FS-13737 B68-10544 01
- ALLEN, B. C.
Nonhazardous acid etches weld samples
M-FS-975 B66-10378 05
- ALLEN, B. C.
Semiconductors can be tested without removing them from circuitry
M-FS-1163 B66-10447 01
- ALLEN, G. P.
Spiral-grooved shaft seals substantially reduce leakage and wear
LEWIS-10397 B68-10270 05
- ALLEN, J. H., SR.
Lathe attachment used to machine elliptical cones
MSC-100 B65-10168 05
- ALLEN, L. D.
Insulation accelerates rate of cooling with cryogenic fluid
MSC-161 B65-10240 02
- ALLEN, L. H.
Method of directing a laser beam with very high accuracy
NPO-11087 B69-10508 02
- ALLEN, W. K.
Traveling-wave tube circuit simplifies microwave relay
GSFC-299 B65-10127 01
- ALLEN, W. W.
Automatic calibration apparatus for telemetry systems
NPO-10560 B68-10514 01
- ALLISTON, W.
Master control data handling program uses automatic data input
M-FS-2259 B67-10280 06
- ALMOND, J. C.
New computer program solves wide variety of heat flow problems
M-FS-421 B66-10404 01
- ALMROTH, B. O.
Computer program analyzes Buckling Of Shells Of Revolution with various wall construction, BOSOR
LANGLEY-10290 B68-10226 06
- Buckling Of Shells Of Revolution /BOSOR/ with various wall constructions
LANGLEY-10441 B69-10300 06
- ALSOVSKY, W. H.
Circuit enhances vertical resolution in raster scanning systems
MSC-12123 B68-10121 01
- ALTSHULER, T. L.
Reliable method for testing gross leaks in semiconductor component packages
ERC-10150 B68-10562 01
- ALVAREZ, M. M.
Instrument transmits vanishing point to illustration point
MSC-267A B66-10324 01
- AMBARUCH, R.
Digital computer technique for setup and checkout of an analog computer
M-FS-13969 B68-10576 06
- AMMANN, E. O.
Technique developed for measuring transmittance of optical birefringent networks
M-FS-14267 B68-10260 02
- Synthesis of electro-optic modulators for amplitude modulation of light
M-FS-14268 B68-10275 02
- Correction for losses in optical birefringent networks, a concept
M-FS-20088 B68-10571 02
- AMMERMAN, R. L.
Pressure variable orifice for hydraulic control valve
MSC-11323 B68-10120 05
- ANASTASIA, L. J.
Computer program developed for flowsheet calculations and process data reduction
ARG-10134 B69-10023 06
- ANDERS, R. A.
Electronic aperture control devised for solid state imaging system
M-FS-12428 B68-10028 01
- ANDERSON, G. E.
Portable detector set discloses helium leak rates
M-FS-1733 B67-10065 01
- ANDERSON, J. W.
Solenoid valve design has one moving part
NPO-10039 B67-10219 05
- ANDERSON, K. F.
Ratio matching of half-bridge weldable strain gages, computer program
PRC-10032 B69-10040 06
- ANDERSON, M. J.
Design eliminates radial thermal expansion in turbine stator components
M-FS-18146 B68-10531 05
- ANDERSON, R. W.
Neutron irradiation of Am-241 effectively produces curium
ARG-10030 B67-10501 03
- ANDERSON, T. O.
Improved circuit minimizes generation time of pseudonoise check bits
JPL-698 B65-10275 01
- Monitoring system determines amplitude and time of vibration channel peaks
JPL-879 B66-10699 01
- A conceptual, parallel operating data compression processor
NPO-10068 B67-10204 01
- Logic realization of simple majority voting connectives
JPL-727 B67-10511 06
- Simple first order data compression processor concept
NPO-10338 B67-10553 01
- Simplified, high-speed binary data decoder
NPO-10118 B68-10058 01
- A method for reducing sampling jitter in digital control systems
NPO-11088 B69-10338 01
- Simple quasi-exponential slope generator
NPO-11130 B69-10439 01
- Simplified, reliable circuit sorts binary numbers in order of magnitude
NPO-10112 B69-10503 01
- Design for a rapid automatic sync acquisition system
NPO-10214 B69-10538 01
- ANDERSON, W. J.
Control of component differential hardness increases bearing life
LEWIS-190 B65-10251 05
- Shallow grooves in journal improve air bearing performance
LEWIS-10396 B68-10134 05
- Bearings use dry self-lubricating cage materials
LEWIS-10432 B68-10165 05
- High-temperature bearing-cage materials
LEWIS-10403 B68-10176 05
- High-temperature bearing lubricants
LEWIS-10408 B68-10249 05
- ANDERSON, W. W., JR.
Calorimeter accurately measures thermal radiation energy
LANGLEY-173 B66-10058 02
- ANDREWS, C. A.
Improved first order interpolator
MSC-11085 B69-10291 02
- ANDREWS, S. J., JR.
Aerial-image enables diagrams and animation to be inserted in motion pictures
ARG-165 B67-10398 02
- ANGELE, W.
Contact-spring forming machine for flat

conductor cable receptacles M-FS-20126	B68-10550	05	ARNTZEN, J. D. Titanium-nitrogen reaction investigated for application to gettering systems ARG-10208	B68-10414	03
Tools for applying lead tape to flat conductor cabling for chemical stripping M-FS-20429	B69-10190	05	ARRANCE, F. C. Improved anode design for metal-oxygen cells LEWIS-10871	B69-10318	01
Leakage tester for flat conductor cable connector M-FS-20427	B69-10284	05	Improved inorganic ion exchange membranes LEWIS-10737	B69-10451	03
Checking flat conductor cable spacing by means of a moire pattern M-FS-20426	B69-10456	05	ARTHUR, J. S. Threading hook facilitates safe recovery of heavy loads MSC-46	B64-10185	05
ANGELL, C. A. Hydrated multivalent cations are new class of molten salt mixtures ARG-211	B67-10033	03	ASCHENBRENNER, R. A. Mossbauer-effect data-collection system ARG-10282	B69-10027	01
New class of compounds have very low vapor pressures ARG-115	B67-10184	03	ASHBROOK, R. L. New cobalt alloys have high-temperature strength and long life in vacuum environments LEWIS-47	B63-10351	03
ANNIS, J. F. Rate of heat extraction controller for environmental control HQ-10318	B69-10516	01	Cobalt-tungsten, ferromagnetic high-temperature alloy LEWIS-10378	B68-10095	03
APPEL, B. H. Adjustable thermal **tree** MSC-15556	B69-10484	01	High strength, superplastic superalloy LEWIS-10805	B69-10293	03
APPELMAN, E. H. Synthesis of perbromates ARG-10459	B69-10647	03	ASHEY, W. C. Dewpoint temperature inversions analyzed ARG-10316	B69-10057	02
ARANS, F. R. Detector measures power in 50 to 30,000 GHz radiation band ERC-26	B66-10581	01	ASTON, B. Multidimensional reaction kinetic ablation program /REKAP/ MSC-10079	B67-10495	06
ARENS, W. E. Modular chassis simplifies packaging and interconnecting of circuit boards JPL-236A	B63-10174	01	ATKISSON, E. A. Coaxial capacitor used to determine fluid density LEWIS-232	B65-10296	02
ARGENTIERO, P. D. The X square statistic and goodness of fit test GSFC-10547	B68-10136	02	ATLAS, N. D. Comfortable, lightweight safety helmet holds radio transmitter, receiver MSC-53	B64-10015	05
ARGOUD, M. J. Protective clothing for workers with 5-kW and 20-kW short-arc lamps NPO-11155	B69-10218	01	Personal communication system combines high performance with miniaturization MSC-720	B67-10119	01
ARIAS, A. Improved retort for cleaning metal powders with hydrogen LEWIS-10718	B69-10468	03	ATOJI, H. Neutron diffractometer allows both magnetic and crystallographic analyses ARG-191	B67-10131	02
ARMENTROUT, E. C. Cooled miniature pressure transducers effective at high temperatures LEWIS-10401	B68-10370	01	ATTWOOD, S. W. Phase-lock loop frequency control and the dropout problem M-FS-13948	B68-10130	01
ARMSTRONG, D. G. System transmits mechanical vibration into hazardous environment NU-0025	B65-10248	05	Communication system features dual mode range acquisition plus time delay measurement M-FS-14323	B68-10306	01
ARMSTRONG, G. M. Development of low temperature battery LEWIS-10326	B67-10546	01	AUBOL, P. B. Rotational fluid coupling eliminates hose entanglements MSC-312	B66-10585	05
ARMSTRONG, J. L. Laboratory arc furnace features interchangeable hearths ARG-125	B67-10052	05	AULT, G. H. Survey made of refractory metals LEWIS-10380	B68-10032	03
ARMSTRONG, T. W. Deep gamma ray penetration in thick shields M-FS-14388	B68-10143	02	AUSTIN, D. C. Compact cartridge drives coded tape at constant readout speed JPL-472	B64-10222	01
ARMSTRONG, W. P. Flow properties of suspensions rich in solids ARG-10481	B69-10622	02	AUSTIN, J. G. Viscosity and density of methanol/water mixtures at low temperatures M-FS-14991	B68-10274	03
ARNDT, G. D. RF noise suppression using the photodiodelectric effect in semiconductors MSC-12259	B69-10225	01	AUSTIN, W. L. Estimating reliability by application of matrix representation HQ-10246	B69-10793	02
ARNDT, J. H. Optical device enables small detector to see large field of view WOO-253	B66-10263	02	AUTLER, S. H. Mechanisms of superconductivity investigated by nuclear radiation M-FS-1944	B67-10057	02
ARNOLD, J. O. A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voigt line profile ARC-10221	B69-10232	06	AVERY, H. W. Device spot-laps spheres to very close tolerances JPL-SC-119	B66-10175	05
ARNOTT, R. J. Electrolytic separation of crystals of transition-metal oxides ARG-10506	B69-10642	03	Hollow spherical rotors fabricated by electroplating JPL-SC-117	B66-10366	05

- AYER, J. E.
Mathematical relation predicts achievable
densities of compacted particles
ARG-10082 B67-10592 03
- AYVAZIAN, R. A.
System for measuring spatial distribution of
ejected droplets, a concept
NPO-10185 B68-10402 01

B

- BAARLE, C. V.
Measurements of thermoelectric power in
annealed and quenched gold-platinum alloys
ARG-10303 B69-10206 03
- BABA, P. D.
Miniaturization of magnetic logic circuitry
LANGLEY-10037 B69-10148 06
- BABB, B. D.
Technique for stripping Teflon insulated
wire
M-FS-1774 B67-10048 05
- BACHLE, W. H.
A mechanically extendible boom
NPO-11118 B69-10328 05
- BACIGALUPTI, R. J.
Spherical model provides visual aid for
cubic crystal study
LEWIS-108 B65-10065 03
- BADSTUBNER, C. G.
Phase-locked-loop phase modulator with
high modulation index, low distortion
MSC-12247 B69-10487 01
- BAEHR, E. F.
New method used to fabricate light-weight heat
exchanger for rocket motor
LEWIS-43 B63-10346 02
- BAER, D.
Recharge unit provides for optimum
recharging of battery cells
GSFC-10688 B68-10273 01
- BAERG, H. R.
Analog solar system model relates celestial
bodies spatially
JPL-195 B66-10413 01
- BAERNS, M. G.
Effect of interparticle forces on the
fluidization of fine particles
ARG-10264 B69-10195 03
- BAILEY, B. H.
Cryogenic flux-concentrator
ARG-10494 B69-10654 02
- BAILEY, J. W.
Electronic assembly rack panels snap on and
off
GSFC-59 B64-10121 05
- High-pass RF coaxial filter rejects dc and
low frequency signals
GSFC-73 B64-10173 01
- BAILEY, R. L.
Rocket engine nozzle photographic
system
NPO-10174 B68-10113 02
- BAILEY, W. A.
Study made of ductility limitations of
aluminum-silicon alloys
M-FS-12524 B67-10392 03
- BAJKOWSKI, F. W.
Connect-disconnect coupling for preadjusted
rigid shafts
MSC-15470 B69-10375 05
- BAKER, B. R.
Readout system for radiation detector
MSC-90180 B68-10501 01
- BAKER, C. D.
An improved method for electrical
cable terminations
NPO-10694 B69-10327 01
- Pressure transducer
NPO-10853 B69-10364 01
- Quick-set temporary bonding clamps
NPO-10695 B69-10406 03
- BAKER, D. I.
Combustion chamber inlet manifold separates
vapor from liquid
M-FS-531 B66-10052 05
- Stationary device produces homogeneous
mixture of fluids
M-FS-525 B66-10570 05
- BAKER, E. H.
Static structural analysis of shell-type
structures
MSC-11555 B68-10066 03
- BAKER, E. U.
Cut-through tester accurately measures
insulation failure rates
M-FS-12506 B67-10354 03
- BAKER, L. R.
Plotter design simplifies determination of
image sensor transfer characteristic
NPO-10164 B67-10206 01
- BAKER, L., JR.
Ignition of binary alloys of uranium
ARG-10057 B68-10280 01
- BAKER, R.
Bidirectional torque filter eliminates
backlash
GSFC-335 B65-10148 05
- BAKER, W. H.
Ultrasonics permits brazing complex stainless
steel assembly without flux
NU-0115 B67-10094 05
- BALDWIN, J. H.
Laser microprobe facility used in the
elemental analysis of small feature of a
sample
ARG-10359 B69-10165 02
- BALDWIN, L. V.
Cooling method prolongs life of hot-wire
transducer
LEWIS-41 B63-10344 02
- New apparatus increases ion beam power density
LEWIS-73 B63-10440 01
- BALES, T. T.
Thoriated nickel bonded by solid-state
diffusion method
LANGLEY-116 B65-10220 03
- Glass bead shot peening retards stress
corrosion failure of titanium tanks
LANGLEY-319 B67-10198 05
- BALKWILL, J. T.
Method of making conical fiber optical
components
XNP-09745 B69-10020 02
- BALL, L. L.
Tungsten thermal neutron dosimeter
LEWIS-10880 B69-10249 02
- BALL, H.
Triple Modular Redundancy /TMR/ computer
operation improved
MSC-831 B67-10085 01
- Automatic channel switching device
MSC-832 B67-10086 01
- BALLARD, D.
Computerized Schedule Effectiveness
Technique /SET/ determines present and
future schedule position
M-FS-13012 B67-10522 06
- BALLINGER, V. J.
Flared-tube fittings with replaceable seat
inserts
MSC-15372 B69-10519 05
- BANFORD, R. H.
Lightweight universal joint transmits both
torque and thrust
JPL-375 B63-10236 05
- A modal combination computer program for
dynamic analysis of structures
NPO-10129 B67-10217 06
- Computer program performs stiffness matrix
structural analysis
NPO-10502 B68-10096 06
- BANDINI, U.
Multiple meter monitoring circuits served
by single alarm
MSC-10984 B67-10369 01
- BANE, R. W.
Sodium perxenate permits rapid oxidation
of manganese for easy spectrophotometric
determination
ARG-262 B67-10421 03
- BANKS, B.
Reducing bubbles in glass coatings improves
electrical breakdown strength
LEWIS-10278 B68-10214 03
- BANKS, B. A.
Glass coated single grid for charged

- particle acceleration
LEWIS-10106 B68-10215 03
- BANKS, W.
Series transistors isolate amplifier
from flyback voltage
MSC-11023 B67-10468 01
- BANKSTON, B. F.
Stress-corrosion-induced property changes
in aluminum alloys
M-FS-20209 B68-10568 03
- BARBOUR, J. R.
Universal transloader moves delicate equipment
without stress
MSC-654 B66-10384 05
- BARBOUR, R. T.
Toggle operated double latch
MSC-11377 B68-10117 05
- BARDOS, D. I.
Study reveals effect of aluminum on
saturation moment of Fe-Ni alloys
ARG-90259 B68-10172 03
- BAREISS, E. H.
Linear systems of equations solved using
mathematical algorithms
ARG-10146 B68-10292 06
- Numerical inversion of finite Toeplitz
matrices and vector Toeplitz matrices
ARG-10445 B69-10415 02
- Root-cubing and general root-powering
methods for finding the zeros of polynomials
ARG-10444 B69-10424 02
- Structure of the isotropic transport
operators in three independent space
variables
ARG-10448 B69-10432 06
- BARGHUSEN, J. J.
Fluid-bed fluoride volatility process
recovers uranium from spent uranium alloy
fuels
ARG-232 B67-10032 03
- BARLING, W. H., JR.
Fortran 4 program for two-impulse
rendezvous analysis
M-FS-13971 B67-10479 06
- BARNES, H. F.
Improved dc voltage regulator
XKS-06467 B69-10369 01
- BARRANGER, J. P.
Process yield Co-Fe alloys with superior
high temperature magnetic properties
LEWIS-333 B66-10535 03
- BARRETT, C. A.
Precise doping of metals by small gas flows
LEWIS-10444 B68-10526 03
- BARTHOLOMAY, W. C.
Process controls introduction of selected
impurities into semiconductor wafers
GSFC-523 B67-10303 01
- BARTLETT, D. H.
Fiber glass reinforced structural materials
for aerospace application
M-FS-14806 B68-10360 03
- BASERGA, R.
Effect of preparation procedures on
intensity of radioautographic labeling is
studied
ARG-10032 B67-10500 04
- BASILE, L. J.
Daughter growth in freshly separated
Ra-226, Ac-227 and U-232
ARG-10226 B69-10003 02
- BASIULIS, A.
Distillation device supplies cesium vapor at
constant pressure
XNP-08124 B68-10020 03
- BASLOCK, R. W.
Heater control circuit provides both fast
and proportional control
M-FS-906 B67-10097 01
- BASTIEN, R. C.
Multilayer infrared beamsplitter film
system
XGS-11036 B69-10260 02
- BASTON, J. G.
An overview of electromagnetic interference
problems in spacecraft
NPO-11170 B69-10362 01
- BATCHELDER, R.
Computer program performs stiffness matrix
- structural analysis
NPO-10502 B68-10096 06
- BATES, E. T., JR.
Low rate flow switch can be used for gas or
liquid
JPL-867 B66-10696 01
- BATSCH, F. F.
Elastic orifice automatically regulates gas
bearings
JPL-135 B63-10123 05
- Slit feeds reduce unbalanced torques in
gas-lubricated bearings
JPL-264 B65-10099 05
- BATTE, W. G.
Exclusive-or logic circuit has useful
properties
LANGLEY-214 B66-10272 01
- BATTLES, J. E.
Mass-spectrometric study of the
rhenium-oxygen system
ARG-10421 B69-10645 02
- BAUDE, J.
Signal generator converts direct current
to multiphase supplies
MSC-11043 B67-10368 01
- BAUER, B. B.
Electronic dummy for acoustical testing
MSC-206 B67-10298 01
- BAUERSCHUB, J. P., JR.
Explosives actuate nonmagnetic indexing device
GSFC-237 B65-10017 05
- BAUM, E. A.
High-temperature, gas-filled ceramic
rectifiers, thyatrons, and
voltage-reference tubes
LEWIS-90271 B69-10376 01
- BAUMAN, A. J.
Solder flux leaves corrosion-resistant
coating on metal
JPL-611 B64-10206 03
- Reusable chelating resins concentrate metal
ions from highly dilute solutions
JPL-758 B66-10451 03
- BAUMER, W. E.
Circuit counts pulses and indicates time of
occurrence of slow pulses
XNP-06234 B69-10313 01
- BEACH, R. E.
Maintainability methodology and
maintenance analyses
M-FS-14134 B68-10075 05
- BEALS, R. J.
Study of mechanical properties of uranium
compounds
ARG-10074 B68-10197 03
- BEAM, R. A.
Optical projectors simulate human eyes to
establish operator's field of view
WOO-250 B66-10010 02
- Visual attitude orientation and alignment
system
MSC-647 B67-10120 02
- BEANE, C.
Copper-acrylic enamel serves as lubricant
for cold drawing of refractory metals
ARG-54 B66-10471 05
- BEASLEY, W. D.
Standard arc welders provide high amperage
direct current source
LANGLEY-267 B66-10441 01
- BEAVER, C. E.
Lock-disconnect mechanism gives positive
release to joined bodies
M-FS-2147 B67-10123 05
- BECK, F. B.
Modified interelement spacing improves Yagi
antenna array
LANGLEY-130 B65-10183 01
- BECK, P. A.
Study reveals effect of aluminum on
saturation moment of Fe-Ni alloys
ARG-90259 B68-10172 03
- BECKER, G. W.
Testing device subjects elastic materials to
biaxial deformations
JPL-616 B65-10189 03
- BECKER, H. H.
Superconductive thin film makes convenient

- liquid helium level sensor
LANGLEY-10289 B68-10341 01
- BECKLEY, J. E., JR.
Tool permits damage-free removal of solar cell
GSFC-467 B66-10219 05
- BECKWELL, W. E.
Wideband, high efficiency optical modulator
requires less than 10 watts drive power
M-FS-12733 B67-10289 01
- BEDARD, R. E.
Automated patient monitoring system
M-FS-14552 B68-10131 01
- BEEB, R.
Unique construction makes interferometer
insensitive to mechanical stresses
JPL-725 B65-10295 02
- BEHRENDT, D. R.
System measures unidirectional forces,
excludes extraneous forces
LEWIS-170 B65-10154 05
- BELL, V. L., JR.
Irradiation improves properties of an
aromatic polyester
LANGLEY-115 B65-10164 03
Polymer film exhibits thermal and radiation
stability
LANGLEY-100 B66-10043 03
- BELL, W. E.
Electrodeless discharge lamp is easily
started, has high stability
WOO-030 B66-10015 01
- BELMONT, G. E.
Teflon-packed flexible joint
LEWIS-90252 B69-10049 03
- BENHAM, T. F.
Jet engine powers large, high-temperature
wind tunnel
M-FS-13544 B67-10621 02
- BENNETT, A. G.
Computer program for mass optional solutions
of some endpoint trajectory problems
M-FS-12976 B67-10310 06
Earth orbit rendezvous evaluation program
M-FS-13016 B67-10407 06
Computer program offers new method for
constructing periodic orbits in nonlinear
dynamical systems
M-FS-14654 B68-10217 06
- BENNETT, E. F.
Four pi-recoil proportional counter used as
neutron spectrometer
ARG-10101 B68-10326 02
- BENNETT, G. A.
Use of steel and tantalum apparatus for
molten Cd-Mg-Zn alloys
ARG-199 B66-10594 03
Study made of resistance of stainless steels
to zinc-vapor corrosion
ARG-10055 B67-10582 03
- BENNETT, J.
Manual-feed adapter permits microfilming of
continuous oscillograph output
NU-0029 B65-10249 01
Roll diffusion bonding of titanium alloy
panels
M-FS-14743 B68-10161 05
- BENNIGHT, J. D.
Magnetomotive forming for precision sizing
and joining of large-diameter tubes
M-FS-20481 B69-10422 05
- BENSON, J. A.
Carbon offers advantages as implant
material in human body
M-FS-18207 B69-10087 04
Hydraulic calipers
M-FS-18052 B69-10399 05
- BENSON, M. J.
Hydrogen flash lamps studied
ARG-10419 B69-10411 02
- BENTLEY, R.
Conceptual servo technique for controlling
tape drivers
M-FS-12955 B67-10595 01
- BENZIE, W. P.
Gage accurately controls force for placing
chips on substrates
M-FS-1941 B66-10675 01
- BERG, O. E.
Microparticle impact sensor measures energy
directly
GSFC-252 B65-10048 01
Dust particle injector for hypervelocity
accelerators provides high charge-to-mass
ratio
GSFC-509 B66-10347 01
- BERGER, C.
Improved inorganic ion exchange membranes
LEWIS-10737 B69-10451 03
- BERGER, H.
Improved ultrasonic TV images achieved by
use of Lamb-wave orientation technique
ARG-203 B67-10295 02
Thermal neutron image intensifier tube
provides brightly visible radiographic
pattern
ARG-120 B67-10296 02
New camera tube improves ultrasonic
inspection system
ARG-90237 B68-10088 01
- BERGESON, R. L.
Control system maintains selected liquid level
M-FS-470 B66-10039 01
- BERGGREN, R. L.
Subroutine allows easy computation in
extended precision arithmetic
M-FS-1136 B66-10504 01
- BERLMAN, I. B.
Hydrogen flash lamps studied
ARG-10419 B69-10411 02
- BERMAN, A. L.
ABTRAJ on-site tracking prediction
program
NPO-10836 B69-10103 06
- BERNAS, B.
Decomposition vessel
GSFC-10343 B68-10104 03
- BERNETT, E. C.
Automatic sample rotator for metallographic
polishing
NPO-11015 B69-10596 03
- BERNSTEIN, G.
Square tubing reduces cost of telescoping
bridge crane hoist
ARG-13 B67-10293 05
- BERRYMAN, G.
High power dc/dc and dc/ac electrical power
conversion techniques developed
M-FS-13227 B67-10390 01
- BERTRAND, A. R.
Computer program performs rectangular
fitting stress analysis
M-FS-13010 B67-10520 06
- BERVEN, B. B.
Coating permits use of strain gage in water
and liquid hydrogen
M-FS-594 B66-10192 01
- BERVEN, B. R.
Spiral spring/strain gage combination
accurately measures shock induced deflection
MSC-789 B66-10488 01
- BESSING, L. L.
Lightweight, all-metal hose assembly has high
flexibility and strength over wide range of
temperature and pressure
M-FS-1831 B66-10635 05
- BETHEL, P. G.
Device serves as hinge and electrical
connector for circuit boards
M-FS-743 B66-10359 01
- BEUTUKIAN, C. S.
Brazing process using Al-Si filler alloy
reliably bonds aluminum parts
MSC-448 B66-10241 05
Tube dimpling tool assures accurate
dip-brazed joints
MSC-533 B68-10036 05
- BEVAN, A. F.
Matching flow characteristics of standard
shutoff valves eliminates need for custom
fabricated valves
M-FS-1069 B66-10416 05
- BIDDLE, M. E.
Aspirator increases relief valve poppet
stroke
HQ-77 B67-10154 05

- | | | | | | | | | | |
|--|---|------------|-----------|--|---|--|-------------|-----------|----|
| BIELAWSKI, T. | | | | Laser action from a terbium beta-ketoenolate at room temperature | GSFC-10593 | B69-10324 | 02 | | |
| Study of fast response thermocouple measurement of temperatures in cryogenic gases | M-FS-1659 | B66-10661 | 01 | BJORKMAN, H. K. | Cooling of 2 kW H subscript 2-O subscript 2 fuel cell | M-FS-13737 | B68-10544 | 01 | |
| BIGELOW, W. L. | Hydrostatic testing of porous assemblies | M-FS-18298 | E68-10439 | 05 | BJORKMAN, W. S. | Advanced mission analysis programs | GSFC-10575 | B69-10171 | 06 |
| BIGGS, R. E. | Tool reconstructs data input points corresponding to first order output graph | M-FS-18003 | B68-10154 | 02 | BLACK, F. J. | New backup-bar groove configuration improves heliarc welding of 2014-T6 aluminum | MSC-806 | B66-10443 | 05 |
| BILDERBACK, R. R. | Solid-state laser transmitter is amplitude modulated | MSC-121 | B65-10238 | 01 | BLACK, S. H. | Automatic gain control circuit handles wide input range | MSC-166 | B66-10089 | 01 |
| Improved optical diffractometer | MSC-12055 | B68-10071 | 02 | BLACKMER, K. L. | Glass fabric fire barrier for silicone rubber parts | MSC-15555 | B69-10629 | 03 | |
| BILES, J. E., JR. | High impact pressure regulator withstands impacts of over 15,000 g | NPO-10175 | B67-10274 | 01 | BLAISE, H. T. | Ultrasonic wrench produces leaktight connections | M-FS-12561 | B67-10353 | 05 |
| BILLINGS, C. R. | Emergency escape system uses self-braking mechanism on fixed cable | KSC-66-44 | B66-10575 | 05 | | Air-cushion lift pad | M-FS-14685 | B69-10448 | 05 |
| BILLINGSLEY, P. C. | Computer program for Video Data Processing System /VDPIS/ | NPO-10042 | B67-10630 | 06 | BLAKE, W. | Multichannel wireway adapter box | MSC-90645 | B68-10052 | 05 |
| VICAR-DIGITAL image processing system | NPO-10770 | B69-10139 | 06 | BLAND, C. | Bacteriostatic conformal coating for electronic components | GSFC-10007 | B67-10599 | 03 | |
| Electrooptical scanning of film | NPO-11106 | B69-10568 | 01 | BLANK, G. B. | Sampling and handling of desert soils | NPO-11171 | B69-10304 | 04 | |
| BILLINGSLEY, J. M. | Simple circuit functions as frequency discriminator for PFM signals | GSFC-267 | B65-10102 | 01 | | Desert soil collection at the JPL soil science laboratory | NPO-11206 | B69-10571 | 04 |
| Mechanism facilitates coating of inner surfaces of metal cylinders | GSFC-515 | B66-10698 | 05 | BLANKENSHIP, C. P. | Extrusion of small-diameter, thin-wall tungsten tubing | LEWIS-90335 | B67-10355 | 05 | |
| BINCK, E. | Multidimensional reaction kinetic ablation program /REKAP/ | MSC-10079 | B67-10495 | 06 | BLAYDES, R. A. | Special pliers connect hose containing liquid under pressure | JPL-IT-1003 | B63-10291 | 05 |
| BINGLE, J. D. | Ignition of binary alloys of uranium | ARG-10057 | B68-10280 | 01 | BLAZE, C. J. | Collar positions strip stock used to form coil on mandrel | JPL-198 | B65-10130 | 05 |
| BIRD, A. N. | Infrared radiometer | M-FS-13373 | B67-10422 | 01 | BLENDERMAN, W. H. | Silver plating technique seals leaks in thin wall tubing joints | NU-0090 | B66-10703 | 05 |
| BIRDSONG, J. | Computerized Schedule Effectiveness Technique /SET/ determines present and future schedule position | M-FS-13012 | B67-10522 | 06 | BLITON, J. L. | Multilayer refractory nozzles produced by plasma-spray process | WOO-318 | B66-10611 | 05 |
| BIRNER, R. A. | Pressure probe compensates for dimensional tolerance variations | LEWIS-302 | B66-10599 | 01 | BLOCK, N. | Computer program utilizes FORTRAN 4 subroutines for contour plotting | NPO-10127 | B67-10323 | 06 |
| BISHOP, O. L. | Broadband choke suppresses spurious currents in antenna structure | MSC-10013 | B67-10675 | 01 | BLOCKER, E. W. | Newly developed foam ceramic body shows promise as thermal insulation material at 3000 deg F | M-FS-11968 | B67-10441 | 03 |
| BISIGNANI, W. T. | Survey of man-made electrical noise affecting radio broadcasting | HQ-10290 | B69-10308 | 01 | BLOOM, A. L. | Electrodeless discharge lamp is easily started, has high stability | WOO-030 | B66-10015 | 01 |
| BISSEL, W. R. | Heat transfer coefficients for liquid hydrogen turbopumps | M-FS-18345 | B68-10517 | 02 | BLOOMQUIST, C. A. A. | Nitric acid-organic mixtures surveyed for use in separation by anion exchange methods | ARG-10065 | B68-10425 | 03 |
| BITTERLY, J. G. | Measurement of gas flow at extremely low pressures | MSC-13261 | B69-10522 | 03 | | Transplutonium elements processed from rock debris of underground detonations | ARG-10222 | B69-10054 | 03 |
| BIZJAK, F. | Effects of helium and nitrogen as pressurants in nitrogen tetroxide transfer | MSC-924 | B67-10083 | 03 | BLUE, J. W. | An economical method for the continuous production of iodine-123 | LEWIS-10518 | B68-10433 | 03 |
| Thermodynamic properties related to expansion of two-component gas | MSC-1133 | B67-10112 | 03 | BLUM, P. | Preparing rock powder specimens of controlled size distribution | NPO-10007 | B68-10297 | 03 | |
| BJORKLUND, S. | Liquid laser cavities | GSFC-10592 | B69-10234 | 02 | | | | | |

- | | | | | | | | | |
|-------------------|---|-----------|----|-----------|--------------------|---|-----------|----|
| BOHIS, J. P. | Accurate nine-decade temperature-compensated logarithmic amplifier
ARG-10480 | B69-10429 | 01 | M-FS-1475 | BOSE, S. | Cytology is advanced by studying effects of deuterium environment
ARG-205 | B67-10309 | 06 |
| BOHNSSEL, D. W. | FM oscillator uses tetrode transistor
JPL-82 | B65-10055 | 01 | | BOSSLER, F. B. | Three-axis attitude and direction reference instrument has only one moving part
M-FS-1819 | B67-10304 | 04 |
| BOERS, B. L. | Identification and evaluation of linear damping models in beam vibrations
ARG-10275 | B69-10196 | 03 | | BOUCHER, L. J. | Aggregation of metallochlorophylls - Examination by spectroscopy
ARG-10273 | B66-10644 | 01 |
| BOGART, T., JR. | Circuit operates as sine function generator
MSC-255 | B66-10038 | 01 | | BOUCHLAS, T. | Use of color-coded sleeve shutters accelerates oscillograph channel selection
KSC-10092 | B69-10163 | 04 |
| BOGLEY, R. L. | Three-position rocker switch actuator has positive centering
MSC-261 | B65-10376 | 01 | | BOUILLE, J. R. | Pneumatic wrench retains or discharges nuts or bolts as desired
NU-0085 | B67-10382 | 01 |
| BOGNER, M. A. | Dewpoint temperature inversions analyzed
ARG-10316 | B69-10057 | 02 | | BOULTON, H. C. | Electrical continuity scanner facilitates identification of wires for soldering to connectors
MSC-626 | B66-10707 | 05 |
| BOGUE, R. K. | Alternating current electromagnetic servo induction meter
XFR-03838 | B68-10100 | 01 | | BOWDEN, F. W. | Use of color-coded sleeve shutters accelerates oscillograph channel selection
KSC-10092 | B66-10605 | 01 |
| BOKROS, P. | Detection system ensures positive alarm activation in digital message loss
WOO-208 | B66-10287 | 01 | | BOWDEN, H. | Experiments to investigate particulate materials in reduced gravity fields
M-FS-13308 | B67-10394 | 02 |
| BOLDMAN, D. R. | Experimental investigation of megawatt dc arc heating of nitrogen
LEWIS-313 | B66-10508 | 02 | | BOWEN, J. B. | Photosensors used to maintain welding electrode-to-joint alignment
MSC-243 | B65-10401 | 05 |
| BOLINE, K. G. | Modular chassis simplifies packaging and interconnecting of circuit boards
JPL-236A | B63-10174 | 01 | | BOWERS, W. M. | Jacketed cryogenic piping is stress relieved
M-FS-985 | B67-10308 | 05 |
| BOLL, K. P. | Technique increases storage capacity in camera tube target
MSC-11599 | B68-10213 | 01 | | | Vacuum-jacketed transfer line installation technique
M-FS-14496 | B68-10125 | 05 |
| BOLT, C. A., JR. | Broadband choke suppresses spurious currents in antenna structure
MSC-10013 | B67-10675 | 01 | | BOWIE, J. E. | Conditioning of pulses from aerosol-particle detectors
ERC-10250 | B69-10691 | 01 |
| BOLTE, G. | Zener diode function generator requires no external reference voltage
JPL-0031 | B65-10013 | 01 | | BOWMAN, R. | Silicon strain sensors enable pressure measurement at cryogenic temperatures
M-FS-14703 | B68-10262 | 01 |
| BON TEMPI, P. J. | A method of determining combustion gas flow
M-FS-13757 | B67-10455 | 03 | | BOYD, W. G. | Instrument accurately measures weld angle and offset
M-FS-12849 | B67-10563 | 05 |
| BOND, W. E. G. | Spray-on technique simplifies fabrication of complex thermal insulation blanket
M-FS-497 | B66-10053 | 03 | | BOYLE, J. V. | Alignment tool facilitates pin placement on irregular horizontal surfaces
LANGLEY-219 | B66-10410 | 05 |
| BOND, W. W. | Piezoresistive gage tests pin-connector sockets
JPL-675 | B65-10128 | 01 | | BOYLEW, G. W., JR. | Health hazards of ultrafine metal and metal oxide powders
LEWIS-10878 | B69-10268 | 04 |
| BONIN, E. L. | An integrated circuit switch
NPO-11073 | B69-10326 | 01 | | BRAAMS, R. | Rate constants measured for hydrated electron reactions with peptides and proteins
ARG-10195 | B68-10424 | 04 |
| BONN, J. L. | Forming blocks speed production of strain gage grids
LEWIS-182 | B65-10009 | 05 | | BRADANINI, P. A. | Portable Pulse Code Modulation /PCM/
MSC-11369 | B68-10106 | 01 |
| | Irradiated gases transferred without contamination or dilution
LEWIS-278 | B67-10044 | 03 | | BRADIE, P. R. | Integral ribs formed in metal panels by cold-press extrusion
M-FS-230 | B65-10141 | 05 |
| BOONE, W. L., JR. | Warpage eliminated in copper-clad microwave circuit laminates
M-FS-13892 | B67-10454 | 03 | | BRADY, R. D. | Metal flame spray coating protects electrical cables in extreme environment
NUC-10077 | B67-10351 | 03 |
| BOOTH, F. W. | Apparatus measures concentration of suspended droplets in gas streams
LANGLEY-31 | B64-10237 | 01 | | BRANSTETTER, J. R. | Pyrometry handbook describes practical aspects of surface temperature measurements of opaque materials
LEWIS-349 | B66-10520 | 01 |
| BOOTH, R. A. | Hybrid solid state switch replaces motor-driven power switch
JPL-931 | B67-10165 | 01 | | BRANTNER, R. E. | Simplified electrometer has excellent operating characteristics | | |
| BOOTH, S. | Laser-Doppler gas-velocity instrument
M-FS-20039 | B68-10349 | 02 | | | | | |
| BORDNER, G. W. | Study of random process theory aids digital data processing | | | | | | | |

JPL-413	B65-10125	01	BRISCO, F. J.	Lamp enables measurement of oxygen concentration in presence of water vapor	MSC-10043	B67-10387	01
Transistor h parameter conversion slide rule			BRISCOE, C. C.	Heat-treatment of metal parts facilitated by sand embedment	M-FS-1543	B66-10616	03
JPL-649	B67-10561	01	BRITTAN, H. C.	High speed blowdown system provides rapid pressure loss	LEWIS-375	B67-10043	05
BRANUM, J. C.			BRITTON, J. M.	Locating and sealing air leaks in multiroomed buildings	NUC-10304	B68-10024	05
Fire extinguisher control system provides reliable cold weather operation	B67-10622	05	BRODERICK, R. F.	An interferometer tracking radar system	MSC-10956	B69-10523	01
M-FS-13031			BROGAN, J. J.	Study of cryogenic container thermodynamics during propellant transfer	M-FS-14310	B68-10108	02
BRANUM, L. W.			BROOKS, E. J.	Tungsten-rhenium alloy thermocouples effective for high-temperature measurement	ARG-10059	B68-10109	03
Cryogenic trap valve has no moving parts	B66-10136	05	BROOKS, G. W.	Flexible ring baffles for damping liquid slosh	LANGLEY-90194	B68-10064	05
M-FS-487			BROOKS, J. D.	Standard arc welders provide high amperage direct current source	LANGLEY-267	B66-10441	01
Shock-operated valve would automatically protect fluid systems	B66-10335	03	BROOKS, J. M.	Experimental prediction of performance by superconducting cables	ARG-10215	B69-10161	01
M-FS-801			BROOKS, M. J.	Advanced mission analysis programs	GSFC-10575	B69-10171	06
Device accurately measures and records low gas-flow rates	B66-10569	01	BROOKS, R. E.	Long range holographic contour mapping concept	HQ-10350	B69-10700	02
M-FS-1077			BROOKS, W. S.	Honeycomb seal backing ring increases turbopump disk life	M-FS-13303	B67-10607	05
BRAB, S. S.			BROOKSHIER, W. K.	New electron microscope employs new video display technique	ARG-158	B67-10312	03
New shield for gamma-ray spectrometry	B69-10344	02		Precision capacitor has improved temperature and operational stability	ARG-189	B67-10313	01
ARG-10388			BROTHERS, W. J.	Electronic test instrument generates extremely small current signals	ARG-276	B67-10318	01
BRASKI, D. N.				Fortran 4 program for two-impulse rendezvous analysis	M-FS-13971	B67-10479	06
Chemical milling solution reveals stress corrosion cracks in titanium alloy	B67-10322	03	BROWER, J. R.	Automatic leveling and equalizing hoist device	M-FS-16549	B69-10514	05
LANGLEY-10077				Copper and nickel adherently electroplated on titanium alloy	M-FS-13952	B67-10532	03
BRASS, A.			BROWN, G. L.	Ratio matching of half-bridge weldable strain gages, computer program	FRC-10032	B69-10040	06
Gate valve with ceramic-coated base operates at high temperatures	B63-10562	03	BROWN, G. V.	Solenoid magnetic fields calculated from superposed semi-infinite solenoids	LEWIS-184	B66-10490	01
ARC-23			BROWN, J. A.	Low-energy gamma ray inspection of brazed aluminum joints	MSC-1189	B67-10337	02
BREAUUX, J. M.			BROWN, J. D.	Coaxial cable stripper for confined areas	KSC-10167	B68-10444	05
Maximum RMS error comparison of several redundancy techniques	B69-10297	01	BROWN, J. L.	Diffusion of trace gases for leak detection -			
M-FS-15075							
BRECHNA, H.							
Cryogenic flux-concentrator	B69-10654	02					
ARG-10494							
BREED, L. W.							
Arylenesiloxane copolymers	B67-10079	03					
M-FS-1812							
BRENN, G. D.							
Low-power transistorized circuit provides staircase waveform	B64-10007	01					
GSFC-48							
BREITELESER, R.							
Chemical regeneration of emitter surface increases thermionic diode life	B66-10435	02					
LEWIS-17							
BREJCHA, A. G., JR.							
Lightweight coaxial cable connector reduces signal loss	B65-10244	01					
JPL-720							
Connector acts as quick coupling in coaxial cable application	B66-10621	01					
JPL-803							
BRENNER, R.							
Versatile analog pulse height computer performs real-time arithmetic operations	B67-10626	06					
ARG-10052							
High resolution Ge/Li/ spectrometer reduces rate-dependent distortions at high counting rates	B68-10420	01					
ARG-10144							
BRESSLER, S.							
VICAR-DIGITAL image processing system	B69-10139	06					
NPO-10770							
BREURER, D. R.							
Improved compensation circuit for direct-coupled amplifiers	B68-10133	01					
MSC-11148							
BREYER, E. P.							
Stratification of centrifuged amoeba nuclei investigated by electron microscopy	B68-10366	04					
ARG-10161							
BRIGGS, R. S.							
Modified hydraulic braking system limits angular deceleration to safe values	B66-10310	05					
GSFC-476							
BRIGHT, C. S.							
Hydrogen fire detection system features sharp discrimination	B66-10368	01					
M-FS-643							
BRILLHART, D. C.							
Fabrication techniques developed for small-diameter, thin-wall tungsten and tungsten alloy tubing	B68-10284	05					
ARG-10100							
BRINDA, J.							
Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi	B67-10263	01					
NUC-10067							

A study	HQ-10391	B69-10368	06
M-FS-20254	BUCHHOLD, T. A.		
BROWN, R. D.	Simple pump maintains liquid helium level in cryostat		
Electric arc heater is self starting	M-FS-1763	B67-10039	05
LANGLEY-208			
BROWN, R. L.	BUCKEY, D. L.		
Fiber glass dies speed forming of large metal sheets	Keyed plugs and sockets prevent improper connections		
M-FS-214	MSC-231	B65-10381	01
Detection and location of metallic objects imbedded in nonmetallic structures	BUCKLEY, D. H.		
M-FS-14790	Gallium useful bearing lubricant in high-vacuum environment		
BROWN, R. L., SR.	LEWIS-12	B63-10337	03
Improved radiographic image amplifier panel	Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics		
M-FS-14522	LEWIS-320	B66-10373	03
BROWN, W. P., JR.	Complex surfaces plated by thin-film deposition in one operation		
Survey of fracture toughness test methods	LEWIS-292	B67-10006	05
LEWIS-10379			
BROWN, W. J.	BUCKMAN, R. W., JR.		
Technique for anchoring fasteners to honeycomb panels	Tantalum alloys resist creep deformation at elevated temperatures		
LEWIS-10888	LEWIS-350	B66-10558	03
BROWN, W. R.	BUDDS, L. E.		
Program computes single-point failures in critical system designs	Opposed arcs permit deep weld penetration with only one pass		
MSC-603	M-FS-1696	B66-10513	05
BROWN, W. S.	BULLER, J. S.		
Computer program FPIP-REV calculates fission product inventory for U-235 fission	Thermal calibration target		
NUC-10089	XGS-11144	B69-10419	01
BROYLES, H. F.	BUNKER, E. R., JR.		
Polymer deformation gage measures thickness change in tensile tests	Automated plotting of equipotentials		
JPL-745	NPO-11134	B69-10570	01
BROYLES, H. H.	BUNN, D. B.		
Polymer deformation gage measures thickness change in tensile tests	Computer program provides linear sampled-data analysis for high order systems		
JPL-745	M-FS-12821	B67-10287	06
Absolute viscosity measured using instrumented parallel plate system	BURCHAN, R. E.		
JPL-874	Segmented, arch-bound carbon seal is pressure loaded		
BRUCE, D. F.	M-FS-12777	B67-10325	05
Repair of honeycomb panels with welded breakaway studs	BURCHAN, T. W.		
MSC-15046	Controlled release device prevents damage from dynamic stresses		
BRUCE, H. P.	KSC-66-14	B66-10628	05
Stable ac phase and amplitude comparator	BURGETT, F. A.		
M-FS-13086	Thermal protective visor for entering high temperature areas		
BRUEGER, J.	MSC-10285	B68-10277	05
Boydolt, a positive-latch, simple-release fastener	BURIAN, R. J.		
MSC-13061	A design procedure for the weight optimization of straight finned radiators		
BRUMMER, S. B.	GSFC-547	B66-10618	05
Study of stress corrosion in aluminum alloys	BURKA, J. A.		
M-FS-13906	Inspection criteria ensure quality control of parallel gap soldering		
BRUMMETT, S. L.	M-FS-14530	B68-10257	05
Edge-type connectors evaluated by electrical noise measurement	BURKE, H. C., JR.		
M-FS-2243	Variable load automatically tests dc power supplies		
BRYANT, E. L.	GSFC-291	B65-10105	01
Sensitive level sensor made with spirit level, gives electrical output	BURKES, T.		
LANGLEY-49	Visual task analysis /VISTA/		
BRYANT, P. J.	M-FS-14716	B69-10394	06
Special treatment reduces helium permeation of glass in vacuum systems	BURKHALTER, J. E.		
HQ-25	Fluid behavioral patterns found in subscale geysering study		
BRYANT, R. D.	M-FS-13582	B67-10462	02
Quality control criteria for acceptance testing of cross-wire welds	BURKLEY, R. A.		
MSC-627	Panelized high performance multilayer insulation		
BUCHANAN, D. C.	M-FS-14023	B68-10031	03
Pneumatic separator gives quick release to heavy loads	BURKS, H. D.		
KSC-66-10	PTFE-aluminum films serve as neutral density filters		
BUCHHELE, D.	LANGLEY-189	B66-10017	02
Self-balancing line-reversal pyrometer automatically measures gas temperatures	BURNETT, G. J.		
LEWIS-348	Two-way digital driver/receiver uses one set of lines		
BUCHHELE, D. R.	ERC-10055	B68-10437	01
Pyrometry handbook describes practical aspects of surface temperature measurements of opaque materials	BURNS, E. A.		
LEWIS-349	New class of thermosetting plastics has improved strength, thermal and chemical stability		
BUCHER, R. E.	LEWIS-10108	B67-10197	03
Computer simulation of high-frequency combustion instability and its suppression	New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability		

LEWIS-10576	B69-10118	03	
BURNS, F. P.			
Semiconductor forms biomedical radiation probe			
MSC-320	B66-10252	04	
BURNS, J.			
Silicon strain sensors enable pressure			
measurement at cryogenic temperatures			
M-FS-14703	B68-10262	01	
BURNS, J. J.			
System monitors discrete computer inputs			
M-FS-1021	B66-10389	01	
BURNS, R.			
Zener diode function generator requires no			
external reference voltage			
JPL-0031	B65-10013	01	
BURNS, W. J.			
Modified cryogenic storage tank subsystem			
KSC-10380	B69-10556	02	
BURDOWICK, E. A.			
Vibrator elapsed time is automatically			
controlled			
M-FS-2573	B67-10284	01	
BURRIS, L., JR.			
Use of steel and tantalum apparatus for			
molten Cd-Mg-Zn alloys			
ARG-199	B66-10594	03	
Two techniques enable sampling of filtered			
and unfiltered molten metals			
ARG-150	B67-10034	03	
Study made of resistance of stainless steels			
to zinc-vapor corrosion			
ARG-10055	B67-10582	03	
BURROUS, C. N.			
Miniature electrometer preamplifier			
effectively compensates for input			
capacitance			
ARC-69	B66-10549	01	
BURROWS, D. L.			
Design reliability goal developed from small			
sample			
M-FS-403	B66-10405	05	
BURRY, F. H.			
System remotely inspects, measures, and			
records internal irregularities in piping			
M-FS-14545	B68-10149	01	
BURSTEIN, A.			
Detection system ensures positive alarm			
activation in digital message loss			
WOO-208	B66-10287	01	
BURT, W. R., JR.			
Ductile mandrel and parting compound			
facilitate tube drawing			
ARG-43	B66-10571	05	
Fabrication techniques developed for small-			
diameter, thin-wall tungsten and tungsten			
alloy tubing			
ARG-10100	B68-10284	05	
Consolidation and fabrication techniques			
for vanadium-20 w/o titanium /TV-20/			
ARG-10148	B68-10368	03	
BUSCH, A. H.			
Efficient thin film heating element takes			
minimum space			
GSFC-289	B65-10123	01	
BUSH, E. G.			
Tunnel-diode circuit features zero-level			
clipping			
GSFC-241	B65-10002	01	
BUSH, J. E.			
Helical tape forming device			
GSFC-10830	B69-10137	05	
BUSH, M. E.			
Current pulse amplifier transmits detector			
signals with minimum distortion and			
attenuation			
NUC-10055	B67-10347	01	
BUSHNELL, D.			
Computer program analyzes Buckling Of			
Shells Of Revolution with various wall			
construction, BOSOR			
LANGLEY-10290	B68-10226	06	
Buckling Of Shells Of Revolution			
/BOSOR/ with various wall constructions			
LANGLEY-10441	B69-10300	06	
BUTLER, J. W.			
Microscopes and computers combined for			
analysis of chromosomes			
ARG-10256	B69-10088	04	
BUTLER, M. K.			
Microscopes and computers combined for			
analysis of chromosomes			
ARG-10256	B69-10088	04	
BUTMAN, S.			
PCH synchronization by word stuffing			
NPO-10688	B69-10695	01	
BUTNER, M. F.			
Design and testing of liquid hydrogen-cooled,			
ultrahigh-speed ball bearings			
M-FS-18453	B69-10178	05	
BUXTON, R. L.			
Automated patient monitoring system			
M-FS-14552	B68-10131	01	
BYARS, B. J.			
Computer programs perform spectral			
analyses of up to seven time series			
M-FS-1133	B66-10539	01	
BYRD, J. D.			
Substituted silane-diol polymers have			
improved thermal stability			
M-FS-469	B66-10259	03	
BYRD, N. R.			
Thermally conducting electron transfer			
polymers			
GSFC-10703	B69-10511	03	
BYRD, V. H.			
Computer magnetic tape rehabilitation study			
GSFC-10283	B68-10035	05	
BYRNE, F.			
Simple, accurate automatic frequency			
control circuit			
KSC-10393	B69-10323	01	

C

CAIN, D. E.			
Flexible arms provide constant force for			
pressure switch calibration			
HQ-38	B66-10317	05	
CAIRNS, E. J.			
Lithium-tellurium bimetallic cell has			
increased voltage			
ARG-10141	B68-10400	01	
Technical report on galvanic cells with			
fused-salt electrolytes			
ARG-10297	B69-10155	01	
Analysis of secondary cells with			
lithium anodes and immobilized			
fused-salt electrolytes			
ARG-10452	B69-10613	01	
Analysis of cell performance and thermal			
regeneration of a lithium-tin cell having			
an immobilized fused-salt electrolyte			
ARG-10453	B69-10627	03	
CALL, D. W.			
Computer program FPPI-REV calculates			
fission product inventory for U-235			
fission			
NUC-10089	B67-10450	06	
CALLAHAN, D. E.			
Electronic aperture control devised for			
solid state imaging system			
M-FS-12428	B68-10028	01	
CALLAN, J. D.			
Function generator eliminates necessity			
of series summation			
GSFC-214	B66-10351	01	
CALLEN, J. D.			
Method for determining properties of			
microinstabilities of a magnetized plasma			
HQ-10447	B69-10462	02	
CALLIS, L. B.			
Program computes equilibrium normal shock			
and stagnation point solutions for			
arbitrary gas mixtures			
LANGLEY-10090	B67-10509	06	
CALLISON, M. P.			
Stationary device produces homogeneous			
mixture of fluids			
M-FS-525	B66-10570	05	
CALVA, R.			
Computerized Schedule Effectiveness			
Technique /SET/ determines present and			
future schedule position			
M-FS-13012	B67-10522	06	
CALVERT, H. F.			
Low-cost insulation system for cryostats			
eliminates need for a vacuum			

LEWIS-64	B63-10365	03	CARLEY, D. R.	Vapor grown silicon dioxide improves transistor base-collector junctions		
Connector for vacuum-jacketed lines cuts tubing system cost			GSFC-389	B66-10091	01	
LEWIS-66	B63-10367	05	Integrated metal transistor leads	GSFC-90536	B68-10518	01
Composite, vacuum-jacketed tubing replaces bellows in cryogenic systems			CARLS, E. L.	Automatic filter-blowback systems used with sintered-metal filters	ARG-10324	B69-10342 05
LEWIS-67	B63-10368	05	CARLSON, A. W.	Circuit multiplies pulse width modulation, exhibits linear transfer function	HQ-56	B67-10055 01
CALVIN, E. L.			CARLSON, K. J.	Reparable, high-density microelectronic module provides effective heat sink	M-FS-13075	B67-10356 01
Computer program detects transient malfunctions in switching circuits			CARLSON, L. W.	Selective tube roughening increases heat transfer capability	M-FS-599	B66-10610 05
MSC-604	B67-10002	01	CARLSON, R. E.	An investigation of particle mixing in a gas-fluidized bed	ARG-10182	B68-10407 05
CAMACHO, S. L.			CARMODY, R. H.	Computer programs for axial flow compressor design	LEWIS-10765	B69-10174 06
Trisphere spark gap actuates overvoltage relay			CARMODY, R. J.	Vacuum-type backup bar speeds weld repairs	M-FS-12	B63-10384 05
ARC-68	B66-10557	01	Flexible honeycomb structure can bend to fit compound curves	M-FS-13	B63-10385	05
CAMERON, R. E.			Portable flooring protects finished surfaces, is easily moved	M-FS-15	B63-10387	05
Sampling and handling of desert soils			Fiber glass parts cured during filament winding eliminates oven, saves time	M-FS-14	B65-10088	03
NPO-11171	B69-10304	04	CARNEVALE, E. H.	Ultrasonic temperature measuring device	LEWIS-10446	B68-10319 01
Desert soil collection at the JPL soil science laboratory			CARPENTER, D. G.	Photocell shadowing technique improves light source detector	JPL-809	B66-10564 01
NPO-11206	B69-10571	04	CARPENTER, H. W.	Intergranular metal phase increases thermal shock resistance of ceramic coating	M-FS-1862	B66-10651 03
CAMERON, W. D.			CARPENTER, L. R.	Electrocardiograph transmitted by RF and telephone links in emergency situations	PHC-10031	B68-10233 01
Hybrid computer technique yields random signal probability distributions			CARPENTER, S. R.	Degreasing of titanium to minimize stress corrosion	LEWIS-382	B67-10147 03
ARC-34	B65-10208	01	CARR, E. E.	Dielectric materials for use in thin-film capacitors	M-FS-20471	B69-10387 02
CAMPANELLA, S. J.			CARR, W. L.	Manual of industrial diamonds plus dressing and grinding criteria for machining superalloys	M-FS-14582	B68-10239 05
Accuracy of laser measurements improved by pulse autocorrelator electronic system			CARRITHERS, K. V.	Simple device facilitates inert-gas welding of tubes	M-FS-558	B66-10155 05
MSC-10033	B67-10338	01	CARROLL, C. C.	Accumulator for shaft encoder	M-FS-13599	B68-10093 01
CAMPBELL, A. E., JR.			Reducing quantizer deadband with a **range switching** digital filter	M-FS-20419	B69-10259	01
High-temperature thermionic emission microscope			Special purpose computer provides programmable digital filter for sampled-data control systems	M-FS-20290	B69-10454	06
NPO-10584	B68-10516	01	CARSON, J. W.	Dielectric prisms would improve performance of quasi-optical microwave components	ERC-10011	B67-10416 01
CAMPBELL, J. P.						
Experimental investigation of megawatt dc arc heating of nitrogen						
LEWIS-313	B66-10508	02				
CAMPBELL, M. R.						
Compound taper milling machine						
MSC-15174	B69-10018	05				
CAMPBELL, R. L.						
Handbook for design of containers of fluids and gases for spacecraft						
M-FS-20502	B69-10279	05				
CAMPOY, A. Z.						
Cover protects critical electrical connectors against damage during handling						
MSC-15662	B69-10526	01				
CANCRO, C. A.						
Synchronized pulse generator needs no external power						
GSFC-274	B65-10072	01				
Constant-current regulator improves tunnel diode threshold-detector performance						
GSFC-239	B65-10282	01				
Hybrid circuit achieves pulse regeneration with low power drain						
GSFC-382	B65-10314	01				
Digitally controlled pulse-level discriminator operates over wide voltage range						
GSFC-324	B66-10129	01				
CANNON, D. L.						
Multiple-mask chemical etching						
MSC-13114	B69-10221	01				
CAPELLARO, D. F.						
Method of making conical fiber optical components						
XNP-09745	B69-10020	02				
CAPO, M. A.						
Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems						
M-FS-14447	B69-10158	06				
CAPPPELLI, A. P.						
Static structural analysis of shell-type structures						
MSC-11555	B68-10066	03				
CAPPS, J. E.						
Two-step rocket engine bipropellant valve concept						
MSC-10951	B69-10280	05				
CAREN, R. P.						
Development of dual solid cryogenics for high reliability refrigeration system						
GSFC-10188	B67-10644	02				
CARITHERS, M. D.						
Graphite cloth facilitates vacuum evaporation of silicon monoxide						
M-FS-14764	B68-10256	03				

CARSON, W. N.	Device removes hydrogen gas from enclosed spaces			acceleration signal from several accelerometers			
	GSFC-495	B66-10340	03	JPL-816	B66-10462	01	
	Hermetically sealed cells protected from internal gas pressure			Solid state circuit switches ac load			
	GSFC-555	B66-10692	01	JPL-798	B66-10465	01	
CARTER, A. F.	Geometry and design point performance of axial flow turbines			Instrument sequentially samples ac signals from several accelerometers			
	LEWIS-10471	B69-10111	06	JPL-884	B67-10029	01	
CARTER, J. A.	Random access-random release relay switching matrix			A power-spectral-density computer program			
	M-FS-12590	B68-10301	01	NPO-10126	B67-10160	01	
CARUSO, A. J.	Multiple element soft X-ray source produces wide range of radiation			CHAPMAN, G. L.			
	GSFC-286	B65-10082	02	Flexible high-voltage supply for experimental electron microscope			
CASAD, T. A.	Automatic design of optical systems by digital computer			ARG-10482	B69-10603	01	
	NPO-10265	B67-10632	06	CHAPPELLE, E. W.			
CASEY, L. O.	Fuse protects circuit from voltage and current overloads			Mass culture of photobacteria to obtain luciferase			
	MSC-12135	B69-10490	01	GSFC-10563	B69-10294	04	
CASH, J.	Transient sensor development			Quantitative determination of flavin nucleotide using the bacterial bioluminescent reaction			
	M-FS-13370	B67-10471	01	GSFC-10565	B69-10715	04	
CASHION, K. D.	Readout system for radiation detector			CHARLES, J.			
	MSC-90180	B68-10501	01	Nickel/tin coating protects threaded fasteners in corrosive environment			
	Telescope dome control system automatically tracks sun			MSC-253	B65-10398	03	
	MSC-10966	B68-10521	02	CHARLTON, K. W.			
CASTERLINE, E. T.	Integrated metal transistor leads			Multidimensional Reaction Kinetic Ablation Program /REKAP/			
	GSFC-90536	B68-10518	01	MSC-143	B66-10495	05	
CASTLE, F.	Mounting facilitates removal and installation of flame-detector rods			CHATTIN, J. H.			
	M-FS-555	B66-10150	05	Jig and fixture aid fabrication of tungsten rivets			
CATALDO, C. E.	Lightweight magnesium-lithium alloys show promise			LEWIS-185	B65-10101	05	
	M-FS-17	B63-10389	03	Spiral heater coils hand-formed with fixture			
	Effects of hydrogen on metals			LEWIS-208	B65-10192	05	
	M-FS-20364	B69-10372	03	Heated die facilitates tungsten forming			
CATHCART, J. R.	Internal velocity factors			LEWIS-25A	B66-10047	05	
	MSC-15002	B68-10403	06	CHAVEZ, E. S.			
CAVES, R. M.	Hydrogen-atmosphere induction furnace has increased temperature range			Concept for passive system to control gas flow independently of temperature			
	LEWIS-153	B66-10055	05	M-FS-982	B66-10343	05	
CEPOLINA, F. J.	Strain gage network distinguishes between thermal and mechanical deformations			CHEEVER, D. L.			
	GSFC-478	B66-10280	01	Welding of commercial base plates is investigated			
CHAMBERLAIN, F. R.	Multipurpose binocular scanning apparatus			M-FS-13649	B68-10192	03	
	NPO-11002	B69-10311	02	CHELLEW, N. R.			
CHAMBERLIN, R. I.	Health hazards of ultrafine metal and metal oxide powders			Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide			
	LEWIS-10878	B69-10268	04	ARG-10154	B68-10293	02	
CHAMBERS, G.	Metal boot permits fabrication of hermetically sealed splices in metal sheathed instrumentation cables			CHEN, J. C.			
	NU-0083	B66-10704	05	Finite element formulation for linear thermoviscoelastic materials			
CHAN, G. C.	Fatigue of reinforced concrete beams under dynamic loading			NPO-11229	B69-10660	03	
	M-FS-14980	B68-10515	05	CHEERNICK, C. L.			
CHANDLER, J. A.	Improved control system power unit for large parachutes			Xenon fluorides show potential as fluorinating agents			
	MSC-12052	B67-10677	05	ARG-113	B67-10185	03	
	Improved phase-shift-keyed detector			CHEERY, S. S.			
	M-FS-20064	B69-10101	01	One-dimensional two-phase reacting gas nonequilibrium performance program			
CHANDLER, W. T.	Effects of high-pressure hydrogen on storage vessel materials			MSC-11780	B68-10376	06	
	M-FS-18605	B69-10730	03	CHESTERTON, W. L.			
CHAPMAN, C. P.	Instrument automatically selects peak			Planetary camera control improves microfiche production			
				HQ-1	B65-10313	01	
				CHIAO, R. Y.			
				Optical frequency waveguide and ion transmission system			
				HQ-10541	B69-10746	01	
				CHIAPUZZO, A.			
				Polarizing keys prevent mismatch of connector plugs and receptacles			
				MSC-443	B66-10251	01	
				CHILDS, J. A.			
				Accumulator for shaft encoder			
				M-FS-13599	B68-10093	01	
				CHILDS, J. H.			
				Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen			
				LEWIS-15	B63-10340	05	
				CHILENSKAS, A. A.			
				Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels			
				ARG-232	B67-10032	03	
				CHIPMAN, B. L.			
				Etching process mills PH 14-8 Mo alloy steel to precise tolerances			
				MSC-270	B66-10110	03	

- CHONG, C. P.
Bipolar current driver for memory circuits
GSFC-213 B66-10469 01
- CHREITZBERG, A. M.
Auxiliary silver electrode eliminates two-step
voltage discharge characteristic of silver-
zinc cells
GSFC-169 B64-10114 01
- CHRISTIAN, C. M.
Adhesive for polyester films cures at room
temperature, has high initial tack
M-PS-938 B66-10487 03
- CHRISTIAN, G. L.
Lathe chuck key incorporates safety feature
MSC-506 B66-10243 05
- CHUPITY, J.
Magnetic tape transport controlled by
rotating transducer heads
GSFC-483 B68-10079 01
- CICCANTI, A. D.
Battery charge-discharge controller
MSC-11836 B69-10747 01
- CIERNIAK, R.
Silver-palladium braze alloy recovered from
masking materials
M-PS-1845 B66-10631 03
- CIERNIAK, R. E.
Evaluation of a fluorocarbon plastic used
in cryogenic valve seals
M-PS-18189 B68-10523 03
- CIPOLONE, P.
Detection of effect of deposits on optical
windows of pyrometer measurements
LEWIS-10366 B68-10367 01
- CIURLIOWIS, B.
High energy forming facility
M-PS-14026 B67-10588 05
- CLAASSEN, H. H.
Xenon forms stable compound with fluorine
ARG-4 B66-10467 03
- CLAPP, W. M.
Switching-type regulator circuit has
increased efficiency
MSC-1063 B67-10190 01
- CLARK, A. F.
Technique for predicting the thermal
expansion coefficients of cryogenic
metallic alloys
NUC-10554 B69-10707 02
- CLARK, D. J.
FORTRAN program flow chart is automatically
produced
M-PS-369 B66-10062 01
- CLARK, J. A.
Dynamics of moving bubbles in single and
binary component systems
M-PS-14845 B68-10339 02
- CLARK, L. K.
Mechanical gauge accurately checks tubing
flare, roundness, and concentricity
M-PS-1822 B66-10656 05
- CLARK, N. A.
Performance statistics of the FORTRAN 4
/H/ library for the IBM system/360
ARG-10299 B69-10157 06
- CLARK, N. W.
Some numerical methods for integrating
systems of first-order ordinary differential
equations
ARG-10308 B69-10204 02
- CLARK, R. L.
Computer program provides steady state
analysis for liquid propellant propulsion
systems
MSC-10064 B67-10414 06
- CLARK, R. T.
Scribable coating for plastic films
MSC-11194 B67-10409 03
- CLARKE, A. E., JR.
Vacuum forming of thermoplastic sheet results
in low-cost investment casting patterns
ARC-7 B63-10008 05
- A technique for making animal restraints
ARC-25 B63-10564 05
- CLARKE, M. G.
Improved process for epitaxial deposition
of silicon on prediffused substrates
M-PS-14910 B68-10390 03
- CLATTERBUCK, C. H.
Composite seal reduces alkaline battery
leakage
GSFC-337 B65-10271 01
- CLAUSEN, H. J.
Leakage measuring method
M-PS-14722 B69-10438 01
- CLAUSS, R.
Double-throw microwave device switches two
lines quickly
JPL-410 B63-10258 01
- Cryogenic waveguide window is sealed with
plastic foam
JPL-559 B63-10613 01
- CLAUSS, R. C.
Apparatus makes klystron operating
frequency adjustable from remote point
NPO-09831 B67-10514 01
- Thermal short improves sensitivity of
cryogenically cooled maser
NPO-09975 B68-10059 01
- Improved traveling wave maser amplifier
NPO-10548 B68-10244 01
- Sweep frequency detector
NPO-10669 B69-10289 01
- CLAYTON, L. B.
Simple mechanism combines positive locking and
quick-release features
WOO-4 B63-10420 05
- CLEGHORN, D.
Flare angles measured with ball gage
M-PS-14690 B68-10030 01
- CLEMENT, W. G.
Technique for measuring magnetic tape
interlayer adhesion
NPO-10011 B67-10417 03
- CLEVELAND, E. F.
Current-limiting voltage regulator
MSC-11824 B68-10305 01
- CLEVELAND, J. R.
Method for predicting frictional loss in
metal bellows and flexible hose
M-PS-883 B66-10662 05
- CLIFF, R. A.
Novel circuit combines pulse stretcher with
NOR gate
GSFC-187 B64-10150 01
- Transistor voltage comparator performs own
sensing
GSFC-228 B65-10028 01
- Delayed ripple counter simplifies square-root
computation
GSFC-398 B65-10343 01
- Simple circuit performs binary addition and
subtraction
GSFC-399 B65-10355 01
- Oscillator circuit operates as digitally
controlled frequency synthesizer
GSFC-570 B67-10447 01
- Low cost SCR lamp driver indicates contents
of digital computer registers
GSFC-10221 B67-10656 01
- CLIFTON, R. P.
Remotely installed pipe plug provides
effective seal in hazardous environment
NUC-10303 B68-10053 05
- CLINCH, J. M.
Study made of thin-walled pipe response to
turbulent fluids
M-PS-1321 B67-10518 05
- CLINE, H. E.
One hundred angstrom niobium wire
LEWIS-10128 B68-10279 03
- CLOTFELTER, W. N.
Stress-corrosion-induced property changes
in aluminum alloys
M-PS-20209 B68-10568 03
- CLOUGH, P. J.
Niobium thin films are superconductive in
strong magnetic fields at low temperatures
JPL-SC-174 B66-10122 02
- CLOUGH, R.
Controlled substrate cooling improves
reproducibility of vapor deposited
semiconductor composites
ERC-10161 B69-10732 01
- CLOUTIER, R. L.
A laboratory method for precisely

- determining the micro-volume-magnitudes of liquid efflux
ARC-10052 B69-10295 05
- COCCOLLI, J. D.
Improved gas ring laser
MSC-11584 B68-10304 02
Ring laser angle encoder
MSC-13099 B69-10115 01
- COCKS, F. H.
Improved thermal treatment of aluminum alloy 7075
M-FS-20083 B68-10534 05
- CODDING, G. C.
Knob linkage permits one-hand control of several operations
MSC-30 B65-10022 05
- CODY, W. J., JR.
Performance statistics of the FORTRAN 4 /H/ library for the IBM system/360
ARG-10299 B69-10157 06
- COFFEY, H. T.
Mechanisms of superconductivity investigated by nuclear radiation
M-FS-1944 B67-10057 02
- COHEN, D.
Study of actinide chemistry in saturated potassium fluoride solution
ARG-10204 B69-10004 03
Fluid sample collection and storage device
MSC-10962 B69-10816 05
- COHEN, S. E.
Liquid crystal calibrator
M-FS-14151 B68-10221 03
- COHN, C. E.
Encode/Decode facility for FORTRAN 4
ARG-10335 B69-10169 06
Punch-magnet delay eliminated by modification of circuit
ARG-10333 B69-10416 01
- COHN, H.
Ferroelectric bolometer measures RF absolute power at submillimeter wavelengths
GSFC-422 B66-10051 01
- COLE, D. O.
Techniques for controlling warpage and residual stresses in welded structures
M-FS-20307 B69-10086 05
- COLE, M.
Torque meter aids study of hysteresis motor rings
M-FS-12219 B67-10412 01
- COLE, P. T.
PCM magnetic tape system efficiently records and reproduces data
GSFC-375 B65-10311 01
Device measures static friction of magnetic tape
GSFC-10360 B67-10586 03
Helical tape forming device
GSFC-10830 B69-10137 05
Helical recorder
GSFC-10614 B69-10340 01
- COLEMAN, E. R.
Study made of explosive cutting in simulated space environments
M-FS-1597 B67-10040 01
- COLEMAN, L. F.
Titanium-nitrogen reaction investigated for application to gettering systems
ARG-10208 B68-10414 03
- COLLIER, G.
Computer subroutine ISUDS accurately solves large system of simultaneous linear algebraic equations
NUC-10051 B67-10344 06
Computer program VARI-QUIR 3 provides solution of steady-state, multigroup, two-dimensional neutron diffusion equations
NUC-10052 B67-10345 06
Computer program /P1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas
NUC-10141 B67-10678 06
GAMBIT program
NUC-10243 B69-10433 06
- COLLINGSWOOD, B.
Multidimensional reaction kinetic ablation program /REKAP/
MSC-10079 B67-10495 06
- COLLINS, D.
Fluid power-transmitting gas bearing
ERC-10097 B68-10503 05
- COLLINS, H. E.
Nickel base alloy with improved stress rupture properties
LEWIS-10283 B68-10344 03
- COLLINS, L. H.
Test instrumentation evaluates electrostatic hazards in fluid system
M-FS-2277 B67-10145 01
- COLLIS, W. J.
New camera tube improves ultrasonic inspection system
ARG-90237 B68-10088 01
- COLMAN, G.
Silver-palladium braze alloy recovered from masking materials
M-FS-1845 B66-10631 03
- COLPEAN, K. V.
Hoisting frame facilitates handling of large objects
M-FS-16166 B68-10575 05
- COLSTON, E. F.
Electrochemical cell has internal resistive heater element
GSFC-10358 B68-10325 01
Electrochemical sintering process for producing electrodes from cadmium felt and a nickel or silver grid
GSFC-10764 B69-10227 05
- CONE, C. D.
Imprinting of confining sites for cell cultures on thermoplastic substrates
LANGLEY-10495 B69-10236 04
- CONE, C. D., JR.
A microlagoon technique for the culture of mammalian cells
LANGLEY-10407 B68-10554 04
- CONGER, D. R.
Mylar film eliminates silk screening of equipment panels
MSC-798 B66-10455 05
- CONN, J.
Device enables measurement of moments of inertia about three axes
GSFC-49 B65-10176 05
- CONNER, R. A., JR.
Crystal structure analysis of intermetallic compounds
ARG-10092 B68-10198 03
- CONNES, P.
Interferometer construction assures parallelism of critical components
JPL-704 B65-10292 02
- CONNOR, D.
Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons
ARG-10220 B69-10211 02
- CONRAD, E. W.
Kinetic-energy absorber employs frictional force between mating cylinders
LEWIS-75 B63-10442 05
- CONROY, T. F.
Hollow spherical rotors fabricated by electroplating
JPL-SC-117 B66-10366 05
- CONSTANZA, L. J.
Improved primer for bonding polyurethane adhesives to metals
M-FS-90591 B69-10540 03
- CONWAY, M.
Neutron activation analysis traces copper artifacts to geographical point of origin
ARG-119 B67-10036 02
- COOK, G.
System maintains constant penetration during fusion welding
M-FS-937 B67-10091 01
- COOLEY, H. H., JR.
Tool facilitates sealing of metal fill tubes
MSC-24 B63-10519 05
- COON, G. W.
Welded pressure transducer made as small as 1/8th-inch in diameter
ARC-11 B63-10429 03
Vibrating-membrane electrometer has high

- conversion gain
ARC-38 B65-10056 01
Miniature capacitive accelerometer is especially applicable to telemetry
ARC-72 B66-10491 01
Ultraminiature manometer-tipped cardiac catheter
ARC-10054 B67-10669 01
- COPE, D. D.
Generalized Newton-Raphson trajectory optimization-generator 1
M-FS-15020 B68-10422 06
- COPE, G. W.
Multiple temperatures sampled using only one reference junction
GSFC-485 B66-10260 01
- COPE, P. S.
Food products for space applications
MSC-11697 B68-10324 04
- COPELAND, A. C.
Instrument calibrates low gas-rate flowmeters
MSC-134 B65-10137 01
- COPELAND, E. H.
Environmental test planning, selection and standardization aids available
SAN-10028 B68-10445 06
- COPELAND, W. L.
Noise study of single stage compressor rotor-stator interaction
LANGLEY-137 B67-10516 02
- COPPERNOL, R. W.
Flexible coiled spline securely joins mating cylinders
WOO-270 B66-10172 05
- CORDOVA, R.
Vacuum chamber is remotely sealed by eutectic metal
NU-0091 B67-10059 05
- CORNELIUS, A. J.
Instabilities encountered during heat transfer to a supercritical fluid
ARG-10266 B69-10042 02
- CORNETT, D. W.
Stress calculator speedily converts strain data
M-FS-2021 B67-10182 03
- CORSON, B. R.
An improved method for testing performance of vidicons during vibration
JPL-SC-113 B66-10442 01
- CORTEZ, I., JR.
Pipe joints reinforced in place with fitted aluminum sleeves
MSC-11109 B67-10271 05
- COSTON, R. M.
Development of dual solid cryogenics for high reliability refrigeration system
GSFC-10188 B67-10644 02
- COTE, C. E.
Numerical data frame readout system used in testing telemetry systems
GSFC-551 B67-10175 01
- COTRILL, H. E., JR.
Tensile-strength apparatus applies high strain-rate loading with minimum shock
JPL-28 B66-10063 05
- COUCHMAN, R.
Conceptual servo technique for controlling tape drivers
M-FS-12955 B67-10595 01
- COUNCIL, M.
Modified hydraulic braking system limits angular deceleration to safe values
GSFC-476 B66-10310 05
- COUVILLON, L. A., JR.
PN acquisition demodulator achieves automatic synchronization of a telemetry channel
JPL-612 B66-10271 01
Simple demodulator for telemetry phase-shift keyed subcarriers
NPO-11000 B69-10095 01
Estimation of signal-to-noise ratios
XNP-05254 B69-10557 01
Pocket-sized tone-modulated FM transmitter
NPO-11180 B69-10725 01
- COWAN, P. L.
Advances in light-gas gun technology
M-FS-14270 B68-10288 05
- COX, C. T.
New method for critical failure prediction of complex systems
M-FS-14133 B68-10252 02
- COX, E. F.
High-torque power wrench, a concept
M-FS-18194 B68-10299 05
Two-axis winch installer for heavy ducts in confined space
M-FS-14254 B69-10062 05
- COX, F. B.
Fully automatic telemetry data processor
GSFC-10576 B68-10336 01
- COX, J.
Highly linear, sensitive analog-to-digital converter
MSC-13110 B69-10230 01
- CRAFT, G. W.
Hydrostatic force used to handle outsized, heavy objects
HQ-90 B67-10167 05
- CRAIDON, C. B.
Computer program calculates sonic-boom pressure signatures
LANGLEY-10096 B67-10489 06
Computer program uses characteristics method for free-jet investigation
LANGLEY-10117 B67-10490 06
Program computes zero lift wave drag of entire aircraft
LANGLEY-10079 B67-10530 06
- CRAIG, K. A.
Rocket engine vibration accurately measured by photography
M-FS-1916 B66-10652 02
- CRANER, D. L.
Rotating holder permits accurate grinding of metallurgical microsamples
LEWIS-131 B65-10262 05
- CRANDALL, J. C.
Nylon bit removes cork insulation without damage to substrate
MSC-381 B66-10152 05
- CRAWFORD, B. S.
Control jet placement on spacecraft
MSC-13365 B69-10671 01
- CRAWFORD, G. B.
Masking of aluminum surface against anodizing
M-FS-12964 B69-10335 05
- CRAWFORD, R. P.
Residual magnetism holds solenoid armature in desired position
LEWIS-343 B67-10038 01
- CREASY, W. K.
Shock absorber operates over wide range
MSC-168 B65-10241 05
- CREE, D.
Tester periodically registers dc amplifier characteristics
MSC-190 B66-10148 01
- CREE, R. E.
Test device prevents weld joint damage by eliminating axial pin forces on unpotted modules
LEWIS-10201 B67-10359 01
- CRESPI, H. L.
Cytology is advanced by studying effects of deuterium environment
ARG-205 B67-10304 04
Qualitative and quantitative analysis of mixtures of compounds containing both hydrogen and deuterium
ARG-10312 B69-10177 04
Purification and characterization of two fully deuterated enzymes
ARG-10314 B69-10207 04
- CRESSEY, J. R.
Electron-beam deflection controlled by digital signals
GSFC-385 B65-10283 02
Numerical data frame readout system used in testing telemetry systems
GSFC-551 B67-10175 01
- CREVELING, C. J.
GMT/local-time conversion chart

GSFC-10521	B67-10548	01	CUSHMAN, J.	Study made to control depth of potting compound for honeycomb sandwich fasteners	B66-10677	05
CREVELING, H. F.			LEWIS-370			
Computer programs for axial flow compressor design						
LEWIS-10765	B69-10174	06				
CRIBB, H. E.						
Low-loss C-band parasitic probe						
KSC-09348	B69-10251	01				
CRIDLIN, H.			DADERIAN, S. H.	Concept for cryogenic liquid reclamation system	B67-10420	02
Optical system facilitates inspection of printed circuit boards			NPO-10322			
GSFC-07971	B68-10021	02	DALE, K. H.	Advances in aluminum anodizing	B69-10144	05
CRIGLER, J. L.			M-FS-14600			
Noise study of single stage compressor rotor-stator interaction			DALEY, T. J.	Improved phase locked loop receiver	B68-10008	01
LANGLEY-137	B67-10516	02	GSFC-09561			
CROCKET, W. R.			DALINS, I.	Improved circuit for measuring capacitive and inductive reactances	B67-10513	01
Linear analog dc voltage-to-pulse-width converter			M-FS-13083			
GSFC-556	B68-10003	01	Seismographic recording of large rocket engine operation			
CROPTS, E. D.			M-FS-20545		B69-10756	01
Heat flux sensor design reduces extraneous source effects			DAMERON, C. E.	Automatic protective vent has fail-safe feature	B66-10369	05
MSC-400	B66-10531	01	LANGLEY-218			
CROSSLEY, A. P.			DANCE, W. E.	Electron interaction in matter	B69-10674	02
Optimizing solar-cell grid geometry			M-FS-14886			
HQ-10417	B69-10460	01	DANE, D. H.	Air-cushion lift pad	B69-10448	05
CROUTHANEL, C. E.			M-FS-14685			
Iron serves as diffusion barrier in thermally regenerative galvanic cell			DANIEL, J. A., JR.	Master control data handling program uses automatic data input	B67-10280	06
ARG-29	B67-10189	03	M-FS-2259			
Vanadium diaphragm electrode serves as hydrogen diffuser in lithium hydride cell			Fast Fourier Transform Spectral Analysis Program		B69-10434	06
ARG-10048	B67-10499	01	M-FS-15062			
Technical report on galvanic cells with fused-salt electrolytes			DANIELS, C. M.	Bellows joint absorbs torsional deflections in duct system	B66-10332	04
ARG-10297	B69-10155	01	M-FS-882			
CROW, R. E.			Large seals fabricated from small segments reduce procurement lead time		B66-10464	05
Wide-band doubler and sine wave quadrature generator			M-FS-1117			
NPO-11133	B69-10383	01	Method for predicting frictional loss in metal bellows and flexible hose		B66-10662	05
CROWELL, J. W.			M-FS-883			
Low power heating element provides thermal control during swaging operations			Predicting fatigue life of metal bellows		B68-10026	05
M-FS-457	B66-10206	05	M-FS-14096			
CRUMP, D. H.			Fatigue failure in metal bellows due to flow-induced vibrations		B69-10071	05
Reinforced thermal-shock resistant ceramics			M-FS-18383			
LEWIS-10376	B68-10085	03	DANIELS, E. W.	Liquid micrurgy chamber and microsyringe designs allow more efficient micromanipulations	B67-10305	04
CRUMPLER, W. B.			ARG-251			
Flexible fastener allows thermal expansion			Stratification of centrifuged amoeba nuclei investigated by electron microscopy		B68-10366	04
LANGLEY-40	B64-10145	05	ARG-10161			
Flexure support system protects thermally and dynamically loaded models			DANNBACK, T. M.	Locating **sneak paths** in electrical circuitry	B68-10565	01
LANGLEY-39	B65-10042	05	M-FS-15018			
CULBERT, H. V.			DAQUIN, A. P., JR.	FM carrier deviation measured by differential probability method	B67-10213	01
Calibration of a resistance thermometer down to 0.04 degrees K			M-FS-2166			
ARG-10318	B69-10149	01	DARBY, J. B., JR.	Twin solution calorimeter determines heats of formation of alloys at high temperatures	B68-10083	01
CUMMINGS, A.			ARG-10114			
Concept to standardize space vehicle piggyback experiment modules			DARLING, W. H., JR.	Fortran 4 program for two-impulse rendezvous analysis	B67-10479	06
M-FS-1697	B68-10038	05	M-FS-13971			
CUNNINGHAM, J. Y.			DASH, H. J.	General computer program for calculation of radiation from inhomogeneous, nonisobaric, nonisothermal rocket exhaust plume	B68-10044	06
System remotely inspects, measures, and records internal irregularities in piping			DAVID, J.	Swiveling lathe jaw concept for holding		
M-FS-14545	B68-10149	01				
CUNNINGHAM, P.						
Torus elements used in effective shock absorber						
WOO-114	B66-10318	05				
CUNNINGHAM, R. E.						
Shallow grooves in journal improve air bearing performance						
LEWIS-10396	B68-10134	05				
CUNNINGTON, G. R., JR.						
Design of multilayer insulation systems						
ARC-10166	B69-10615	05				
CUPPS, B.						
Holding fixture facilitates pipe thread gage measurements						
M-FS-2009	B67-10066	05				
CURRY, J. E.						
Substituted silane-diol polymers have improved thermal stability						
M-FS-469	B66-10259	03				
CURRY, K. C.						
Torsional tubular disconnect						
NPO-10704	B69-10499	05				

- irregular pieces
M-FS-783 B66-10321 05
- DAVIDSEN, J. S.
Chain friction system gives positive,
reversible drive
ARC-8 B63-10009 05
- DAVIES, J. B.
Digital servo readout system increases
recording accuracy of servo-balance scales
NUC-10125 B67-10496 01
- DAVIS, B. K.
Gun facilitates adhesive bonding of studs
to surfaces
M-FS-20299 B69-10009 05
- DAVIS, D. A.
Computer program for interplanetary conic
patching
M-FS-14296 B68-10033 06
- DAVIS, E. J.
Pneumatic separator gives quick release to
heavy loads
KSC-66-10 B66-10294 05
- DAVIS, E. K.
Glass formulation has high coefficient of
thermal expansion
NU-0084 B66-10705 03
- DAVIS, E. S.
Point-source light sensor circuit is
insensitive to background light
JPL-778 B66-10502 01
- Antiglare improvement for optical imaging
systems
NPO-10337 B68-10090 02
- DAVIS, R. A.
Effects of heat input rates on T-1 and
T-1A steel welds
M-FS-2475 B67-10163 03
- DAVIS, R. C.
Analysis of flutter in tape transport
systems
M-FS-11970 B68-10027 01
- DAVIS, R. J.
Welding of AM350 and AM355 steel
M-FS-2314 B67-10292 05
- DAVIS, R. L.
Moebius resistor is noninductive and
nonreactive
SAN-10020 B68-10267 01
- DAVIS, W. T.
System measures angular displacement without
contact
LANGLEY-46 B65-10073 01
- Material fatigue data obtained by
card-programmed hydraulic loading system
LANGLEY-10042 B67-10491 03
- DAVISON, E. H.
Improved sensor counts micrometeoroid
penetrations
LEWIS-76 B63-10443 01
- DAWIRS, H. N.
Basic suppression techniques are evaluated
M-FS-867 B66-10449 01
- DAWN, F. S.
Mechanical properties of wire insulation
automatically determined
MSC-10983 B67-10370 01
- Burn-rate testing apparatus
MSC-10947 B69-10740 03
- DAWSON, W. S.
Automated patient monitoring system
M-FS-14552 B68-10131 01
- DAY, D. J.
Computer program samples digital data for
CRT display
MSC-999 B67-10249 01
- DAY, J. L.
Improved electrode gives high-quality
biological recordings
MSC-17 B64-10025 04
- Rugged pressed disk electrode has low contact
potential
MSC-158 B65-10320 01
- Improved electrode paste provides reliable
measurement of galvanic skin response
MSC-146 B66-10049 04
- DAY, W. E.
Voltage regulator/amplifier is self-regulated
MSC-1240 B67-10156 01
- DAYAL, Y.
Hydrogen peroxide etching proves useful for
germanium
ARG-10170 B68-10454 03
- DAYAN, V. H.
Sniffer used as portable hydrogen leak
detector
M-FS-846 B66-10356 01
- DE ANGELIS, X. A.
A 35 GHz solid state transmitter/driver
M-FS-20152 B68-10545 01
- DE ANGELO, F. T.
Tool for reading psychrometric charts
KSC-10358 B69-10527 05
- DE BARNARDO, M.
Torque wrench allows readings from
inaccessible locations
M-FS-598 B66-10204 05
- DE BOSKEY, W. R.
Bimetallic devices help maintain constant
sealing forces down to cryogenic temperatures
M-FS-800 B66-10325 02
- DE CARLO, F.
Silver-palladium braze alloy recovered from
masking materials
M-FS-1845 B66-10631 03
- DE FOREST, W. S.
Corrosion of aluminum alloys by chlorinated
hydrocarbon/methanol mixtures
MSC-11365 B67-10442 03
- DE FURIA, R.
Fluid power-transmitting gas bearing
ERC-10097 B68-10503 05
- DE GAETANO, E. A.
Cryogenic seal concept for static and
dynamic conditions
M-FS-12986 B67-10673 05
- DE GEETER, D. J.
Cryogenic cooling reduces high voltage arcing
between electrodes operating in a vacuum
ARG-109 B66-10499 02
- DE LAAT, F.
Sea dye marker provides visibility for 20
hours
MSC-714 B66-10313 03
- DE PARRY, T.
High frequency wide-band transformer uses
coax to achieve high turn ratio and flat
response
ARG-107 B66-10600 01
- DE SOTO, S.
Plume radiation program
M-FS-13202 B68-10447 06
- DE VOLPI, A.
Fast framing cameras provide high-speed
multi-channel data recording
ARG-10252 B69-10102 02
- Manganese-56 coincidence-counting facility
precisely measures neutron-source strength
ARG-90261 B69-10621 01
- DE VOTO, H. J.
Portable display paneling has wide use, easy
take down and assembly
ARC-17 B63-10435 05
- DE VRIES, H. R.
Technique increases storage capacity in
camera tube target
MSC-11599 B68-10213 01
- DE WAARD, R.
Electrically conductive fibers thermally
isolate temperature sensor
GSFC-456 B66-10349 01
- DE WITT, R. L.
Quick-disconnect coupling safe transfer of
hazardous fluids
LEWIS-125 B65-10202 01
- DE WITT, T. E.
Roll diffusion bonding of titanium alloy
panels
M-FS-14743 B68-10161 05
- DE WYS, E. C.
Preferred-orientation analysis of
polycrystalline materials
NPO-10604 B69-10336 02
- DE BOO, G. J.
Miniature electrometer preamplifier
effectively compensates for input
capacitance
ARC-69 B66-10549 01

- DE FOREST, B.
One-count memory circuit prevents machine
mode interaction
ARG-90 B66-10559 01
- DE VELDE, E.
Frequency discriminator with binary output
eliminates tuned circuits
M-FS-376 B65-10349 01
- DEAL, F. C.
Automatic, nondestructive test monitors
in-process weld quality
M-FS-14996 B68-10333 01
- DEAN, W. C.
Viscous damper
MSC-12072 B68-10110 05
Sleeved damper limits spring surging
MSC-12071 B68-10111 05
- DEBOO, G. J.
Tiny biomedical amplifier combines high
performance, low power drain
ARC-41 B65-10203 01
Metal Oxide Silicon /MOS/ transistors
protected from destructive damage by wire
ARC-65 B66-10419 01
Miniature piezoelectric triaxial
accelerometer measures cranial accelerations
ARC-71 B66-10534 01
Integrator can easily be set and reset with
an electronic switch
ARC-10002 B67-10135 01
Cardiotachometer with linear beat-to-beat
frequency response
ARC-10033 B67-10598 01
Gyrator-type circuits replace ungrounded
inductors
XAC-10608 B68-10084 01
- DECASTRA, J. E.
Determining gas leakage from bubble
formations
M-FS-14841 B68-10393 05
- DECKER, M. S.
Automatic fluid separator supplies own driving
power
WOO-085 B66-10008 02
- DEL DUCA, B.
Heat-shrink plastic tubing seals joints in
glass tubing
LEWIS-10329 B68-10040 05
- DELLENBAUGH, W.
Heavy duty precision leveling jacks expedite
setup time on horizontal boring mill
M-FS-1084 B66-10411 05
- DEMERS, R. R.
Seal-off assembly permits rapid evacuation
of air from containers
GSFC-513 B66-10446 05
- DEMOREST, K. E.
Self-lubricating gear
M-FS-14971 B69-10408 05
- DENABURG, C. R.
Apparatus permits flexure testing of specimens
at cryogenic temperatures
M-FS-257 B65-10129 02
- DENAULT, M. F.
GREMEX-A new management training concept
GREMEX-574 B67-10092 01
- DENNY, W. A.
Analog buffer isolates high impedance
source from low impedance load
M-FS-13481 B67-10544 01
- DENSION, O. J., JR.
Eccentric drive mechanism is adjustable
during operation
M-FS-2576 B67-10373 05
- DERR, L. J.
Electrothermal linear actuator
NPO-10637 B69-10296 05
- DETOUZOUS, M. L.
Simplified system displays complex curves
corresponding to input data
HQ-10073 B69-10247 01
- DESSAU, P. P.
Excellent spring properties developed in two
nickel alloys for use at cryogenic
temperatures
NUC-10084 B67-10349 03
- DETERVILLE, R. J.
Ultraminiature television camera
M-FS-11967 B67-10469 01
- DETHLEFSON, R.
Fast-acting calorimeter measures heat output
of plasma gun accelerator
LEWIS-388 B67-10192 01
- DEUTERHANN, A. R.
Improved digital TV encoding and decoding
system
MSC-11147 B67-10562 01
- DEUTSCH, W. F.
Continuous wave detector has wide
frequency range
M-FS-1849 B67-10386 01
- DEVINE, E. J.
Metal Oxide Silicon /MOS/ transistors
protected from destructive damage by wire
ARC-65 B66-10419 01
- DEZBIEH, C. J.
Nondestructive test method accurately sorts
mixed bolts
M-FS-1426 B66-10574 01
- DI LOSA, V. J.
Diversity RF receiving system with
improved phase-lock characteristics
XGS-01222 B68-10068 01
- DI MAGGIO, O. D.
Study made of large amplitude fuel sloshing
M-FS-12381 B67-10439 03
- DI MATTIA, A. L.
Electronic dummy for acoustical testing
MSC-206 B67-10298 01
- DI NOVI, R.
Lamb waves increase sensitivity in
nondestructive testing
ARG-10009 B67-10605 02
- DI SALVO, F.
Evaluation of superconducting magnets, a
study
M-FS-14808 B68-10396 02
- DI NOVI, R. A.
Correlation established between heat transfer
and ultrasonic transmission properties of
copper braze bonds
ARG-247 B67-10037 02
- DIAMOND, J. W.
X-ray film holder permits single
continuous picture of tubing joint
LEWIS-10382 B68-10343 05
- DIBB, G.
Logic circuitry used to automatically test
shielded cables
HQ-60 B66-10659 01
- DICKERSON, R. A.
Photographic method measures particle size
and velocity in fluid stream
M-FS-1536 B66-10668 01
- DICKINSON, R. M.
Rotary antenna attenuator
NPO-10648 B69-10502 01
- DICLEMENTE, R. A.
Electrical continuity scanner facilitates
identification of wires for soldering to
connectors
MSC-626 B66-10605 01
- DIETRICH, J. A.
Design eliminates radial thermal expansion
in turbine stator components
M-FS-18146 B68-10531 05
Improved design of item in high speed
rotating machinery
M-FS-18441 B69-10373 05
- DILLER, S. V.
Mechanical properties of a lap joint under
uniform clamping pressure
M-FS-14538 B69-10141 05
- DILLON, I. G.
Solubility data are compiled for metals in
liquid zinc
ARG-149 B67-10191 03
Radiation counting technique allows density
measurement of metals in high-pressure/
high-temperature environment
ARG-124 B67-10316 02
- DILLON, J. M.
Photosensitive filler minimizes internal
stresses in epoxy resins
M-FS-1880 B67-10227 03
- DILLON, R. C.
Improved strain-wire flowmeter has fast

response time LEWIS-241	B65-10304	01	M-FS-2478	B67-10122	03
DILTS, R. V.			DOONG, H.		
Status of ultrachemical analysis for semiconductors			Sensitive electrometer features digital output		
M-FS-2254	B67-10138	03	GSFC-288	B65-10206	01
DINEFF, J.			DOR, M. E.		
Reference black body is compact, convenient to use			Special mandrel permits uniform welding of out-of-round tubing		
ARC-3	B63-10004	03	M-FS-706	B66-10323	05
Vibrating-membrane electrometer has high conversion gain			DORAN, D.		
ARC-38	B65-10056	01	Simple colorimetric method determines uranium in tissue		
Capacitance-coupled wiper increases potentiometer life			ARG-10039	B67-10580	03
ARC-10060	B68-10175	01	DOUGHMAN, C. L.		
Automatic patient respiration failure detection system with wireless transmission			Bilateral, zero-impedance static semiconductor switch		
ARC-10174	B68-10365	01	LEWIS-10129	B68-10118	01
DIMM, R. M.			DOW, N. F.		
Electronic component reliability analysis by data reduction system			Bearing transmits rotary and axial motion		
NPO-10243	B68-10507	05	LANGLEY-27	B64-10130	05
DINKEL, J. A.			DOWDY, W.		
Cryogenic liquid level measuring probe			Concept to standardize space vehicle piggyback experiment modules		
ARG-10138	B68-10291	01	M-FS-1697	B68-10038	05
DIPPLE, C. R.			DOWNEY, A.		
Amplifier provides dual outputs from a single source with complete isolation			Heat-shrink plastic tubing seals joints in glass tubing		
NUC-10056	B67-10221	01	LEWIS-10329	B68-10040	05
DISNEY, R. K.			DOWNEY, J. W.		
SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield			Crystal structure analysis of intermetallic compounds		
NUC-10142	B67-10537	06	ARG-10092	B68-10198	03
Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems			Levitation-melting technique for metals and alloys		
M-FS-14447	B69-10158	06	ARG-10240	B69-10006	03
DITTRICH, R. T.			DOWNING, R. D.		
Bimetal sensor averages temperature of nonuniform profile			Electron beam deflected to determine focal point location		
LEWIS-10362	B68-10007	01	M-FS-14107	B67-10649	01
DIXON, C. E.			Electron beam standby absorber system		
Simplified method measures changes in tensile yield strength using least number of specimens			M-FS-14108	B67-10650	01
NUC-10075	B67-10266	03	DOYLE, H.		
DIXON, G. V.			Regenerative fuel cell combines high efficiency with low cost		
Hydraulic servo system increases accuracy in fatigue testing			WOO-090	B65-10363	01
LANGLEY-217	B67-10637	01	DOYLE, H. M.		
Improved active vibration isolator			Adhesive for cryogenic temperature applications		
LANGLEY-10106	B68-10123	05	LEWIS-10264	B69-10074	03
DOBBINS, R. A.			DRAGEL, G. M.		
A comparison of two methods of measuring particle size of Al2O3 produced by a small rocket motor			Study of mechanical properties of uranium compounds		
NPO-11198	B69-10572	03	ARG-10074	B68-10197	03
DODDS, D. J.			DRAGO, M.		
Simple, nondestructive test identifies metals			Ultraminiature television camera		
MSC-525	B66-10305	03	M-FS-11967	B67-10469	01
DODGE, W. G.			DRALEY, J. E.		
Computer program determines vibration in three-dimensional space of hydraulic lines excited by forced displacements			Study of corrosion of 1100 aluminum		
M-FS-12226	B68-10159	06	ARG-10045	B67-10578	03
DOEDE, J. H.			Study of crevice-galvanic corrosion of aluminum		
Laser measuring system accurately locates point coordinates on photograph			ARG-10013	B67-10583	03
ARG-74	B66-10560	02	ARG-10099	B68-10199	03
DOIG, J. E.			Corrosion reduction of aluminum alloys in flowing high-temperature water		
System automatically provides dynamic launch decision criteria			ARG-10244	B69-10029	03
M-FS-13063	B67-10363	01	ARG-10306	B69-10033	03
DOLAND, G. D.			DRAPER, M. S.		
Deep space FM system, a concept			Improved communication system for large operations center		
MSC-11825	B68-10289	01	M-FS-15016	B68-10529	01
DOLINSHEK, A. F.			DRECHSLER, R. J.		
Rapid billet loader aids extrusion of refractory metals			Improved ferrous shielding for flat cables		
LEWIS-50	B63-10354	05	M-FS-14524	B69-10401	01
DOMEREST, K. E.			DRESHFIELD, R. L.		
Contact stresses calculated for miniature slip rings			Cobalt-tungsten, ferromagnetic high-temperature alloy		
M-FS-280	B65-10098	05	LEWIS-10378	B68-10095	03
DONNELLY, J. H.			DREYFUS, M. G.		
Evaluation of high temperature stranded hookup wire			Wedge immersed thermistor bolometer measures infrared radiation		
			GSFC-443	B65-10330	02
			DRISCOL, S. D.		
			Tensile testing grips ensure uniform loading of bimetal tubing specimens		
			LEWIS-10267	B68-10248	05

DRISKELL, C. N., JR.			
Solution of differential equations by application of transformation groups			
M-FS-14802	B68-10276	02	
DRUNEN, C. J.			
Studies in zirconium oxidation			
ARG-10099	B68-10199	03	
DRYER, E. O.			
Dynamic captive plastic seal			
M-FS-12988	B67-10600	03	
DUBMAN, M. R.			
Computer programs perform spectral analyses of up to seven time series			
M-FS-1133	B66-10539	01	
DUBROW, B.			
New class of thermosetting plastics has improved strength, thermal and chemical stability			
LEWIS-10108	B67-10197	03	
DUCCLOS, R. A.			
Vapor grown silicon dioxide improves transistor base-collector junctions			
GSFC-389	B66-10091	01	
DUDZINSKI, T. J.			
Venturi meter with separable diffuser			
LEWIS-10483	B68-10295	05	
Combination probe for airflow measurements			
LEWIS-10281	B68-10558	01	
Flow direction measurement with fixed probes			
LEWIS-11044	B69-10714	02	
DUEKER, G.			
Nonreciprocal gain control for ring laser			
M-FS-14041	B67-10653	02	
DUFOUR, G.			
Acid spray technique mills aluminum alloy materials without immersion			
M-FS-12500	B67-10463	03	
DUMIRE, P. E.			
Insulation for cryogenic tanks has reduced thickness and weight			
M-FS-326	B66-10183	02	
DUNBAR, W. R.			
Improved strain-wire flowmeter has fast response time			
LEWIS-241	B65-10304	01	
DUNCAN, A. C.			
Soluble undercoating facilitates removal of foamed-in-place insulation			
LEWIS-193	B65-10344	03	
DUNCAN, J. G.			
A simplified PERT system			
M-FS-2267	B67-10241	05	
DUNKERLEY, F. J.			
Magnesium-lithium alloys developed for low temperature use			
M-FS-1541	B67-10365	03	
DUNLEAVY, A. M.			
Heat-load simulator for heat sink design			
MSC-15170	B68-10510	02	
DUNN, J. D.			
Gas diffuser facilitates withdrawal of cryogenic liquids from tanks			
M-FS-915	B66-10342	05	
DUNN, R. D.			
Small, low power analog-to-digital converter			
M-FS-13954	B68-10016	01	
DUNN, S. T.			
Ellipsoidal-mirror reflectometer accurately measures infrared reflectance of materials			
GSFC-566	B67-10444	01	
DUPRAW, W. A.			
Apparatus enables accurate determination of alkali oxides in alkali metals			
LEWIS-256	B66-10296	03	
DURHAM, T. F.			
Cryostat modified to aid rotating beam fatigue test			
M-FS-435	B66-10083	03	
DURKIN, W. T.			
Continuous analysis of nitrogen dioxide in gas streams of plants			
ARG-10356	B69-10254	03	
DUSTIN, M. O.			
Low friction servo valve			
LEWIS-10574	B68-10440	05	
Pneumatic analog-to-pulse frequency converter			
LEWIS-10345	B69-10276	02	
DVORAK, R. F.			
Neutron detector simultaneously measures fluence and dose equivalent			
ARG-10071	B67-10597	02	
DWIGHT, A. E.			
Crystal structure analysis of intermetallic compounds			
ARG-10092	B68-10198	03	
DYE, R. A.			
An investigation of phase-lock loop swept-frequency synchronization			
M-FS-656	B66-10423	01	
DYER, A., JR.			
Weight Control System			
M-FS-15028	B69-10041	06	
DYER, M. C.			
Neutron detector simultaneously measures fluence and dose equivalent			
ARG-10071	B67-10597	02	
DYER, W. F.			
Coldplate of pin fin design makes efficient heat exchanger			
MSC-1093	B67-10073	05	

E

EAGLE, K. H.			
New method for critical failure prediction of complex systems			
M-FS-14133	B68-10252	02	
EBIHARA, B. T.			
Refractory metal shielding /insulation/ increases operating range of induction furnace			
LEWIS-202	B65-10188	02	
Diaphragm valve for corrosive and high temperature fluid flow control has unique features			
LEWIS-304	B66-10365	05	
Rotating magnetic poles used to pump mercury			
LEWIS-276	B66-10434	05	
ECHENOZ, Y.			
Digital computer program predicts effects of local pressure transients on deformation and stresses in cylindrical ducts			
M-FS-13058	B67-10631	06	
ECKERT, R. W.			
Cracks in glass electrical connector headers removed by dry blasting with fine abrasive			
LEWIS-381	B67-10148	03	
ECKLES, P. N.			
High-speed furnace uses infrared radiation for controlled brazing			
NU-0047	B66-10268	02	
EDEN, H. F.			
Experiments to investigate particulate materials in reduced gravity fields			
M-FS-13308	B67-10394	02	
EDWARDS, O. H.			
Self-balancing beam permits safe, easy load handling under overhang			
M-FS-84	B63-10571	05	
EDWARDS, R. K.			
Mass-spectrometric study of the rhenium-oxygen system			
ARG-10421	B69-10645	02	
EGEBRECHT, R. A.			
General purpose computer programs for numerically analyzing linear ac electrical and electronic circuits for steady-state conditions			
M-FS-13094	B67-10331	06	
EGGENBERGER, D. W.			
Electronic gating circuit and ultraviolet laser excitation permit improved dosimeter sensitivity			
ARG-10109	B68-10077	02	
Remote balance weighs accurately amid high radiation			
ARG-10387	B69-10242	05	
EGGERS, P. E.			
Segmented SiGe-PbTe couples			
GSFC-10746	B69-10233	01	
EHREHARDT, W. R., JR.			
Space-saving hoist for tank manholes			
M-FS-16508	B69-10180	05	
EICHENBRENNER, F. F.			
Infrared shield facilitates optical pyrometer			

measurements LANGLEY-133	B65-10272	02	ELSEA, A. R. Literature review on pickling inhibitors and cadmium electroplating processes M-FS-14421	B69-10606	03
EICHHOLZ, J. J. Linear-log counting-rate meter uses transconductance characteristics of a silicon planar transistor ARG-10158	B69-10191	01	ELSEA, S. T. Study to minimize hydrogen embrittlement of ultrahigh-strength steels M-FS-2455	B67-10141	03
EIGE, J. J. Direct force-measuring transducer used in blood pressure research ARC-53	B65-10325	01	EMANUELSON, R. C. High-emittance coatings on metal substrates LEWIS-10325	B68-10381	03
EISENHART, G. N. Graphic visualization of program performance aids management review NUC-10011	B67-10568	06	ENGDAHL, R. E. Design for high-temperature /1800 deg F/ liquid metal pressure transducer LEWIS-10144	B67-10458	01
EISLER, W. J., JR. Continuous microbial cultures maintained by electronically-controlled device ARG-177	B67-10556	04	ENGDAHL, R. E. Protected, high-temperature connecting cable LEWIS-10149	B67-10461	01
Automatic bird watcher ARG-10342	B69-10286	02	ENGLAND, C. Fastener provides for bolt misalignment and quick release of flange NU-0074	B66-10275	05
Foot-operated cell-counter ARG-10315	B69-10351	01	ENGLEHART, R. C., JR. Lightweight door seals cryogenic container against diaphragm type loading M-FS-476	B65-10402	05
Novel multipurpose timer for laboratories ARG-10147	B69-10410	01	ENGLEL, F., III Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter NUC-10044	B67-10222	06
EKEROOT, S. Simulator produces physiological waveforms MSC-94	B65-10091	01	ENGLISH, J. J. Highly stable high-rate discriminator for nuclear counting ARG-10483	B69-10614	01
ELBERT, T. E. Cooling of 2 kw H subscript 2-0 subscript 2 fuel cell M-FS-13737	B68-10544	01	ENGLUND, D. R. Remote control thermal actuator LEWIS-10873	B69-10307	01
ELDER, J. P. Fundamental electrode kinetics ARG-10067	B68-10196	03	EPSTEIN, J. Modular thermoelectric cell is easily packaged in various arrays GSFC-339	B65-10199	01
ELIA, A. D. Antenna simulator permits preinstallation system checkout GSFC-522	B66-10518	01	EPSTEIN, M. Propellant tank pressurization analysis program M-FS-1506	B67-10625	06
ELKIN, E. Computer program resolves radiative, conductive, and convective heat transfer problems for variety of geometries M-FS-1910	B67-10329	06	Propellant tank pressurization analysis program M-FS-12623	B69-10007	06
ELLENAN, D. D. An improved nuclear magnetic resonance spectrometer JPL-762	B67-10234	01	EPSTEIN, S. Application of cryptanalytic techniques to the analysis of NiCd space batteries GSFC-10569	B69-10731	01
ELLENBURG, E. J. Separation technique provides rapid quantitative determination of cesium-137 in irradiated nuclear fuel NUC-10047	B67-10194	03	ERCOLI, B. Miniaturized King furnace permits absorption spectroscopy of small samples ARG-10177	B68-10418	02
ELLER, E. E. Small digital recording head has parallel bit channels, minimizes cross talk JPL-0029	B63-10284	01	ERCOLINE, A. L. Metal-bending brake facilitates lightweight, close-tolerance fabrication ARC-29	B64-10069	05
ELLIOT, D. H. Study made of transfer of heat energy through metal joints in vacuum environment M-FS-12534	B67-10465	02	ERDMAN, C. A. Solar X-ray spectrum reproduced in vacuum MSC-228	B67-10164	02
ELLIOT, J. J. Bell nozzle kernel analysis program M-FS-18456	B69-10146	06	ERDMAN, D. C. Nondestructive testing techniques used in analysis of honeycomb structure bond strength M-FS-1214	B67-10574	01
ELLIOTT, R. J. Study of lattice defect vibration ARG-10221	B69-10078	02	ERENRICH, E. H. Tritiated alumina serves as reagent for self-labeling analysis ARG-209	B67-10315	03
ELLIOTT, R. L. Arylenesiloxane copolymers M-FS-1812	B67-10079	03	ERNST, R. H. Silver-base ternary alloy proves superior for slip ring lead wires M-FS-1540	B66-10540	03
ELLIS, G. F. Maintainability methodology and maintenance analyses M-FS-14134	B68-10075	05	ERPENBACH, H. Process reduces secondary resonant emission in electronic components JPL-934	B66-10685	01
ELLIS, S. G. New method used to fabricate gallium arsenide photovoltaic device WOO-062	B64-10019	01	Improved vacuum deposition apparatus NPO-11009	B69-10365	02
ELMIGER, R. A. Solid state circuit averages multiple signals and rejects those varying significantly from the average NUC-10066	B67-10262	01	ESCHER, W. J. D. Integral coolant channels supply made by melt-out method M-FS-91	B63-10497	05
ELSBROCK, R. G. Chemistry laboratory safety manual available SAN-10030	B68-10419	03	ESCUE, W. T. Liquid-level meter has no moving parts M-FS-3	B63-10378	03

ESKRIDGE, C. D.	JPL-SC-166	B66-10101	01
Computer program for mass optional solutions of some endpoint trajectory problems	FAIRMAN, W. D.		
M-FS-12976	Ion exchange determines iodine-131 concentration in aqueous samples	B67-10129	04
Earth orbit rendezvous evaluation program	ARG-208		
M-FS-13016	Direct determination of lead-210 by liquid-scintillation counting	B69-10611	03
Generalized Newton-Raphson trajectory optimization-generator 1	ARG-10462		
M-FS-15020	FARGO, C. G.		
B68-10422	Fatigue failure in metal bellows due to flow-induced vibrations	B69-10071	05
ESTEP, H.	M-FS-18383		
Resonant microwave dichroic surface	PARIS, J. P.		
GSFC-10658	Nitric acid-organic mixtures surveyed for use in separation by anion exchange methods	B68-10425	03
ESTES, E. G.	ARG-10065		
Stress-testing of the throat of a rocket* nozzle	Separation of the rare earths by anion-exchange in the presence of lactic acid	B69-10377	03
NPO-10311	ARG-10436		
B69-10358	FARMER, M. E.		
ETZEL, J.	Improved nickel plating of Inconel X-750	B69-10463	05
Gage monitors quality of cross-wire resistance welds	M-FS-18604		
GSFC-90549	FARNSWORTH, D. L.		
B68-10002	Modification to improve self-isolating transistor arrays	B69-10678	01
EVANS, F. E.	M-FS-20499		
Random access-random release relay switching matrix	FAUPELL, L. C.		
M-FS-12590	Digital servo readout system increases recording accuracy of servo-balance scales	B67-10496	01
B68-10301	NUC-10125		
EVANS, H.	FAWLEY, R. W.		
Dispersion of borax in plastic is excellent fire-retardant heat insulator	Method for removing surface-damaged layers from nickel alloys	B68-10522	03
ARG-5	M-FS-18151		
B67-10016	FAZZO, A.		
EVANS, J.	Simple scale interpolator facilitates reading of graphs	B66-10302	05
Improved solenoid valve design	LEWIS-92		
GSFC-10607	FEDDE, G. A.		
B69-10704	Improved wire memory matrix uses very little power	B65-10359	01
EVANS, J. C., JR.	JPL-SC-167		
Electron beam recrystallization of amorphous semiconductor materials	FEENEY, J. E.		
LEWIS-10443	Improved nickel plating of Inconel X-750	B69-10463	05
B68-10556	M-FS-18604		
EVANS, J. L.	FEINGOLD, E.		
Modified gas bearing is adjustable to optimum stiffness ratio	Radial furnace shows promise for growing straight boron carbide whiskers	B67-10070	03
M-FS-145	HQ-50		
B64-10050	FEINSTEIN, L.		
EVANS, R.	Surface-crack detection by microwave methods	B67-10482	01
Development of mechanized ultrasonic scanning system	ARC-10009		
M-FS-13638	FELDMAN, C.		
B68-10004	Preparation of silver-activated zinc sulfide thin films	B68-10271	03
EVANS, R. C.	GSFC-10687		
Electronic visualization of gas bearing behavior	FELLIN, J. P.		
LEWIS-10711	Vibration damping composition has flush-away feature	B67-10432	03
B69-10073	M-FS-597		
EWALD, C. J.	FELSETHAL, P.		
Multichannel pulse height analyzer is inexpensive, features low power requirements	Experiments to investigate particulate materials in reduced gravity fields	B67-10394	02
HQN-10020	M-FS-13308		
B67-10258	FENSKE, T.		
EXNER, D. W., JR.	Boydolt, a positive-latch, simple-release fastener	B68-10512	05
Solar-angle sensor has no moving parts	MSC-13061		
JPL-418	FENWICK, J. R.		
B63-10260	Equation relates flow at free jet to flow downstream	B67-10612	06
EXTON, R. J.	M-FS-13789		
Simple optical system used to align spectrograph	FERETTI, A.		
LANGLEY-92	Electrolytic separation of crystals of transition-metal oxides	B69-10642	03
B65-10071	ARG-10506		
Modified contour projector makes excellent contour densitometer	FERGUS, R. W.		
LANGLEY-93	Versatile telemonitoring system	B69-10655	01
B65-10084	ARG-10339		
Rotating filters permit wide range of optical pyrometry	FERGUSON, R. E.		
LANGLEY-33	Two-step rocket engine bipropellant valve concept	B69-10280	05
B65-10100	MSC-10951		
EZEKIEL, F.	FERGUSON, T. J.		
Fluid power-transmitting gas bearing	Computer program for optical systems ray tracing	B67-10549	06
ERC-10097	FRC-10017		
B68-10503			

F

FAETH, P. A.	Modified McLeod gage records automatically	LEWIS-290	B66-10290	02
FAGERBERG, E. R.	Torque wrench designed for restricted areas	LEWIS-246	B66-10011	05
FAGOT, R. J.	High- and low-pressure pneumotachometers measure respiration rates accurately in adverse environments	FRC-10012	B68-10188	01
FAIRBANKS, A. F.	Unijunction frequency divider is free of backward loading	JPL-W00-010	B65-10112	01
	Ring counter circuit switches multiphase motor direction of rotation			

FERGUSON, W. B.					
Tube joint leak repair coupling					
MSC-15022	B68-10540	05			
FERRARA, P. W.					
Weight Control System					
M-FS-15028	B69-10041	06			
FERRERA, J. D.					
Precise gimballing mechanism					
NPO-11057	B69-10270	01			
FERRIS, J. R.					
Refractory coating protects intricate graphite elements from high-temperature hydrogen					
NU-0027	B66-10084	01			
FESSLER, T. E.					
Mount makes liquid nitrogen-cooled gamma ray detector portable					
LEWIS-259	B66-10103	01			
FETTERMAN, D. E., JR.					
Simple scale interpolator facilitates reading of graphs					
LANGLEY-88	B65-10070	05			
FICKEN, W. H.					
Dynamic-reservoir lubricating device					
M-FS-14652	B68-10261	05			
FICKEY, E. W.					
Chromatographic detection and analysis of traces of hydrocarbons					
KSC-10388	B69-10716	02			
FIELD, R. J.					
Circuit automatically calibrates flowmeter against liquid-level gage reference					
M-FS-2194	B67-10376	01			
FIELDEN, E. H.					
Primary radical yields in pulse irradiated alkaline aqueous solution					
ARG-10322	B69-10167	02			
FIELDS, P.					
Neutron activation analysis traces copper artifacts to geographical point of origin					
ARG-119	B67-10036	02			
FIELDS, P. R.					
Radon gas, useful for medical purposes, safely fixed in quartz					
ARG-2	B66-10468	04			
FIELDS, T. H.					
Cryogenic seal remains leaktight during thermal displacement					
ARG-96	B67-10134	02			
FILIPESCU, N.					
Liquid laser cavities					
GSFC-10592	B69-10234	02			
Laser action from a terbium beta-ketoenolate at room temperature					
GSFC-10593	B69-10324	02			
PINKE, R. C.					
Spherical electrode eliminates high-voltage breakdown					
LEWIS-155	B65-10139	01			
FINKEL, A. J.					
Metabolic and toxicological effects of water-soluble xenon compounds are studied					
ARG-90239	B68-10076	04			
FINLEY, R. L.					
Analysis of stability-critical orthotropic cylinders subjected to axial compression					
M-FS-12869	B67-10375	03			
FINLEY, W. R.					
Highly linear, sensitive analog-to-digital converter					
MSC-13110	B69-10230	01			
FINNIE, C. J.					
Improved insertion-loss tester					
JPL-358	B64-10080	01			
FIORILLI, F.					
Repair of weld defects in thin-walled stainless steel tubes					
M-FS-16293	B69-10305	05			
FIRNETT, P.					
Computer program aids dual reflector antenna system design					
NPO-10501	B68-10139	06			
FIRNETT, P. J.					
FORTRAN optical lens design program					
NPO-10603	B68-10354	06			
FISCHBACH, D. B.					
Basal-plane metallography of deformed pyrolytic carbon					
NPO-11196	B69-10488	03			
FISCHER, A. K.					
Quasi-static vapor pressure measurements on reactive systems in inert atmosphere box					
ARG-90142	B68-10236	01			
Technical report on galvanic cells with fused-salt electrolytes					
ARG-10297	B69-10155	01			
FISCHER, J.					
Experiments shed new light on nickel-fluorine reactions					
ARG-10008	B67-10397	03			
FISCHER, R. L. E.					
Method for reducing snap in magnetic amplifiers					
LEWIS-10388	B68-10388	01			
FISH, R.					
Fire retardant foams developed to suppress fuel fires					
ARC-10098	B68-10358	03			
FISH, R. E.					
Effects of high frequency current in welding aluminum alloy 6061					
M-FS-18337	B68-10383	05			
FISHER, B.					
Electronic circuit delivers pulse of high interval stability					
MSC-673	B66-10501	01			
FISHER, M. J.					
Local measurements in turbulent flows through cross correlation of optical signals					
M-FS-1268	B67-10030	01			
FISTEDIS, S. H.					
Post-stressed concrete foundation may reduce machinery vibration					
ARG-130	B67-10237	05			
Hydrodynamics of a new concept of primary containment by energy absorption					
ARG-10242	B69-10046	05			
FITCH, A. E.					
Amplitude and frequency readout overlay					
GSFC-10183	B68-10054	01			
FITTON, J. S., JR.					
Multiple-orifice throttle valve					
XNP-09698	B69-10030	05			
FITZGERALD, J. J.					
Flow-test device fits into restricted access passages					
MSC-1078	B67-10074	01			
FLAGGE, B.					
Noncontacting vibration transducer has constant sensitivity					
LANGLEY-99	B65-10392	01			
FLAUMENHAFT, E.					
Cytology is advanced by studying effects of deuterium environment					
ARG-205	B67-10304	04			
Substitution of stable isotopes in Chlorella					
ARG-10258	B69-10197	04			
FLAX, L.					
Solenoid magnetic fields calculated from superposed semi-infinite solenoids					
LEWIS-184	B66-10490	01			
FLECK, H. G.					
Cesium iodide crystals fused to vacuum tube faceplates					
GSFC-67	B63-10476	03			
FLEENOR, E. M.					
Imprinting of confining sites for cell cultures on thermoplastic substrates					
LANGLEY-10495	B69-10236	04			
FLEISHNER, G. E.					
Single degree of freedom antenna pointing program /ANTENA/					
NPO-10756	B68-10449	06			
FLEMING, D. P.					
Shallow grooves in journal improve air bearing performance					
LEWIS-10396	B68-10134	05			
FLEMING, R. B.					
Cryogenic fluid flow instabilities in heat exchangers					
M-FS-20438	B69-10541	02			
FLENS, F. J.					
Weld procedure produces quality welds for thick sections of Hastelloy-X					
NUC-10048	B67-10195	05			
FLETCHER, C. W.					
Weld procedure produces quality welds for					

thick sections of Hastelloy-X NUC-10048	B67-10195	05	simultaneously JPL-226	B65-10163	05
FLETCHER, E. E. Study to minimize hydrogen embrittlement of ultrahigh-strength steels M-FS-2455	B67-10141	03	FORTIER, R. J. IR vidicon scanner monitors many test points M-FS-1937	B67-10277	01
Literature review on pickling inhibitors and cadmium electroplating processes M-FS-14421	B69-10606	03	FOSS, H. Rectangular configuration improves superconducting cable ARG-90088	B68-10098	02
FLINN, J. E. Wall-thickness changes predicted in hollow-drawn tubing ARG-10425	B69-10428	02	FOSTER, D. L. Plant respirometer enables high resolution of oxygen consumption rates HQ-47	B66-10406	04
FLOWER, J. F. Bismuth alloy potting seals aluminum connector in cryogenic application WOO-260	B66-10138	03	FOSTER, J. N. Analytical technique characterizes all trace contaminants in water MSC-11032	B67-10243	03
Single-source mechanical loading system produces biaxial stresses in cylinders M-FS-12530	B67-10380	05	FOSTER, L. E. Compact SCR trigger circuit for ignitron switch operates efficiently M-FS-371	B65-10347	01
FLOYD, R. L. High impact pressure regulator withstands impacts of over 15,000 g HPO-10175	B67-10274	01	FOSTER, M. S. Two systems developed for purifying inert atmospheres ARG-10234	B69-10026	03
FOLEY, J. T. Environmental test planning, selection and standardization aids available SAN-10028	B68-10445	06	Technical report on galvanic cells with fused-salt electrolytes ARG-10297	B69-10155	01
FOLEY, R. T. Study of thermal effects on nickel-cadmium batteries GSFC-10003	B67-10614	01	Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01
Improved calorimeter provides accurate thermal measurements of space batteries GSFC-10003A	B67-10615	01	FOSTER, W. D. Dielectric materials for use in thin-film capacitors M-FS-20471	B69-10387	02
FOLLETT, W. H. Temperature transducer has high output, is time stable GSFC-446	B65-10362	01	FOUTS, L. Tool post modification allows easy turret lathe cutting-tool alignment M-FS-581	B66-10191	05
FORD, A. G. Electromechanically operated camera shutter provides uniform exposure JPL-357	B63-10227	01	FOWLER, P. Niobium thin films are superconductive in strong magnetic fields at low temperatures JPL-SC-174	B66-10122	02
Compact actuator converts rotary to linear motion JPL-786	B66-10265	05	FOWLER, V. J. Digital laser-beam deflection sensor M-FS-14785	B68-10525	01
FORD, F. Charge control of nickel-cadmium batteries by coulometer and third electrode method GSFC-10487	B68-10431	01	FOX, H. A. Metal flame spray coating protects electrical cables in extreme environment NUC-10077	B67-10351	03
FORD, F. E. Recharge unit provides for optimum recharging of battery cells GSFC-10688	B68-10273	01	FOX, T. I. Long-term data storage and retrieval system, a concept M-FS-14789	B68-10505	01
Electrochemical cell has internal resistive heater element GSFC-10358	B68-10325	01	FRANK, A. J. Rectilinear display gives acceleration load factor and velocity information MSC-1045	B67-10248	01
FORD, H. Metals plated on fluorocarbon polymers JPL-544	B63-10612	03	Internal velocity factors MSC-15002	B68-10403	06
FOREMAN, W. Laser Doppler flowmeter measures gas velocity M-FS-1747	B66-10693	02	FRANK, H. Regenerative fuel cell combines high efficiency with low cost WOO-090	B65-10363	01
FORGE, D. A. Fiber glass prevents cracking of polyurethane foam insulation on cryogenic vessels M-FS-20058	B68-10406	02	FRANK, L. Ultrasonic emission method enables testing of adhesive bonds M-FS-799	B66-10341	01
FORGES, K. G. Digital system provides superregulation of nanosecond amplifier-discriminator circuit ARG-61	B66-10500	01	Dot patterns provide reproducible flaw areas for study of adhesive bonds M-FS-862	B66-10367	05
FORMAN, M. A. Tool pre-tensions covers prior to lacing MSC-631	B66-10301	05	FRANK, R. G. High temperature alloy LEWIS-10377	B68-10253	03
FORMIGONI, N. P. Thin film process forms effective electrical contacts on semiconductor crystals M-FS-2343	B67-10142	01	Study of high temperature bearing materials LEWIS-10829	B69-10252	03
Process facilitates photoresist mask alignment on SiC crystals M-FS-2394	B67-10144	01	FRANKE, R. Computer program determines gas flow rates in piping systems M-FS-443	B66-10300	01
FORSTER, G. Improved electromechanical master-slave manipulator ARG-10027	B68-10372	05	FRANKLIN, W. J. Novel clamps align large rocket cases, eliminate back-up bars M-FS-1	B63-10376	05
FORSYTHE, A. K. Device disconnects several couplings			FRANKOWSKI, J. Polarized light reveals stress in machined laminated plastics LEWIS-10018	B67-10383	03

- FRASER, D. C.
New technique for optimal smoothing of data
MSC-11354 B68-10060 02
- FRASER, G. F.
Friction brake cushions acceleration and
vibration loads
MSC-715 B66-10608 05
- FRAY, D. J.
Metallic diffusion measured by a modified
Knudsen technique
HQ-10145 B69-10309 03
- FRAZE, R. E.
Dual-purpose chamber-cooling system
NPO-10467 B68-10506 02
- FRECHER, J. C.
New cobalt alloys have high-temperature
strength and long life in vacuum
environments
LEWIS-47 B63-10351 03
Fatigue cracks detected and measured without
test interruption
LEWIS-266 B66-10178 02
Nickel-base superalloys developed for high-
temperature applications
LEWIS-226 B66-10222 03
High strength nickel-base alloy with
improved oxidation resistance up to 2200
degrees F
LEWIS-10115 B68-10094 03
Cobalt-tungsten, ferromagnetic
high-temperature alloy
LEWIS-10378 B68-10095 03
Nickel-base superalloy*s excellent
properties promote its service to 2200
degrees F
LEWIS-10355 B68-10380 03
High strength, superplastic superalloy
LEWIS-10805 B69-10293 03
Improved high-temperature-strength
nickel-base superalloy
LEWIS-10874 B69-10352 03
- FREDERICK, S. F.
Study made of ductility limitations of
aluminum-silicon alloys
M-FS-12524 B67-10392 03
- FREDERICKS, R. W.
Ion mass spectrometer for special uses
HQ-10418 B69-10510 02
- FREEMAN, A.
Radial coolant channels fabricated by
simplified method
NU-0070 B66-10267 05
- FREEMAN, B.
Compact monitoring and control console for
pressurized gas bottles
M-FS-14874 B68-10401 05
- FREEMAN, R.
Method of welding joint in closed vessel
improves quality of seam
JPL-170 B63-10139 05
Device measures fluid drag on test vehicles
LANGLEY-34 B65-10195 01
- FRENZEN, P.
Fast-response cup anemometer features
cosine response
ARG-90193 B68-10202 01
- FREY, A. H., JR.
Simultaneous message framing and error
detection
MSC-12001 B68-10330 01
- FREY, H. M.
One-dimensional reacting gas nonequilibrium
performance program
MSC-11777 B68-10375 06
One-dimensional two-phase reacting gas
nonequilibrium performance program
MSC-11780 B68-10376 06
- FRIDEN, H.
VICAR-DIGITAL image processing system
NPO-10770 B69-10139 06
- FRIEDERICKS, J. E.
Semiconductor forms biomedical radiation probe
MSC-320 B66-10252 04
- FRIEDMAN, A.
Neutron activation analysis traces copper
artifacts to geographical point of origin
ARG-119 B67-10036 02
- FRIEDMAN, E. B.
Electronic load for testing power
generating devices
NPO-10350 B68-10203 01
- FRIEDMAN, H. A.
Computer program determines exact two-sided
tolerance limits for normal distributions
M-FS-18045 B68-10158 06
- FRIEND, L. C.
Rugged switch responds to minute pressure
differentials
M-FS-12704 B67-10389 01
- FRIEND, W. H.
A piezo-bar pressure probe
LEWIS-393 B67-10259 01
- FRIGERIO, W. A.
Uranyl phthalocyanines show promise in the
treatment of brain tumors
ARG-100 B67-10188 04
Simple colorimetric method determines
uranium in tissue
ARG-10039 B67-10580 03
Low scatter lightweight fission spectrometer
constructed for biological research
ARG-10094 B68-10174 02
Ceric and ferrous dosimeters show precision
for 50-5000 rad range
ARG-10173 B68-10426 02
Computer grading of examinations
ARG-10269 B69-10159 06
Neutron therapy of cancer
ARG-10310 B69-10203 04
Automatic bird watcher
ARG-10342 B69-10286 02
- FROELICH, J. A.
Self-actuating grapple automatically
engages and releases loads from overhead
cranes
ARG-81 B66-10522 05
- FROMHOLD, A. T., JR.
Dielectric materials for use in thin-film
capacitors
M-FS-20471 B69-10387 02
- FROST, R. M.
Evaluation of magnetic materials for static
inverters and converters
LEWIS-10343 B69-10306 01
- FRY, R. J. M.
Foot-operated cell-counter
ARG-10315 B69-10351 01
- FRYER, T. B.
Miniature bioelectric device accurately
measures and telemeters temperature
ARC-52 B66-10057 01
Miniature telemetry system accurately
measures pressure
ARC-74 B66-10624 01
Multichannel implantable telemetry system
ARC-10083 B68-10065 01
- FUCHS, C. E.
Inexpensive cryogenic insulation replaces
vacuum jacketed line
NUC-10061 B67-10264 02
- FURG, L. B.
Special mandrel permits uniform welding of
out-of-round tubing
M-FS-706 B66-10323 05
- FULK, H. M.
Special coatings control temperature of
structures
GSFC-444 B65-10337 03
- FULLERTON, D. H.
Small, low power analog-to-digital
converter
M-FS-13954 B68-10016 01
- FULTON, W. C.
Instrument calibrates low gas-rate flowmeters
MSC-134 B65-10137 01
- FUNK, G. M.
O-rings with mylar back-up provide high-
pressure cryogenic seal
M-FS-603 B66-10278 05
- FURCINITI, A.
Circuit multiplies pulse width modulation,
exhibits linear transfer function
HQ-56 B67-10055 01
- FURR, A. K.
Wear studies made of slip rings and gas
bearing components
M-FS-12882 B67-10403 05

- FURST, R. B.
Between-bearing shaft seal, a concept
M-FS-18179 B68-10286 05
- FURTH, H. P.
Magnetic forming studies
M-FS-14217 B68-10186 02
- FUSARO, R. L.
A new solid lubricant
LEWIS-10812 B69-10250 03
- FUSCO, R. C.
Security warning system monitors up to
fifteen remote areas simultaneously
KSC-66-39 B66-10548 01
- FUST, G. W.
Adhesive for polyester films cures at room
temperature, has high initial tack
M-FS-938 B66-10487 03
- FUTRAL, S. M., JR.
Computer program for off-design
performance of radial inflow turbines
LEWIS-10764 B69-10267 06
- G**
- GAAL, A. E.
System transmits mechanical vibration into
hazardous environment
NU-0025 B65-10248 05
- Pneumatic pressure wave generator provides
economical, simple testing of pressure
transducers
NUC-10024 B67-10664 05
- GAAL, P. S.
Measuring thermal expansion of multiple
specimens at high temperature
NUC-10153 B68-10122 05
- GABOR, J. D.
Characteristics of fluidized-packed beds
ARG-10049 B68-10278 03
- An investigation of particle mixing in a
gas-fluidized bed
ARG-10182 B68-10407 05
- GABRIEL, F. C.
Airborne Fraunhofer Line Discriminator
MSC-13146 B69-10594 02
- GAHN, R. F.
Apparatus enables accurate determination of
alkali oxides in alkali metals
LEWIS-256 B66-10296 03
- GAINES, P.
Improved method facilitates debulking and
curing of phenolic impregnated asbestos
MSC-949 B66-10459 05
- GALAN, L.
Lateral ring metal elastic wheel absorbs
shock loading
M-FS-1312 B66-10663 05
- GALL, L. S.
Automated microorganism Sample Collection
Module
HQ-10421 B69-10223 04
- GALLAGHER, R. C.
Diffusion technique stabilizes resistor
values
MSC-205 B66-10142 01
- Conceptual techniques for reducing
parasitic current gain of lateral pnp
transistors
MSC-13199 B69-10244 01
- Lateral PNP bipolar transistor with
aiding field diffusions
MSC-13072 B69-10741 01
- GALLAHER, L. J.
Solution of differential equations by
application of transformation groups
M-FS-14802 B68-10276 02
- GALLAY, H. M.
Ronchi test applied to measurement of
surface roughness
M-FS-12583 B67-10636 02
- GALLO, A. J.
Design for a rapid automatic sync
acquisition system
NPO-10214 B69-10538 01
- GALVIN, D.
Self-shielding printed circuit boards for
high frequency amplifiers and transmitters
HQ-10433 B69-10314 01
- GANTZ, W. A.
Device to color modulate a stationary light
beam gives high intensity
HQ-44 B66-10476 01
- GARDNER, D. E.
Forming blocks speed production of strain gage
grids
LEWIS-182 B65-10009 05
- GARDNER, J. N.
Technique cuts time and cost of bending
jacketed piping
WSO-333 B67-10018 05
- GARFELN, A.
Miniature backward-diode pressure sensor
features stability and low power consumption
ERC-10229 B69-10690 01
- GARNER, W. B.
Survey of man-made electrical noise
affecting radio broadcasting
HQ-10290 B69-10308 01
- GARRAHAN, W. M.
Simple circuit produces high-speed, fixed
duration pulses
GSFC-285 B65-10228 01
- Threshold detector produces narrow pulses at
high repetition rates
GSFC-383 B65-10310 01
- GARRARD, G. G.
Cold trap increases sensitivity of gas
chromatography
M-FS-1617 B66-10517 03
- Spectrophotometric technique quantitatively
determines NaMBT inhibitor in ethylene
glycol-water solutions
MSC-11496 B67-10573 03
- GARRARD, J. S.
New nut and sleeve improve flared connections
M-FS-194 B65-10180 05
- GARRET, R.
Computer program utilizes FORTRAN 4
subroutines for contour plotting
NPO-10127 B67-10323 06
- GARRETT, A. J.
Microminiature thermocouple monitors own
installation
M-FS-1111 B66-10463 05
- GARWOOD, D. C.
Ionization vacuum gage starts quickly, is
unaffected by spurious currents
JPL-304 B65-10036 02
- GASKI, J. D.
CINDA - Chrysler Improved Numerical
Differencing Analyzer computer program
M-FS-2298 B67-10278 06
- GATES, D. W.
Properties of optics at high temperature and
their measurement, a study
M-FS-14696 B68-10240 02
- GATES, G. M.
Single projector accommodates slides of
different size and format
GSFC-439 B66-10016 02
- GAUDIANO, S.
Piggy-back mounting would increase
microcircuit packaging density
MSC-12059 B68-10114 01
- GAUL, L. C.
Fluid check valve has fail-safe feature
JPL-0019 B65-10207 05
- GAULT, J.
Continuous internal channels formed in
aluminum fusion welds
M-FS-2399 B67-10183 05
- GAVALER, J. R.
Preparation of superconducting thin films
of transition-metal interstitial compounds
HQ-10445 B69-10470 01
- GAY, E. C.
Flow properties of suspensions rich in
solids
ARG-10481 B69-10622 02
- GEAR, C. W.
Numerical integration of ordinary
differential equations of various orders
ARG-10247 B69-10089 02
- GEBBEN, V.
Improved fluid control circuit operates on
low power input
LEWIS-325 B67-10042 01

- GEBBEN, V. D.
Cardiac R-wave detector
LEWIS-10394 B68-10144 01
- GEER, T. E.
Study of high-speed angular-contact ball bearings under dynamic load
M-FS-20562 B69-10367 05
- GEIDEMAN, W. A.
High intensity radiation heat source is capable of sustained operation
ARC-61 B66-10547 02
- GEIER, D. J.
Novel shock absorber features varying yield strengths
MSC-63A B64-10138 03
- GEIGER, P. J.
Microdetermination of urea in urine using p-dimethylaminobenzaldehyde /PDAB/
NPO-10715 B69-10317 04
- GEMMELL, D. S.
On-line computer system for use with low-energy nuclear physics experiments is reported
ARG-10257 B69-10094 01
- GEORGE, T. R.
Hoist is automatically stopped at low deceleration rate
M-FS-1639 B66-10545 05
- GEORGE, W. V.
Automatic telemetry checkout system
M-FS-12580 B67-10402 01
- GERA, J., JR.
Proposed technique for vertical alignment of a crane's cable
M-FS-16496 B69-10202 05
- GERINGER, H. J.
Tungsten insulated susceptor cup for high temperature induction furnace eliminates contamination
LEWIS-283 B66-10538 03
- GERLACH, R.
Design of fluid-duct bends with low pressure loss
M-FS-20176 B68-10395 05
- GERMANN, D. A.
JPLIP-JPL FORTRAN language with interval pre-processor
NPO-10835 B69-10187 06
- GERNANDT, H. H.
Self sealing disconnect for tubing forms metal seal after breakaway
JPL-354 B63-10226 05
- GERRITSEN, R.
Computer program aids dual reflector antenna system design
NPO-10501 B68-10139 06
- GERSHMAN, R.
Fluid properties handbook
M-FS-13462 B67-10440 03
- GERSTEIN, M.
Evaluation of ignition mechanisms in selected nonmetallic materials
MSC-11645 B68-10167 03
- GIANDOMENICO, A.
Scanning means for Cassegrainian antenna
JPL-946 B67-10174 05
- GIBBON, C. F.
Grain-boundary migration in KCl bicrystals
ARG-10181 B68-10455 03
- GIBSON, G.
Computer program ETC improves computation of elastic transfer matrices of Legendre polynomials P/0/ and P/1/
NUC-10070 B67-10566 06
- Computer program P/1-GAS/ calculates the P-0 and P-1 transfer matrices for neutron moderation in a monatomic gas
NUC-10141 B67-10678 06
- GAMBIT program
NUC-10243 B69-10433 06
- GIBLER, K. N.
Computer program simplifies transient and steady-state temperature prediction for complex body shapes
MSC-989 B66-10619 01
- GILBERT, G. J.
Increased junction lead inductance ballasts high-frequency transistors
GSFC-387 B65-10259 01
- GILCHRIST, C. E.
Estimation of signal-to-noise ratios
XNP-05254 B69-10557 01
- GILL, W. L.
Mechanical properties of wire insulation automatically determined
MSC-10983 B67-10370 01
- Burn-rate testing apparatus
MSC-10947 B69-10740 03
- GILLEN, A.
Device enables calibration of microphones at high sound pressure levels
M-FS-11980 B67-10336 01
- GILLERMAN, J. B.
Electrolytic silver ion cell sterilizes water supply
MSC-11827 B68-10555 01
- GILLETT, J. D.
Monitoring circuit accurately measures movement of solenoid valve
M-FS-1829 B66-10568 01
- Variable-pulse switching circuit accurately controls solenoid-valve actuations
M-FS-1895 B67-10022 01
- Temperature or pressure controller
LEWIS-10297 B68-10337 01
- GILLILAND, M. G.
Video signal processing system uses gated current mode switches to perform high speed multiplication and digital-to-analog conversion
MSC-781 B66-10429 01
- GILLIS, W. M.
Damping of thermoelastic structures
M-FS-20002 B69-10467 02
- GILLON, W. A., JR.
Solenoid valve design minimizes vibration and sliding wear problem
M-FS-14078 B67-10667 05
- GILMAN, M.
Closed circuit TV system monitors welding operations
MSC-11002 B67-10162 01
- GILMORE, J. P.
Conceptual nonorthogonal gyro configuration for guidance and navigation
MSC-11363 B67-10433 01
- GILMORE, R. F.
Integral valve provides automatic relief and remote venting
M-FS-12134 B69-10545 05
- GILMOUR, G.
Servo calorimeter measures material heating rate
NU-0024 B65-10247 01
- Portable self-powered device detects internal flaws in tubular structures
NU-0019 B66-10028 01
- Transistor circuit increases range of logarithmic current amplifier
NU-0018 B66-10350 01
- GILROY, J.
New electron microscope employs new video display technique
ARG-158 B67-10312 03
- GILWEE, W. J.
Fire retardant foams developed to suppress fuel fires
ARC-10098 B68-10358 03
- GINGO, P. J.
Gamma radiation characteristics of plutonium dioxide fuel
NPO-11220 B69-10733 02
- GIOVANNETTI, A.
High-temperature, high-pressure spherical segment valve provides quick opening
ARC-13 B63-10431 05
- GITZENDANNER, L. G.
Diffusion bonding makes strong seal at flanged connector
M-FS-637 B66-10250 05
- GIULIANO, M. N.
Diffusion technique stabilizes resistor values
MSC-205 B66-10142 01
- GIVENS, W. W.
Dual-mode operation of a neutron source, a concept
HQ-10106 B69-10248 02

GLACKIN, J. J. Beryllium fastener technology M-FS-20306	B69-10019	05	connections JPL-596	B64-10065	01
GLASER, P. E. Experiments to investigate particulate materials in reduced gravity fields M-FS-13308	B67-10394	02	GOLDMAN, A. Gage of 6.5 per cent Si-Fe sheet is chemically reduced MSC-537	B66-10454	03
GLASGOW, V. L. Fluid behavioral patterns found in subscale geysering study M-FS-13582	B67-10462	02	GOLDMAN, N. E. Circuit improvement produces monostable multivibrator with load-carrying capability GSFC-34A	B65-10011	01
GLASIER, L. F., JR. Weld procedure produces quality welds for thick sections of Hastelloy-X NUC-10048	B67-10195	05	GOLDMAN, R. Threaded pilot insures cutting tool alignment M-FS-527	B66-10074	05
Hastelloy X properties, data, and metallurgical characteristics NUC-10302	B68-10023	03	GOLDSTEIN, B. Simplified method introduces drift fields into cells GSFC-572	B67-10102	03
GLATT, C. R. Computer program for parameter optimization ARC-10168	B68-10453	06	GOLDSTEIN, R. M. Combination ranging system and mapping radar NPO-11001	B69-10325	01
GLAUDE, P. H. Camera mount for close-up stereo photographs LANGLEY-10442	B69-10226	02	GOLDSWORTHY, W. W. Pulse-height analyzer with digital readout ARG-10503	B69-10640	01
GLAUZ, R. D. Method reduces computer time for smoothing functions and derivatives through ninth order polynomials NUC-10334	B69-10524	06	GOLLINUGH, T. E. Internal machining accomplished at constant radii M-FS-1573	B66-10546	05
GLAWE, G. E. A mass flux probe for measurement in a supersonic stream LEWIS-10695	B68-10533	02	GOLOMB, S. W. Logic realization of simple majority voting connectives JPL-727	B67-10511	06
Combination probe for airflow measurements LEWIS-10281	B68-10558	01	GOODING, T. J. Large capacitor performs as a distributed parameter pulse line LEWIS-176	B66-10291	01
GLENNER, N. M. Resistance heating releases structural adhesive M-FS-1607	B67-10045	05	GOODMAN, L. S. Digital filter suppresses effects of nonstatistical noise bursts on multichannel scaler digital averaging systems ARG-90143	B68-10193	06
GLENN, C. G. Tool forms right angles in component leads M-FS-722	B66-10346	05	GOODWIN, G. D. Cylindrical claw clamp has quick release feature M-FS-513	B66-10213	05
UV detector monitors organic contamination of optical surfaces M-FS-20246	B68-10413	01	GOODWIN, J. T. Saran film is fire-retardant in oxygen atmosphere MSC-11604	B68-10177	03
GLENN, D. C. Transducer measures force in vacuum environment LEWIS-218	B66-10161	01	GORDON, H. J. Midcourse maneuver operations program NPO-10735	B69-10105	06
Improved rolling element bearings provide low torque and small temperature rise in ultrahigh vacuum environment LEWIS-359	B66-10678	05	GORDON, S. Computer program determines chemical equilibria in complex systems LEWIS-281	B66-10671	01
Bearings use dry self-lubricating cage materials LEWIS-10432	B68-10165	05	Computer program for calculation of ideal gas thermodynamic data LEWIS-10254	B68-10025	06
GLUECKERT, A. J. Device for obtaining separation of oxygen LANGLEY-11007	B69-10477	01	GORDON, W. A. Control apparatus for spectral energy source LEWIS-391	B67-10404	01
GODWIN, W. W. Technique for highly efficient recovery of microbiological contaminants MSC-13250	B69-10273	04	GORSTEIN, M. Special purpose reflectometer uses modified ulbricht sphere MSC-1135	B67-10109	02
GOERTZ, R. Improved head-controlled TV system produces high-quality remote image ARG-128	B67-10317	01	The Quantasyn, an improved quantum detector ERC-10148	B69-10443	01
Improved electromechanical master-slave manipulator ARG-10027	B68-10372	05	GOSNELL, R. B. Composite gaskets are compatible with liquid oxygen, resist compression set M-FS-455	B66-10395	03
GOFFORTH, O. H. Safety yoke would protect construction workers from falling KSC-10075	B67-10445	05	GOSSELIN, C. M. Special treatment reduces helium permeation of glass in vacuum systems HQ-25	B66-10372	02
GOLDBERG, P. N. Real fluid properties of normal and parahydrogen LEWIS-10458	B68-10361	06	GOTTWALD, W. L. Abrasion and resistant discharge valve developed ARG-10219	B69-10044	05
GOLDBERG, J. Simplified circuit corrects faults in parallel binary information channels JPL-SC-090	B66-10261	01	GOUNDRY, R. L. Plug replaces weld filler as seal in complex casting NU-0049	B66-10489	05
GOLDEN, G. H. Thermophysical properties of sodium ARG-10363	B69-10240	03	GOVEDNIK, R. E. Superconducting switch permits measurement		
GOLDING, G. Continuity tester screens out faulty socket					

of small voltages at cryogenic temperatures ARG-90260	B68-10087	01	M-FS-15062	B69-10434	06
GOWEN, E. F., JR. Beryllium fastener technology M-FS-20306	B69-10019	05	GRAY, J. Nixie tube display unit employs time-shared logic ARG-117	B66-10512	01
GRAAB, J. W. Apparatus enables accurate determination of alkali oxides in alkali metals LEWIS-256	B66-10296	03	GRAY, V. H. A rotating, noncapillary heat pipe LEWIS-10298	B69-10684	05
GRAAE, J. Square tubing reduces cost of telescoping bridge crane hoist ARG-13	B67-10293	05	GRAY, W. H. Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter NUC-10044	B67-10222	06
GRACEY, C. H. Thermocouple-flexible cable connector insulator is highly reliable NU-0082	B66-10709	01	GREBER, I. Experimental scaling study of fluid amplifier elements M-FS-1882	B67-10088	02
Plasma jet electrode has longer operating life NU-0098	B67-10024	02	GRECHBERG, R. W. A positive taper traveling-wave tube LANGLEY-10263	B69-10407	01
GRAF, E. R. Improved VHF direction finding system M-FS-20439	B69-10378	01	GREEN, B. E. Instrument quickly transposes ground reference target to eye level MSC-275	B66-10061	05
A thirty-six element array antenna system M-FS-20435	B69-10390	01	GREEN, E. D. Efficient circuit triggers high-current, high-voltage pulses MSC-14	B64-10024	01
GRAFF, C. B. Zinc-oxygen primary cell yields high energy density M-FS-14661	B68-10218	01	GREEN, E. F. Thermal expansion properties of aerospace materials M-FS-18335	B69-10055	03
GRAFSTEIN, D. Fluidic-thermochromic display device ERC-10031	B68-10350	01	GREEN, P. H. Modified hydraulic braking system limits angular deceleration to safe values GSFC-476	B66-10310	05
GRAHAM, H. L. Simplified system displays complex curves corresponding to input data HQ-10073	B69-10247	01	GREEN, R. R. Concept for simplified serial digital decoder NPO-10150	B68-10045	06
GRAHAM, M. D. Automated microorganism Sample Collection Module HQ-10421	B69-10223	04	GREEN, S. Computer program for network synthesis by frequency response fit M-FS-12686	B67-10406	06
GRAHAM, O. Pneumotachometer counts respiration rate of human subject MSC-92	B64-10259	01	GREENBAUM, G. A. Shell design computer program LEWIS-10734	B69-10175	06
GRALOW, F. H. Maintainability methodology and maintenance analyses M-FS-14134	B68-10075	05	GREENBERG, S. Zirconium alloys with small amounts of iron and copper or nickel show improved corrosion resistance in superheated steam ARG-226	B67-10050	03
Monte Carlo simulation by computer for life-cycle costing M-FS-14754	B69-10590	05	Study made of corrosion resistance of stainless steel and nickel alloys in nuclear reactor superheaters ARG-230	B67-10051	03
Programmed schedule holds for improving launch vehicle holds M-FS-14502	B69-10602	03	GREENWOOD, J. R. Circuit enhances vertical resolution in raster scanning systems MSC-12123	B68-10121	01
GRAM, M. B. Temperature responsive valve withstands high impact loading NPO-10186	B67-10225	05	GREENWOOD, T. L. Simple circuit continuously monitors thermocouple sensor M-FS-61	B63-10567	01
GRANATA, R. Binary system generates sidereal rate from standard solar rate GSFC-190	B64-10200	01	Device calibrates vibration transducer at amplitudes up to 20 g M-FS-86	B63-10572	01
GRANDOLFO, M. Comparative chromatography of chloroplast pigment ARG-10415	B69-10425	03	Seismic transducer measures small horizontal displacements M-FS-81	B65-10029	05
GRANDY, G. L. Feed-through connector couples RF power into vacuum chamber NU-0096	B67-10027	01	GREGG, E. A. Hollow needle used to cut metal honeycomb structures MSC-486	B66-10244	05
GRANT, D. J. Electromechanical flowmeter accurately monitors fluid flow GSFC-357	B65-10273	01	GRESSLIN, C. H. Hydrogen-atmosphere induction furnace has increased temperature range LEWIS-153	B66-10055	05
GRANT, L. E. Flared-tube fittings with replaceable seat inserts MSC-15372	B69-10519	05	GREY, J. Computer program calculates peripheral water injection cooling of axisymmetric subsonic diffuser NUC-10541	B67-10543	06
GRANT, M. J. Improved method of producing oxide-dispersion-strengthened alloys HQ-10461	B69-10536	03	GRIES, G. W. Beryllium fastener technology M-FS-20306	B69-10019	05
GRAVES, D. B. Brazing joint quality tested electromagnetically M-FS-12795	B67-10333	01	GRIFFIN, F. D. Optical monitor panel provides flexible test panel configurations KSC-66-18	B66-10494	01
GRAVES, M. L. Fast Fourier Transform Spectral Analysis Program					

Gage tests tube flares quickly and accurately			
KSC-66-19	B66-10537	05	
Hydraulically controlled flexible arm can bend in any direction			
KSC-66-20	B66-10626	05	
GRIPPIN, H. G.			
Polaroid film helps locate objects in inaccessible areas quickly			
MSC-960	B67-10008	02	
GRIPPIN, J. D.			
Slide rule-type color chart predicts reproduced photo tones			
MSC-1227	B66-10680	01	
GRIPPIN, P. A.			
Remotely controlled system couples and decouples large diameter pipes			
NU-0062	B66-10276	05	
GRIFFITHS, L. B.			
Silicon carbide diode for increased light output			
M-FS-20063	B69-10096	01	
GRILLO, J. P.			
Product identification techniques used as training aids for analytical chemists			
SAN-10025	B68-10373	03	
GRIMALDO, S.			
Composite weld rod corrects individual filler weaknesses			
M-FS-1923	B67-10107	05	
GRIMSON, J.			
Improved electromechanical master-slave manipulator			
ARG-10027	B68-10372	05	
GRIPSHOVER, P. J.			
Porous mandrels provide uniform deformation in hydrostatic powder metallurgy			
M-FS-1972	B67-10209	03	
GRISHORE, F. L.			
Optically exciting a magnetic memory - A feasibility study			
M-FS-14854	B69-10060	02	
GROBMAN, J.			
Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen			
LEWIS-15	B63-10340	05	
GROENEVELD, T. P.			
Study to minimize hydrogen embrittlement of ultrahigh-strength steels			
M-FS-2455	B67-10141	03	
Literature review on pickling inhibitors and cadmium electroplating processes			
M-FS-14421	B69-10606	03	
GROENEWEG, J.			
Fluorescent photography of spray droplets using a laser light source			
LEWIS-10777	B69-10122	02	
GROSS, C.			
Radiation used to temperature compensate semiconductor strain gages			
LANGLEY-207	B66-10186	02	
GROSS, S.			
Battery-package design provides for cell cooling and constraint			
MSC-11839	B68-10398	05	
GROVE, E. L.			
Portable spectrometer monitors inert gas shield in welding process			
M-FS-12144	B67-10326	02	
Detecting hydrogen-containing contaminants on metal surfaces			
M-FS-20456	B69-10192	03	
GROVES, C., JR.			
Application of a truncated normal failure distribution in reliability testing			
M-FS-14328	B68-10179	02	
GRUBBS, T. H.			
Improved control system power unit for large parachutes			
MSC-12052	B67-10677	05	
GRUBER, A.			
New energy storage concept uses tapes			
LEWIS-239	B66-10098	02	
GRUBER, C. L.			
Optically induced free carrier light modulator			
GSFC-10216	B69-10114	01	
GRUEN, D. M.			
New class of compounds have very low vapor pressures			
ARG-115	B67-10184	03	
Coordination chemistry in fused-salt solutions			
ARG-10469	B69-10423	03	
GRUNEWALD, L. S.			
Projection transparencies from printed material			
M-FS-14608	B68-10112	01	
GRUNWALD, A.			
Miniature valve accurately controls small volume fluid flow			
ARG-66	B66-10473	05	
GRUPER, J. L.			
Burnishing technique improves lubrication of threaded fasteners			
LEWIS-217	B65-10302	03	
GUDKESE, V. W.			
Soldering tool heats workpieces and applies solder in one operation			
LEWIS-247	B66-10115	05	
GUEDRY, F. E., JR.			
Two devices for analysis of nystagmus			
HQ-10273	B69-10224	01	
GUENTHER, F. G.			
Thermocouples easily installed in hard-to-get-to places			
M-FS-1946	B66-10653	01	
GUISINGER, J. E.			
Igniting system for mercury lamps protects transistorized sustaining supply			
JPL-421	B63-10262	01	
GUNDERSEN, G. E.			
Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels			
ARG-232	B67-10032	03	
Mass-spectrometric study of the rhenium-oxygen system			
ARG-10421	B69-10645	02	
GUNTHER, W. H.			
Experiments shed new light on nickel-fluorine reactions			
ARG-10008	B67-10397	03	
Study of fluoride corrosion of nickel alloys			
ARG-10224	B69-10048	03	
GURSKI, H.			
Imaging slitless spectrometer for X-ray astronomy			
M-FS-14309	B68-10546	02	
GUSSOW, D. G.			
Computer program for interplanetary conic patching			
M-FS-14296	B68-10033	06	
GUSSOW, S. S.			
Multiplexer uses insulated gate-field effect transistors			
M-FS-13096	B67-10396	01	
GUSTAFSON, P. F.			
New shield for gamma-ray spectrometry			
ARG-10388	B69-10344	02	
GUTHMAN, F.			
Primary cells utilize halogen-organic charge transfer complex			
JPL-926	B66-10682	02	
Primary cell uses neither liquid nor fused electrolytes			
NPO-10001	B67-10275	01	
GYORGAK, C. A.			
Guide for extrusion dies eliminates straightening operation			
LEWIS-152	B64-10014	05	
Apparatus facilitates pressure-testing of metal tubing			
LEWIS-174	B65-10131	05	
Extrusion of small-diameter, thin-wall tungsten tubing			
LEWIS-90335	B67-10355	05	
GYSBERS, J. C.			
Subroutine allows easy computation in extended precision arithmetic			
M-FS-1136	B66-10504	01	

H

- HAACKER, J. F.
Electropneumatic rheostat regulates high current
ARC-44 B65-10299 01
- HAAG, G. E.
Panels illuminated by edge-lighted lens technique
MSC-871 B66-10507 02
- HACSKAYLO, M.
Thin-film ferrites vapor deposited by one-step process in vacuum
MSC-259 B66-10398 03
- HADDICAN, J.
FM carrier deviation measured by differential probability method
M-FS-2166 B67-10213 01
- HAEFELI, R. C.
Sonic boom propagation in stratified atmosphere
LANGLEY-10480 B69-10391 06
- HAEFELI, R. M.
High purity electroforming yields superior metal models
ARC-6 B63-10007 05
- HAERTHER, L. W.
Rack mount device quickly inserts or extracts chassis units
MSC-244 B65-10385 05
- HAERTSCH, O. C.
Light-sensitive potentiometer measures product of two variables
GSFC-240 B65-10076 01
Gimbale-mirror scanning system capable of spiral pattern
GSFC-10170 B67-10609 02
- HAERD, A. M.
Real fluid properties of normal and parahydrogen
LEWIS-10458 B68-10361 06
- HAGENHAUER, D. J.
Nondestructive testing of brazed rocket engine components
M-FS-18191 B68-10394 03
Nondestructive testing of welds on thin-walled tubing
M-FS-18144 B69-10402 01
- HAGENA, K. H.
Computer graphics data conditioning
M-FS-14695 B68-10296 06
- HAGIHARA, F. S.
Fast-response frequency-to-analog converter
M-FS-709 B67-10257 01
- HAGUE, D. S.
Computer program for parameter optimization
ARC-10168 B68-10453 06
- HAIGLER, J. S.
Mechanism isolates load weighing cell during lifting of load
MSC-297 B66-10071 05
- HAIST, C. F.
Double emitter suppressed carrier modulator uses commercially available components
M-FS-2494 B67-10101 01
- HALE, C. J.
Computer program predicts thermal and flow transients experienced in a reactor loss-of-flow accident
NUC-10054 B67-10281 06
- HALE, D. V.
Automated measurement of thermal conductivity
M-FS-20454 B69-10283 03
- HALEY, F. C.
Blackbody cavity radiometer has rapid response
JPL-521 B66-10679 01
Optimetric system facilitates colorimetric and fluorometric measurements
NPO-10233 B68-10316 01
- HALL, J. E., JR.
High efficient square-wave oscillator operator at high power levels
GSFC-112 B63-10554 01
- HALL, L. C.
Status of ultrachemical analysis for semiconductors
M-FS-2254 B67-10138 03
- HALL, L. G.
Spherical ion source
XNP-08898 B69-10186 01
Parameters for good welding of copper to nickel
M-FS-20353 B69-10302 05
Quality-weld parameters for microwelding techniques and equipment
M-FS-20484 B69-10303 05
- HALL, W. J.
Computer programs for thermodynamic and transport properties of hydrogen
NUC-10537 B68-10150 06
- HALLBERG, F. C.
Improved limiter for turn-on current transient
GSFC-10413 B68-10384 01
- HALLER, H. C.
Pyrotechnic device provides one-shot heat source
LEWIS-10131 B68-10062 03
- HALLMARK, W. B.
Detection of entrapped moisture in honeycomb sandwich structures
MSC-1103 B67-10116 01
- HALLOCK, J. M.
Improvement in recording and reading holograms
ERC-10151 B68-10347 02
- HALPERT, G.
Computer program calculates and plots surface area and pore size distribution data
GSFC-10362 B68-10009 06
Frangible electrochemical cell and sealing technique
XGS-10010 B69-10056 01
- HALSOR, J. L.
Improved process for epitaxial deposition of silicon on prediffused substrates
M-FS-14910 B68-10390 03
- HAMBURG, R. L.
Midcourse maneuver operations program
NPO-10735 B69-10105 06
- HAMERDINGER, R. W.
High-temperature thermionic emission microscope
NPO-10584 B68-10516 01
- HAMILL, W.
Boydolt, a positive-latch, simple-release fastener
MSC-13061 B68-10512 05
- HAMILTON, L. O.
Study made of explosive cutting in simulated space environments
M-FS-1597 B67-10040 01
- HAMLETT, B. J.
Testing the flammability of materials exposed to arcs
MSC-15225 B69-10531 03
- HANAFY, L. M.
Earth orbit rendezvous evaluation program
M-FS-13016 B67-10407 06
Computer program offers new method for constructing periodic orbits in nonlinear dynamical systems
M-FS-14654 B68-10217 06
Generalized Newton-Raphson trajectory optimization-generator 1
M-FS-15020 B68-10422 06
- HANCHEY, K. K.
Suppressor plate eliminates undesired arcing during electron beam welding
M-FS-1126 B66-10357 05
- HANCOCK, D. J.
System precisely controls oscillation of vibrating mass
M-FS-1875 B67-10276 01
- HAND, W. W.
Uppercase and lowercase computer printout increases readability
HQ-12 B65-10286 01
- HANDLEWICH, R. M.
Centrifugal device separates liquid from gas
MSC-282 B65-10394 05
- HANDLEY, M. G.
V-slotted screw head and matching driving tool facilitate insertion and removal of screw

PERSONAL AUTHOR INDEX

HAROLD, J. L.

fasteners FRC-16	B63-10023	05	M-FS-1854	B67-10285	05
HANDWERK, J. H. Study of mechanical properties of uranium compounds ARG-10074	B68-10197	03	HARIHARAN, A. V. Preparation of thorium magnesium-zinc reduction ARG-10245	B69-10079	03
HANES, H. D. Porous mandrels provide uniform deformation in hydrostatic powder metallurgy M-FS-1972	B67-10209	03	HARKNESS, L. Qualitative and quantitative analysis of mixtures of compounds containing both hydrogen and deuterium ARG-10312	B69-10177	04
HANES, V. D. Large seals fabricated from small segments reduce procurement lead time M-FS-1117	B66-10464	05	HARLAMERT, P., JR. Fine-particle filter prevents damage to vacuum pumps LEWIS-106	B63-10489	05
HANKINSON, T. W. E. Plugged hollow shaft makes fatigue-resistant shear pin LANGLEY-195	B66-10077	05	HARNAM, J. N., III Method of maintaining activity of hydrogen-sensing platinum electrode M-FS-1422	B68-10049	03
HANLEY, D. F. Handbook explaining the fundamentals of nuclear and atomic physics NUC-10330	B69-10705	02	HARNESS, B. W. Automatic calorimetry system monitors RF power NPO-11033	B69-10384	01
HANNA, H. F. Solid state circuit controls direction, speed, and braking of dc motor JPL-757	B66-10486	01	HARPER, C. M. Simple technique determines ac properties of hard superconductive materials M-FS-1818	B66-10657	02
HANSEN, D. Oscilloscope used as X-Y plotter or two-dimensional analyzer LEWIS-311	B67-10269	01	HARPER, T. P. Input gate circuit converted for use as linear amplifier M-FS-14265	B68-10015	01
HANSEN, E. L. Lightweight heater generates high temperatures from low current SAN-10004	B68-10223	01	HARRIGILL, W. T. Remote control thermal actuator LEWIS-10873	B69-10307	01
HANSEN, I. G. Millivolt signal limiter LEWIS-90297	B69-10015	01	HARRINGTON, K. Plasma-heating by induction LEWIS-10528	B69-10185	02
HANSEN, I. G. Flow angle sensor and readout system LEWIS-90298	B69-10050	01	HARRIS, C. L. Plug replaces weld filler as seal in complex casting NU-0049	B66-10489	05
HANSON, A. R. Study of hot wire techniques in low density flows with high turbulence levels M-FS-1269	B66-10687	01	HARRIS, D. W. A design procedure for the weight optimization of straight finned radiators GSFC-547	B66-10618	05
HANSON, H. S. Instrumentation monitors transported material through variety of parameters M-FS-12938	B67-10545	01	HARRIS, F. Modified pliers facilitate coupling of bayonet-type connectors M-FS-1344	B66-10417	05
HANSON, R. W. Pyrotechnic-actuated cable release KMP-10849	B68-10535	05	HARRIS, G. G. Device serves as hinge and electrical connector for circuit boards M-FS-743	B66-10359	01
HANST, P. L. Repetitively pulsed, wavelength-selective carbon dioxide laser ERC-10178	B68-10564	02	HARRIS, J. C. Computer routine adds plotting capabilities to existing programs GSFC-490	B66-10511	01
HAPP, W. W. SEAL /Subnetwork Enumeration And Listing/ ERC-10116	B68-10227	06	HARRIS, J. E. Tools made of ice facilitate forming of soft, sticky materials KSC-10262	B69-10199	05
HARADA, Y. Pigmented coating resists thermal shock JPL-SC-083	B65-10354	03	HARRIS, R. E. Thermal and bias cycling stabilizes planar silicon devices ERC-48	B67-10176	01
HARAWAY, W. M. Molding a high-density laminate LANGLEY-10051	B68-10092	03	HARRIS, R. V., JR. Program computes zero lift wave drag of entire aircraft LANGLEY-10079	B67-10530	06
HARBUCK, T. A. Dielectric materials for use in thin-film capacitors M-FS-20471	B69-10387	02	HARRIS, S. E. Proposed acousto-optic filter HQ-10440	B69-10466	02
HARDGROVE, W. F. Test device prevents molecular bounce-back GSFC-82	B63-10546	03	HARRIS, T. C. Computer used to program numerically controlled milling machine M-FS-1608	B66-10541	01
HARDIE, F. H. Triple Modular Redundancy /TMR/ computer operation improved MSC-831	B67-10085	01	HARRISON, D. R. Miniature capacitive accelerometer is especially applicable to telemetry ARC-72	B66-10491	01
HARDING, J. T. Report on a cryogenic gyroscope NPO-11200	B69-10504	02	HARRISON, E. S. Synthesis of polyethers of hexafluorobenzene and hexafluoropentanediol M-FS-14962	B69-10636	03
HARDY, A. C. Occulting-filter method for obtaining flashing-light visibility data MSC-13097	B69-10107	02	HARRISON, R. G. Miniature capacitor functions as pressure sensor JPL-903	B67-10020	01
HARDY, J. C. Rotary antenna attenuator NPO-10648	B69-10502	01	HAROLD, J. L. Automatic testing device facilitates noise		
HARDY, J. F., III Static seal concept to accommodate seat tolerances					

- checks and electronic calibrations
LEWIS-10173 B67-10467 01
- HART, E. J.
Primary radical yields in pulse irradiated
alkaline aqueous solution
ARG-10322 B69-10167 02
- HART, E. K.
Study made of corrosion resistance of
stainless steel and nickel alloys in nuclear
reactor superheaters
ARG-230 B67-10051 03
- Elementary review of electron microprobe
techniques and correction requirements
ARG-10062 B68-10195 03
- HARTENSTEIN, R. G.
Low-cost tape system measures velocity of
acceleration
GSFC-85 B63-10512 01
- Photoresistance analog multiplier has wide
range
GSFC-360 B65-10287 01
- HARTMAN, M. A.
Run-in with chemical additive protects gear
surface
M-FS-548 B66-10069 05
- HARVEY, D. E.
Flexible drive allows blind machining and
welding in hard-to-reach areas
MSC-524 B66-10428 05
- HARVEY, H. W.
Transplutonium elements processed from
rock debris of underground detonations
ARG-10222 B69-10054 03
- HARVEY, W. D.
Instrument accurately measures small
temperature changes on test surface
LANGLEY-174 B66-10637 01
- HARYUNG, J.
Effect of welding position on porosity
formation in aluminum alloy welds
M-FS-2318 B67-10177 05
- HATFIELD, J.
Linear circuit analysis program for IBM
1620 Monitor 2, 1311/1443 data processing
system /CIRCS/
NPO-10131 B67-10173 06
- HATHAWAY, J. D.
Electrical cabling withstands severe
environmental conditions
M-FS-1585 B66-10427 01
- HATHAWAY, M.
Break-up of metal tube makes one-time shock
absorber, bars rebound
LANGLEY-1A B63-10304 05
- HATHORN, J. W.
Wind tower influence study
M-FS-20239 B69-10653 01
- HAUG, R. D.
Improved chlorate candle provides
concentrated oxygen source
MSC-1137 B67-10095 03
- HAWKES, E. D.
Gas Metal Arc /GMA/ weld torch
proximity control
M-FS-16327 B69-10533 01
- HAWKINS, B. H.
Adjustable thermal **tree**
MSC-15556 B69-10484 01
- HAWTHORNE, K. C.
Key-locked guard prevents accidental switch
actuation
MSC-419 B66-10235 05
- HAYDEN, R. R.
Molded elastomer provides compact ferrite-core
holder, simplifies assembly
JPL-584 B64-10084 05
- HAYES, J. D.
Programmed schedule holds for improving
launch vehicle holds
M-FS-14502 B69-10602 03
- HAYES, W. D.
Sonic boom propagation in stratified
atmosphere
LANGLEY-10480 B69-10391 06
- HAYNOS, J.
Frangible electrochemical cell and sealing
technique
XGS-10010 B69-10056 01
- HAYS, J. R.
Accurate digital technique simulates flight
control system
M-FS-14787 B68-10569 02
- Frequency domain analysis and synthesis of
lumped parameter systems using nonlinear
least squares techniques
M-FS-15033 B69-10577 02
- HAYSER, T. P.
Preregulator feedback circuit utilizes
Light Actuated Switch
M-FS-1180 B66-10542 01
- HAYSTRICK, J. E.
Heated die facilitates tungsten forming
LEWIS-25A B66-10047 05
- HEAD, D. E.
Computer program determines thermal
environment and temperature history of
lunar orbiting space vehicles
M-FS-12916 B67-10307 06
- HEADLEY, C. A.
Portable tool removes burrs from pipe and
tubing
MSC-237 B65-10360 05
- Portable tool cleans pipes and tubing
MSC-238 B65-10375 05
- Pipe cutting tool is useful in limited space
MSC-36 B66-10102 05
- HEADLEY, R.
Portable tool cleans pipes and tubing
MSC-238 B65-10375 05
- HEALER, J.
Review of biological mechanisms for
application to instrument design
HQ-33 B67-10663 04
- HEAMAN, J. P.
Study of theory and application of long
duration heat flux transducers
M-FS-1265 B66-10614 01
- HEAP, J. C.
Equations provide tubular information on
effects of uniform and variable loads on
thin, flat, circular plates
ARG-151 B66-10601 05
- HEARN, C. P.
Voltage variable oscillator has high phase
stability
LANGLEY-123 B65-10204 01
- HEATH, M. A.
Color-televized medical microscopy
MSC-13086 B68-10314 01
- HEATHCOCK, R.
Design reliability goal developed from small
sample
M-FS-403 B66-10405 05
- HECHT, R.
Simple technique determines ac properties
of hard superconductive materials
M-FS-1818 B66-10657 02
- HECKELMAN, J. D.
Boron trifluoride nuclear detector
preamplifier uses single-cable connection
LEWIS-178 B65-10255 01
- Electronic calorimetric computer
LEWIS-90254 B68-10138 01
- HEER, E.
Analysis of space vehicle structures using
the transfer-function concept
NPO-11162 B69-10337 06
- Finite element formulation for linear
thermoviscoelastic materials
NPO-11229 B69-10660 03
- HEFFNER, P.
Monostable circuit with tunnel diode has fast
recovery
GSFC-132 B63-10603 01
- HEFLINGER, L. O.
Two-color holography
HQ-10349 B69-10662 02
- Fine-line sensitivity for holographic
interferograms
HQ-10348 B69-10663 02
- HEGLAND, D. E.
System measures unidirectional forces,
excludes extraneous forces
LEWIS-170 B65-10154 05
- Cryogenic liquid transfer system reduces
residual boiloff
LEWIS-274 B66-10157 02

- Rubber-coated bellows improves vibration damping in vacuum lines
LEWIS-273 B66-10187 02
- HEIBERGER, E. C.
Automatic calorimetry system monitors RF power
NPO-11033 B69-10384 01
- HEIER, W. C.
Improved compression molding process
LANGLEY-10027 B67-10302 03
- Molding a high-density laminate
LANGLEY-10051 B68-10092 03
- Improved molding process ensures plastic parts of higher tensile strength
LANGLEY-10033 B68-10132 05
- HEINRICH, P. L.
Multilayer infrared beamsplitter film system
XGS-11036 B69-10260 02
- HEINRICH, R. R.
Vanadium diaphragm electrode serves as hydrogen diffuser in lithium hydride cell
ARG-10048 B67-10499 01
- HEINTSCHEL, T. J.
HICOV - Newton-Raphson calculus of variation with automatic transversalities
M-FS-14468 B68-10232 06
- HEISER, P. C.
Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes
NUC-10143 B67-10665 06
- HEISHAN, R. M.
Tube dimpling tool assures accurate dip-brazed joints
MSC-533 B68-10036 05
- System remotely inspects, measures, and records internal irregularities in piping
M-FS-14545 B68-10149 01
- Microwave interferometer controls cutting depth of plastics
M-FS-14673 B69-10012 01
- HELD, C.
Development of helical seal for high temperature /2000 degrees F/ application
M-FS-13304 B67-10655 05
- HELP, J. C.
Development of biaxial test fixture includes cryogenic application
M-FS-14185 B68-10070 01
- HELFRICH, W. J.
A rapid stress-corrosion test for aluminum alloys
M-FS-20175 B68-10536 03
- HELLSTROM, M. J.
Integrated circuit with multiple collector current source
M-FS-20177 B69-10126 01
- HEWDEL, F. J.
Thermoplastic rubberlike material produced at low cost
JPL-793 B66-10453 03
- Cold solid propellant motor has stop-restart capability
JPL-836 B66-10673 03
- Addition of solid oxidizer increases liquid fuel specific impulse
JPL-861 B67-10058 03
- HENDERSON, R. B.
Rectilinear accelerometer possesses self-calibration feature
M-FS-1480 B66-10452 01
- HENDRICKSON, D. R.
Inflatable holding fixture permits X-rays to be taken of inner weld areas
M-FS-856 B66-10327 03
- HENDRIX, J. M.
Cryogenic pressure transducer
M-FS-14909 B69-10601 01
- HENGSTENBERG, T. F.
Fatigue tester achieves true axial motion through flex plates and bars
NU-0021 B66-10164 01
- Friction loading device enables accurate testing of brittle materials
NU-0051 B66-10345 05
- HENNIG, G. R.
Reaction rates of graphite with ozone measured by etch decoration
ARG-10086 B68-10101 03
- Analytical techniques for determining boron in graphite
ARG-10087 B68-10102 03
- HENNIGAN, T. J.
Apparatus measures swelling of membranes in electrochemical cells
GSFC-280 B65-10087 01
- Circuit prevents overcharging of secondary cell batteries
GSFC-454 B66-10492 01
- Electrochemical cell has internal resistive heater element
GSFC-10358 B68-10325 01
- Electrochemical sintering process for producing electrodes from cadmium felt and a nickel or silver grid
GSFC-10764 B69-10227 05
- Sealed container sampling device
GSFC-10690 B69-10682 03
- HENNING, F. W.
Analytical technique permits comparison of reliability of alternate mechanical designs
NUC-10065 B67-10261 06
- HENRY, B.
Simple scale interpolator facilitates reading of graphs
LEWIS-92 B66-10302 05
- HENRY, R.
Test instrumentation evaluates electrostatic hazards in fluid system
M-FS-2277 B67-10145 01
- HENRY, V. D.
Ceric and ferrous dosimeters show precision for 50-5000 rad range
ARG-10173 B68-10426 02
- HEYSHAW, E.
Thermocouple-to-instrumentation connector features quick assembly
NU-0022 B65-10246 05
- HERBELL, T. P.
Double gloves reduce contamination of dry box atmosphere
LEWIS-211 B65-10117 03
- HERBST, D.
Steady-state differential calorimeter measures gamma heating in reactor
ARG-10120 B68-10182 01
- HERGET, C. J.
Controllability of distributed-parameter systems
M-FS-14929 B68-10346 02
- HERGET, W. F.
Infrared spectroradiometer for rocket exhaust analysis
M-FS-14357 B68-10081 02
- HERMAN, A. M.
Primary cell uses neither liquid nor fused electrolytes
NPO-10001 B67-10275 01
- HERMAN, L. E.
Rapid billet loader aids extrusion of refractory metals
LEWIS-50 B63-10354 05
- HERMANN, A. M.
Primary cells utilize halogen-organic charge transfer complex
JPL-926 B66-10682 02
- Static electricity of polymers reduced by treatment with iodine
NPO-10062 B67-10132 03
- Photovoltaic effect in organic polymer-iodine complex
NPO-10373 B67-10634 03
- HERMANN, W. A.
Evaporant feed device facilitates flash vapor deposition process in vacuum
NPO-10232 B67-10320 03
- HERNDON, E. S.
Time-shared Cathode Ray Tube
MSC-12238 B69-10243 06
- HEROLD, C. P.
Quick attach and release fluid coupling assembly is self-aligning, self-sealing
KSC-66-8 B66-10627 05
- HERRERA, W. R.
Saran film is fire-retardant in oxygen atmosphere
MSC-11604 B68-10177 03

- | | | | | | | | |
|--------------------|---|-----------|----|--|--|-----------|----|
| HESTING, D. W. | Land landing couch dynamics computer program
MSC-1210 | B67-10233 | 06 | Supercold technique duplicates magnetic field
in second superconductor
JPL-376 | B63-10237 | 05 | |
| HERZ, W. H. | Electron beam seals outer surfaces of porous
bodies
M-FS-562 | B66-10033 | 03 | Shaped superconductor cylinder retains intense
magnetic field
JPL-381 | B63-10238 | 01 | |
| HERZOG, R. F. | Cold cathode ionization gage has rigid metal
housing
GSFC-445 | B66-10041 | 01 | Superconductor shields test chamber from
ambient magnetic fields
JPL-627 | B65-10297 | 02 | |
| HESKETH, W. D. | Monopole mass spectrometer with improved
sensitivity and reduced background
HQ-10476 | B69-10666 | 01 | HILL, C. L., JR. | Soluble undercoating facilitates removal of
foamed-in-place insulation
LEWIS-193 | B65-10344 | 03 |
| HESPENHIDE, W. H. | Resistor monitors transfer of liquid helium
LANGLEY-229 | B66-10580 | 01 | HILL, D. A. | Cryogenic flux-concentrator
ARG-10494 | B69-10654 | 02 |
| HESS, H. C. | Flexible rivet-set
M-FS-20317 | B69-10459 | 05 | HILL, J. | Holding fixture facilitates pipe thread
gage measurements
M-FS-2009 | B67-10066 | 05 |
| HESSON, J. C. | Hoist is automatically stopped at low
deceleration rate
M-FS-1639 | B66-10545 | 05 | HILL, J. E. | Mechanical shielding reduces weld surface
cracking in 6061 T6 aluminum
MSC-11494 | B68-10022 | 05 |
| HEYBEY, W. H. | Rubber and alumina gaskets retain vacuum
seal in high temperature EMF cell
ARG-17 | B66-10472 | 05 | HILLIARD, J. | Indium foil with beryllia washer improves
transistor heat dissipation
GSFC-42 | B63-10033 | 01 |
| HICKMAN, D. M. | New bimetallic EMF cell shows promise in
direct energy conversion
ARG-10183 | B68-10415 | 01 | HILLIS, D. A. | Shaft encoder presents digital output
JPL-SC-191 | B66-10436 | 01 |
| HIGGS, R. H. | Technical report on galvanic cells with
fused-salt electrolytes
ARG-10297 | B69-10155 | 01 | HILLSTROM, K. E. | Performance statistics of the FORTRAN 4
/H/ library for the IBM system/360
ARG-10299 | B69-10157 | 06 |
| HIGLEY, D. F. | Self-discharge in bimetallic cells
containing alkali metal
ARG-10347 | B69-10631 | 01 | HILSENATH, E. | Rocket sonde measurements of ozone in the
upper atmosphere
GSFC-10580 | B69-10077 | 02 |
| HILBORN, E. H. | Technique simulates effect of reduced gravity
LANGLEY-44 | B64-10146 | 04 | HIMMELRIGHT, R. | High-temperature, high-pressure spherical
segment valve provides quick opening
ARC-13 | B63-10431 | 05 |
| HILDEBRANDT, A. F. | Detection system ensures positive alarm
activation in digital message loss
WOO-208 | B66-10287 | 01 | HINES, W. J. | A method for using surface tension to
determine the size of holes in hardware
MSC-15194 | B69-10595 | 03 |
| HILDEBRANDT, A. F. | Crossed-beam technique for measuring
horizontal winds
M-FS-20160 | B69-10447 | 02 | HINSHAW, J. G. | Electrochemical milling removes burrs and
solder from tubing ends
M-FS-714 | B66-10358 | 03 |
| HILDEBRANDT, A. F. | Analog device simulates physiological
waveforms
MSC-51 | B64-10109 | 01 | HIROYASU, H. | Fluorescent photography of spray droplets
using a laser light source
LEWIS-10777 | B69-10122 | 02 |
| HILDEBRANDT, A. F. | Labyrinth-type valve seat increases valve
life by decreasing fluid velocity
M-FS-1051 | B66-10424 | 05 | HIRSHFIELD, S. M. | Dispensing graduate for butadiene
NPO-10070 | B68-10524 | 03 |
| HILDEBRANDT, A. F. | Spiraled channels improve heat transfer between
fluids
JPL-694 | B65-10291 | 02 | HOBART, H. E. | High pressure cryogenic liquid flow sight
assembly provides streamlined flow for easy
observation
LEWIS-310 | B66-10394 | 01 |
| HILDEBRANDT, A. F. | Improved cryogenic refrigeration system
JPL-731 | B67-10128 | 02 | HOBBS, J. V. | Mossbauer vibration calibration systems
evaluated
M-FS-20014 | B69-10125 | 01 |
| HILDEBRANDT, A. F. | Highly stable microwave delay line
NPO-09828 | B67-10642 | 01 | HODGES, F. | Resonant frequency can be adjusted on
vibration mount
JPL-SC-134 | B66-10672 | 05 |
| HILDEBRANDT, A. F. | Renewal of corrosion protection of coated
aluminum after welding
M-FS-20361 | B69-10150 | 05 | HODGKINS, R. L. | Hydra 1 data display system
MSC-11594 | B68-10155 | 01 |
| HILDEBRANDT, A. F. | Design of printed circuit coils
HQ-10431 | B69-10665 | 01 | HODIL, E. R. | Versatile impact hand tool
M-FS-20140 | B68-10371 | 05 |
| HILDEBRANDT, A. F. | TFE-fluorocarbon liners for flexible hoses
M-FS-16480 | B69-10288 | 05 | HOFER, H. P. | Solid state annunciator facilitates complex
system troubleshooting
M-FS-1258 | B66-10505 | 01 |
| HILDEBRANDT, A. F. | Means for improving apparent resolution of
television
ERC-65 | B67-10152 | 01 | HOFF, R. G. | High temperature thermocouple operates
in reduction atmosphere
NU-0046 | B66-10134 | 01 |
| HILDEBRANDT, A. F. | Luminescent screen composition for
cathode ray tubes
ERC-19 | B68-10056 | 01 | HOFFMAN, A. C. | Cobalt-tungsten, ferromagnetic
high-temperature alloy
LEWIS-10378 | B68-10095 | 01 |
| HILDEBRANDT, A. F. | Fluidic-thermochromic display device
ERC-10031 | B68-10350 | 01 | | | | |
| HILDEBRANDT, A. F. | Cryogenic filter method produces super-pure
helium and helium isotopes
JPL-374 | B63-10235 | 03 | | | | |

HOFFMAN, C.			
Circuit measures hysteresis loop areas at 30 Hz			
M-FS-13069	B67-10519	01	
HOFFMAN, F.			
The compatible conversion system			
M-FS-15010	B69-10031	06	
HOFFMAN, F. J.			
Cork is used to make tooling patterns and molds			
MSC-425	B66-10328	01	
HOFFMAN, R. L.			
Real-Time Operating System/360			
MSC-12148	B69-10386	01	
HOH, F. C.			
Gas-injection valve operates at high speed			
HQ-49	B66-10381	05	
HOH, J. C.			
Transplutonium elements processed from rock debris of underground detonations			
ARG-10222	B69-10054	03	
HOLANDA, R.			
Vacuum gage calibration system for 10 to the minus 8th power to 10 torr			
LEWIS-11032	B69-10713	01	
HOLCOMB, D. F.			
Hoisting frame facilitates handling of large objects			
M-FS-16166	B68-10575	05	
Automatic leveling and equalizing hoist device			
M-FS-16549	B69-10514	05	
HOLDEN, C. F.			
In-tank shutoff valve is provided with maximum blast protection			
M-FS-1529	B66-10514	05	
Stabilizing stainless steel components for cryogenic service			
M-FS-13127	B67-10377	05	
HOLDEN, C. P.			
High-pressure seals for rotary shafts			
M-FS-18548	B69-10649	05	
HOLDERMAN, E. J.			
Clamp for detonating fuze			
M-FS-13399	B68-10072	05	
HOLDRIEDGE, D. B.			
Space trajectories program for IEM 7090			
NPO-10125	B67-10172	06	
HOLLANDER, J.			
Synthesis of various highly halogenated monomers and polymers			
M-FS-2143	B67-10100	03	
Synthesis of polyethers of hexafluorobenzene and hexafluoropentanediol			
M-FS-14962	B69-10636	03	
HOLLAR, E. L.			
Manganese-alumina-ceramic glass eliminates rigid controls necessary in bonding metals to ceramics			
SAN-10012	B68-10204	03	
HOLLAR, W. T.			
Liquid crystals detect voids in fiber glass laminates			
LEWIS-10104	B67-10286	03	
Steel test panel helps control additives in pyrophosphate copper plating			
LEWIS-10101	B67-10358	05	
HOLLEY, O. M.			
Circuit enhances vertical resolution in raster scanning systems			
MSC-12123	B68-10121	01	
HOLM, G. L.			
Earth orbit rendezvous evaluation program			
M-FS-13016	B67-10407	06	
HOLM, O. S.			
Shaker slip-plate adapter			
M-FS-14063	B69-10785	05	
HOLMAN, E. V.			
Concealed hinge permits flush mounting of doors and hatches			
MSC-623	B66-10336	03	
Latching mechanism operates in limited access area			
MSC-230	B66-10338	05	
HOLMBERG, A.			
Connect-disconnect coupling for preadjusted rigid shafts			
MSC-15470	B69-10375	05	
HOLMEN, R. E.			
Design concept for nonarcing electrical connector			
M-FS-14937	B68-10404	01	
HOLMES, A. E.			
Special tool kit aids heavily garmented workers			
MSC-163	B66-10403	05	
Hole saw drill attachment has zero force reaction			
MSC-543	B66-10604	05	
HOLMES, J. T.			
Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels			
ARG-232	B67-10032	03	
HOLMRYD, S.			
Analyses of silicon dioxide, magnesium oxide, lead fluoride, bismuth as low-pass velocity filters for neutrons			
ARG-10220	B69-10211	02	
HOLSTEAD, A. J., JR.			
Design and sparring techniques to meet specified performance life			
HQ-10200	B69-10528	02	
HOLT, D. R.			
Magnetic forming studies			
M-FS-14217	B68-10186	02	
HOLT, M. I.			
Scan rate converter for tape recording and playback of TV pictures			
NPO-10166	B67-10676	01	
HOLT, W. D.			
Study of vortex valve for medium temperature solid propellants			
LANGLEY-204	B66-10524	01	
HOLTZ, G. M.			
Extendible column can be stowed on drum			
JPL-686	B65-10191	05	
HOLTZMAN, R. B.			
Rapid and precise analysis for calcium in blood serum			
ARG-10246	B69-10160	04	
Concentrations of the naturally occurring radionuclides Pb-210, Po-210, and Ra-226 in aquatic fauna			
ARG-10345	B69-10258	02	
HOLZMAN, R. E.			
DSN seven day/twelve week schedule program			
NPO-10752	B68-10410	06	
HONNELL, M. A.			
Solid state single-ended switching dc-to-dc converter			
M-FS-13598	B67-10558	01	
HOOD, D.			
Simple scale interpolator facilitates reading of graphs			
LEWIS-92	B66-10302	05	
HOOD, D. W.			
Tests show that aluminum welds are improved by bead removal			
M-FS-1817	B67-10023	05	
HOOP, J. H.			
Ultrasonic water column probe speeds up testing of welds			
HQ-58	B66-10577	01	
HOOPER, C. D.			
Extensometer automatically measures elongation in elastomers			
M-FS-517	B66-10284	05	
HOOPER, G. E.			
Photocell shadowing technique improves light source detector			
JPL-809	B66-10564	01	
HOOVER, R. B.			
Fresnel diffraction plates are simple and inexpensive			
M-FS-12731	B67-10297	02	
HOOVER, R. J.			
Guide for extrusion dies eliminates straightening operation			
LEWIS-152	B64-10014	05	
HOPP, L. A.			
Mechanical device accurately measures rf phase differences in vhf or uhf ranges			
M-FS-1738	B66-10694	05	
HOPPE, F.			
Automatic system nondestructively monitors and records fatigue crack growth			

- LANGLEY-10091 B68-10379 01
- HORAK, J. A.
Resistivity measurements of
neutron-irradiated pure metals and Al-Zn
alloys
ARG-10108 B68-10200 03
- HORNE, A. P.
Parallel line raster eliminates ambiguities in
reading timing of pulses less than 500
microseconds apart
JPL-805 B66-10386 01
- HORNING, J. L.
Pneumatic shutoff and time-delay valve
operates at controlled rate
M-FS-602 B66-10189 05
- HORROCKS, D. L.
Direct measurement of carbon-14 in carbon
dioxide by liquid scintillation counting
ARG-10237 B69-10092 03
Recent development in organic scintillators
ARG-10344 B69-10198 03
- HORSEMAN, J. J.
Maintainability methodology and
maintenance analyses
M-FS-14134 B68-10075 05
- HORSFALL, R. B.
Panels illuminated by edge-lighted lens
technique
MSC-871 B66-10507 02
- HORTON, J. C.
Improved molybdenum disulfide-silver motor
brushes have extended life
M-FS-64 B63-10479 03
Contact stresses calculated for miniature slip
rings
M-FS-280 B65-10098 05
- HORTON, W.
Computerized parts list system coordinates
engineering releases, parts control, and
manufacturing planning
NUC-10073 B67-10348 06
- HORTON, R. L.
Combination ranging system and mapping
radar
NPO-11001 B69-10325 01
- HORNITZ, E. P.
Transplutonium elements processed from
rock debris of underground detonations
ARG-10222 B69-10054 03
- HOTZ, G. M.
Burst diaphragm protects vacuum vessel from
internal pressure transients
JPL-687 B65-10236 05
Extendable mast used in one shot soil
penetrometer
JPL-685 B66-10146 05
- HOUCK, W. H.
Circuit detects voltage decrease in
computer power supply
KSC-67-120 B68-10019 01
- HOUGH, W. W.
Thermally conductive metal wool-silicone
rubber material can be used as shock and
vibration damper
JPL-321 B63-10207 03
- HOURY, E.
Computer/PERT technique monitors actual
versus allocated costs
LEWIS-260 B67-10025 01
- HOUSTON, J. P.
High purity electroforming yields superior
metal models
ABC-6 B63-10007 05
- HOVEY, W. M.
Fast Fourier Transform Spectral Analysis
Program
M-FS-15062 B69-10434 06
- HOWARD, E. A.
Extendible column can be stowed on drum
JPL-686 B65-10191 05
Burst diaphragm protects vacuum vessel from
internal pressure transients
JPL-687 B65-10236 05
- HOWARD, G. A.
Extendable mast used in one shot soil
penetrometer
JPL-685 B66-10146 05
- HOWARD, J. C.
Rigid-body motion extracted from total
motion of a flexible body
ARC-63 B67-10081 05
- HOWARD, R. H.
Highly stable high-rate discriminator for
nuclear counting
ARG-10483 B69-10614 01
- HOWELL, B. J.
Improved method of optical design
GSFC-10743 B69-10405 02
- HOWLAND, B. T.
Bench vise adapter grips tubing securely and
safely
MSC-279 B66-10056 05
Remotely operated high pressure valve
protects test personnel
MSC-11010 B67-10291 05
Insertion device for pressure testing
MSC-15185 B69-10061 03
Flared-tube fittings with replaceable seat
inserts
MSC-15372 B69-10519 05
- HOYT, R. W.
Separator for alkaline batteries
GSFC-10173 B68-10557 03
- HRONJAK, A. J.
Improved computer program for elastic
analysis of highly redundant structural
configurations
M-FS-13087 B67-10330 06
- HRON, R. L.
Load current sensor for a pulse width
modulator power regulator
GSFC-10656 B69-10578 01
- HRUBY, R. J.
Surface-crack detection by microwave methods
ARC-10009 B67-10482 01
Recording and time expansion technique for
high-speed, single-shot transient video
signal
ARC-10003 B67-10139 01
- HUDSON, J. B.
Precision gage measures ultrahigh vacuum
levels
GSFC-114 B63-10597 01
- HUEBENER, R. P.
Superconducting switch permits measurement
of small voltages at cryogenic temperatures
ARG-90260 B68-10087 01
Measurements of thermoelectric power in
annealed and quenched gold-platinum alloys
ARG-10303 B69-10206 03
- HUEBENER, L. G.
Combustion method for assay of biological
materials labeled with carbon-14 or tritium,
or double-labeled
ARG-10331 B69-10208 04
Direct in-vial collection for
liquid-scintillation assay of carbon-14
and tritium
ARG-10424 B69-10412 03
- HUELSMAN, L. P.
Active rc networks of low sensitivity for
integrated circuit transfer function
ARC-10146 B68-10210 01
- HUFF, E. A.
Spectrographic analysis of bismuth-tin
eutectic alloys by spark-ignited
low-voltage ac-arc excitation
ARG-10288 B69-10081 03
- HUFFAKER, R. H.
Calculation of infrared spectral
transmittances of inhomogeneous gases
M-FS-1563 B66-10554 02
Laser Doppler flowmeter measures gas
velocity
M-FS-1747 B66-10693 02
General computer program for calculation
of radiation from inhomogeneous, nonisobaric,
nonisothermal rocket exhaust plume
M-FS-14314 B68-10044 06
- HUGGETT, G. R.
Improved atomic resonance gas cell for use
in frequency standards
MSC-11666 B68-10230 01
- HUGHES, J.
Dispersion of borax in plastic is excellent
fire-retardant heat insulator
ARG-5 B67-10016 03

- Multi-feed cone for Cassegrainian antenna
ARG-10025 B67-10484 03
- HUGHES, L. P.
Acceleration insensitive fluid expansion
compensator
ERC-10152 B68-10559 01
- HUGHES, R. S.
Coaxial cable stripping device facilitates
RF cabling fabrication
NPO-10315 B67-10419 05
- HULTBERG, R. R.
Disk calculator indicates legible lettering
size for slide projection
GSFC-409 B65-10339 05
- HUMPHREY, F. T.
Sprayable birefringent coating enables
strain measurements on large surfaces
M-FS-1484 B66-10578 03
- HUMPHRIES, T. S.
Study made of procedures for externally
loading and corrosion testing stress
corrosion specimens
M-FS-12064 B67-10451 03
- HUNG, J. C.
Study of optimum discrete estimators in
measurement analysis
M-FS-14915 B68-10348 02
- HUNGERFORD, W. J.
Ellipsoidal optical reflectors reproduced by
electroforming
GSFC-92 B63-10547 05
- HUNT, D. G.
Electronic component reliability analysis
by data reduction system
NPO-10243 B68-10507 05
- HUNT, V.
Tensile testing grips ensure uniform loading
of bimetal tubing specimens
LEWIS-10267 B68-10248 05
- X-ray film holder permits single
continuous picture of tubing joint
LEWIS-10382 B68-10343 05
- HUNTER, M. S.
Study of crack initiation phenomena
associated with stress corrosion of
aluminum alloys
M-FS-14283 B68-10153 03
- HURD, W. J.
A method for reducing sampling jitter in
digital control systems
NPO-11088 B69-10338 01
- Simple quasi-exponential slope generator
NPO-11130 B69-10439 01
- HURLEY, J. R.
Cooling of 2 kW H subscript 2-0 subscript 2
fuel cell
M-FS-13737 B68-10544 01
- HURT, C. R.
Laser action from a terbium beta-ketoenolate
at room temperature
GSFC-10593 B69-10324 02
- HUSCHKE, E. G., JR.
Brazing process provides high-strength bond
between aluminum and stainless steel
M-FS-803 B66-10352 05
- HUSCHLER, E., JR.
New brazing alloy eliminates metal-stress
cracking
WOO-249 B65-10397 03
- HUSSON, C.
Logic circuit exhibits optimum performance
LANGLEY-129 B65-10193 01
- HUSTED, J. M.
Solid state zero-bias bilateral switch
GSFC-532 B67-10559 01
- HUTCHINSON, W. R.
Quality-weld parameters for microwelding
techniques and equipment
M-FS-20484 B69-10303 05
- HUTTER, E.
Remotely operated gripper provides vertical
control rod movement
ARG-10160 B68-10359 05
- HUYEN, J. R.
A theoretical study of radar backscatter
from distributed targets with emphasis on
polarization dependence
M-FS-13775 B69-10560 02
- HYDE, E. H.
Method of measuring thermal conductivity of
high performance insulation
M-FS-14088 B68-10013 02
- HYMAN, H. H.
Xenon fluoride solutions effective as
fluorinating agents
ARG-217 B67-10133 03
- HYMAN, L. G.
Improved liquid-level sensor for cryogenics
ARG-10162 B69-10210 02
- HYMAN, H. L.
High conductance vapor thermal switch
GSFC-10109 B68-10519 02
- IANNINI, A.
Pressure-sensitive bonded junction
transducers
ERC-10087 B68-10563 01
- ICELAND, W. F.
System remotely inspects, measures, and
records internal irregularities in piping
M-FS-14545 B68-10149 01
- Microwave interferometer controls cutting
depth of plastics
M-FS-14673 B69-10012 01
- IEROKONOS, N.
Eutectic fuse provides current and thermal
protection under high vibration
M-FS-13664 B67-10535 01
- IIDA, H. T.
Computational procedure for finite difference
solution of one-dimensional heat conduction
problems reduces computer time
MSC-1120 B66-10566 01
- ILCEWICZ, F. H.
Rapid and precise analysis for calcium in
blood serum
ARG-10246 B69-10160 04
- ILLG, W.
Infrared shield facilitates optical pyrometer
measurements
LANGLEY-133 B65-10272 02
- IMUS, E. E.
Lightweight hinged bellows restraint has
high load capacity
WOO-151 B65-10341 03
- IMUS, R.
Blade valve isolates compartment in pipe,
opens to allow free flow
JPL-585 B64-10188 05
- INGHAM, J. D.
Isostatic compression process converts
polyaromatics into structural material
JPL-892 B67-10168 03
- INGLE, W. B.
Lamp automatically switches to new filament
on burnout
M-FS-498 B66-10046 01
- INGRAM, H. L.
An orthonormalization procedure for
multivariable function approximation
M-FS-1313 B66-10579 01
- INMAN, N. S.
Automatic system nondestructively monitors
and records fatigue crack growth
LANGLEY-10091 B68-10379 01
- IPPOLITO, L. J.
Traveling-wave tube circuit simplifies
microwave relay
GSFC-299 B65-10127 01
- IRWIN, J. D.
Study of optimum discrete estimators in
measurement analysis
M-FS-14915 B68-10348 02
- JACK, J. R.
Technique for measuring absorptance and
emittance by using cyclic incident radiation
LEWIS-321 B66-10630 02
- JACKSON, E. D.
Acoustic wave analysis

M-FS-18076	B68-10265	02	JENKINS, K. H.	Fused diode provides visual indication of fuse condition	KSC-67-16	B67-10230	01
JACKSON, K.			JENKINS, L. M.	Indexing device ensures proper mating of electrical connectors	MSC-155	B65-10263	01
Dual regulator controls two gases from a single reference	B66-10167	05	JENKINS, R. K.	Thermally conducting electron transfer polymers	GSFC-10703	B69-10511	03
JACKSON, W. D.			JENKINS, R. S.	Method permits mechanical and electrical checkout of piezoelectric transducers while installed in a system	ARC-73	B66-10533	01
Channel-wall limitations in the magnetohydrodynamic induction generator	B69-10255	02	JENSEN, D. P.	White primer permits a corrosion-resistant coating of minimum weight	M-FS-304	B66-10207	03
ARG-10128			JENSON, K. J.	Synchronizing redundant power oscillators	XGS-09377	B69-10546	01
JACOBI, C.			JESMAN, S.	Design concept to decrease relative speed of ball bearings	M-FS-2003	B67-10212	05
Study made of anodized aluminum circuit boards	B67-10425	01	JIRBERG, R. J.	Inverted grounding technique for electron beam heating	LEWIS-10543	B68-10411	01
M-FS-13580			JIRKA, R.	JPKVIC - General key word in context and subject index report generator	NPO-10589	B68-10208	06
JACOBS, A. J.			JOHN, J. E. A.	Indium foil with beryllia washer improves transistor heat dissipation	GSFC-42	B63-10033	01
Treatment increases stress-corrosion resistance of aluminum alloys	B66-10595	05	JOHNS, C. E.	Improved frequency divider employs transistor avalanche effect	NPO-10008	B67-10575	01
M-FS-1840			JOHNS, M. F.	Gear drive automatically indexes rotary table	M-FS-753	B66-10383	05
JACOBS, J. E.			JOHNSON, A. L.	Rugged microelectronic module package supports circuitry on heat sink	MSC-81A	B66-10245	01
New camera tube improves ultrasonic inspection system	B68-10088	01	JOHNSON, B. C.	Rectilinear display gives acceleration load factor and velocity information	MSC-1045	B67-10248	01
ARG-90237			JOHNSON, C. E.	Vanadium diaphragm electrode serves as hydrogen diffuser in lithium hydride cell	ARG-10048	B67-10499	01
JACOBS, R. B.				Two systems developed for purifying inert atmospheres	ARG-10234	B69-10026	03
Instrument continuously measures density of flowing fluids	B67-10080	01		Technical report on galvanic cells with fused-salt electrolytes	ARG-10297	B69-10155	01
LEWIS-309			JOHNSON, G.	Miniature oxygen resuscitator	KSC-10398	B69-10319	04
JACOBS, S. S.			JOHNSON, H. I.	Pneumatic power is transmitted through air bearing	MSC-8	B64-10141	05
Improved gyro-flotation /damping/ fluids	B69-10360	03		Simulator effects partial gravity conditions	MSC-152	B66-10339	05
MSC-13217			JOHNSON, I.	Solubility data are compiled for metals in liquid zinc	ARG-149	B67-10191	03
JAIN, K. C.			JOHNSON, J. E.	Constant-frequency, variable-duty-cycle multivibrator	XGS-10033	B69-10512	01
Self-sustained hydrodynamic oscillations in a natural-circulation two-phase-flow boiling loop	B69-10620	02	JOHNSON, J. R.	Elimination of rocket engine asymmetric loads during tests at sea level	M-FS-1730	B66-10674	05
ARG-10461			JOHNSON, K. G.	Precise gimballing mechanism	NPO-11057	B69-10270	01
JAMES, A. M.							
Offset lenses add versatility to phototypesetting machine	B66-10173	02					
HQ-9							
JAMES, D. T.							
Silicon surface barrier detectors used for liquid hydrogen density measurement	B68-10166	01					
M-FS-14115							
JANAS, B.							
Pickup device reads pressures from ports in rotating mechanisms	B65-10021	05					
LEWIS-158							
JANIS, R. C.							
Rhodium-plated barrier against high-temperature fusion bonding	B69-10544	05					
M-FS-92155							
JANNICHE, P. J., JR.							
Synchronized pulse generator needs no external power	B65-10072	01					
GSFC-274							
JARMINSKI, S. J.							
Continuous wave detector has wide frequency range	B67-10386	01					
M-FS-1849							
JARRY, R. L.							
Experiments shed new light on nickel-fluorine reactions	B67-10397	03					
ARG-10008							
JARVIE, P.							
Computer program aids dual reflector antenna system design	B68-10139	06					
NPO-10501							
JASTRZEBSKI, Z. D.							
Crucible cast from beryllium oxide and refractory cement is impervious to flux and molten metal	B66-10527	03					
ARG-22							
JATHUZ, P. J.							
Magnetic forming studies	B68-10186	02					
M-FS-14217							
JEANNETTE, J. C.							
Power arc welder touch-started with consumable electrode	B66-10641	05					
M-FS-1485							
JECH, R. E.							
Surface profilometer for examining grain-boundary grooves	B69-10345	05					
ARG-10290							
JEDLIKA, J. R.							
Electropneumatic rheostat regulates high current	B65-10299	01					
ARC-44							
JEFFERIES, N. P.							
Computer programs calculate potential and charge distributions in a plasma	B66-10553	01					
M-FS-871							

Precisely repeatable rotary mechanism NFO-10679	B69-10696	05	ARG-10014	B67-10400	05
JOHNSON, K. L. Performance analysis of electrical circuits /PANE/ M-PS-15001	B68-10448	06	JONES, A. G. Roll diffusion bonding of titanium alloy panels M-PS-14743	B68-10161	05
JOHNSON, L. D. Butterfly valve with metal seals controls flow of hydrogen from cryogenic through high temperatures NUC-10034	B67-10567	05	JONES, A. S., JR. Bench vise adapter grips tubing securely and safely MSC-279	B66-10056	05
JOHNSON, L. L. Quick-acting backup tool for welding ducts M-PS-18404	B69-10396	05	JONES, C. B. Multisurface fixture permits easy grinding of tool bit angles M-PS-586	B66-10171	05
JOHNSON, O. W. Quick-hardening problems are eliminated with spray gun modification which mixes resin and accelerator liquids during application LANGLEY-6A	B63-10318	03	Heavy duty precision leveling jacks expedite setup time on horizontal boring mill M-PS-1084	B66-10411	05
JOHNSON, R. C. Venturi meter with separable diffuser LEWIS-10483	B68-10295	05	JONES, D. B. Portable tool cleans pipes and tubing MSC-238	B65-10375	05
Computer program for high pressure real gas effects LEWIS-10820	B69-10222	06	Pipe cutting tool is useful in limited space MSC-36	B66-10102	05
High pressure real gas effects for helium and nitrogen LEWIS-10819	B69-10669	06	JONES, D. J. Welded repairs of punctured thin-walled aluminum pressure vessels M-PS-14836	B69-10051	05
Natural gas flow through critical nozzles LEWIS-11031	B69-10712	02	JONES, F. B. Combination spacer and gasket provides effective static seal M-PS-1397	B66-10485	05
JOHNSON, R. E. Improved electro-optical tracking system M-PS-14791	B68-10311	01	JONES, H. B., JR. Pressure transducers dynamically tested with sinusoidal pressure generator LEWIS-268	B66-10031	01
JOHNSON, R. L. Lead oxide ceramic makes excellent high-temperature lubricant LEWIS-144	B64-10116	03	JONES, J. C. Shock absorber operates over wide range MSC-168	B65-10241	05
Bearing alloys with hexagonal crystal structures provide improved friction and wear characteristics LEWIS-320	B66-10373	03	JONES, J. P. New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118	03
Wire material reduces compressor blade vibration LEWIS-357	B66-10666	03	JONES, J. S. Liquid oxygen-compatible insulation system M-PS-16113	B69-10599	03
Spiral-grooved shaft seals substantially reduce leakage and wear LEWIS-10397	B68-10270	05	JONES, L. K. Machine tests crease durability of sheet materials JPL-604	B64-10178	05
Evaluation of lubricants for ball bearings at high temperatures LEWIS-10578	B69-10025	03	JONES, M. H. Survey of fracture toughness test methods LEWIS-10379	B68-10046	03
JOHNSON, T. R. Induction probe determines levels of liquid metals ARG-10348	B69-10256	03	JONES, N. D. Improved mouse cage provides versatility and ease in handling laboratory mice MSC-12250	B69-10124	04
JOHNSON, V. R. Noise figure measurement concept for acoustic amplifiers GSFC-10066	B68-10272	01	JONES, R. G. Hand-operated plug insertion valve M-PS-12019	B67-10466	05
Power consumption in acoustic amplifiers under conditions of maximum stable gain GSFC-10067	B68-10327	01	JONES, R. L. One-piece transparent shell improves design of helmet assembly MSC-187	B66-10390	05
JOHNSON, W. C. Adjustable wrench for electronic connectors M-PS-18547	B69-10184	05	JONKE, A. A. Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels ARG-232	B67-10032	03
Device for reflowing electrodeposited solder on terminals M-PS-13821	B69-10670	01	JONSBURG, M. B. Uppercase and lowercase computer printout increases readability HQ-12	B65-10286	01
JOHNSON, W. R. Brazing process using Al-Si filler alloy reliably bonds aluminum parts MSC-448	B66-10241	05	JOHNSON, I. Mass transport mechanism in porous fuel cell electrodes HQ-10343	B69-10135	01
JOHNSTON, A. R. Miniature servo accelerometer is force- balanced JPL-155	B65-10340	01	JORDAN, T. A. Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems M-PS-14447	B69-10158	06
Polarimeter provides transient response in nanosecond range JPL-890	B67-10021	02	JUDD, J. H. Device measures fluid drag on test vehicles LANGLEY-34	B65-10495	01
JOHNSTON, A. S. Computer program calculates the effective temperature for a crystalline solid /DETS/ NUC-10161	B69-10036	06	JUNG, E. A. Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time ARG-10110	B68-10328	01
JOHNSTON, R. L. Multiple test chamber exposes materials to various environments MSC-179	B65-10268	01			
JONES, A. Standard surface grinder for precision machining of thin-wall tubing					

Flexible high-voltage supply for
experimental electron microscope
ARG-10482 B69-10603 01

K

KABASHIMA, N.
JPKWIC - General key word in context and
subject index report generator
NPO-10589 B68-10208 06

KADISH, D.
Multilayer plated wire shows promise as
memory device
MSC-11587 B68-10205 01

KAFESJIAN, R. R.
New energy storage concept uses tapes
LEWIS-239 B66-10098 02

KAISER, K. A.
Ion-retarding lens improves the abundance
sensitivity of tandem mass spectrometers
ARG-10365 B69-10166 02

KALLIN, I. N.
Compound improves thermal interface between
thermocouple and sensed surface
NU-0028 B66-10121 02

KAHL, S. K.
One-shot valve may be remotely actuated
WOO-195 B65-10266 05

Device provides controlled gas leaks
NPO-10298 B68-10142 03

KAMMERER, C. C.
Ultrasonic quality inspection of bonded
honeycomb assemblies is automated
MSC-859 B66-10544 01

KAMPFERTH, R.
Hydrogen peroxide etching proves useful for
germanium
ARG-10170 B68-10454 03

KANRATH, P.
Study of dynamic response of elastic space
stations
NPO-10124 B67-10169 06

KANNEL, J. W.
Study of high-speed angular-contact ball
bearings under dynamic load
M-FS-20562 B69-10367 05

KANNO, A.
Evaluation of methods for nondestructive
testing of brazed joints
ARG-90175 B68-10191 03

KARASEK, F. J.
Copper-acrylic enamel serves as lubricant
for cold drawing of refractory metals
ARG-54 B66-10471 05

Fabrication techniques developed for small-
diameter, thin-wall tungsten and tungsten
alloy tubing
ARG-10100 B68-10284 05

Consolidation and fabrication techniques
for vanadium-20 w/o titanium /TV-20/
ARG-10148 B68-10368 03

KARASTAS, G. A.
Self-actuating grapple automatically
engages and releases loads from overhead
cranes
ARG-81 B66-10522 05

KARCHER, G.
Conceptual dead weight device to provide
pressure calibration
M-FS-14672 B68-10264 01

KARKAINEN, T. A.
KOPE /Kalendar Oriented Program
Efforts/ provides data for management
decisions
M-FS-12331 B67-10478 06

KASCAK, A.
Technique for predicting temperature
distribution in gases
LEWIS-10918 B69-10329 01

KASPAR, H.
Computer program determines inventory size
M-FS-1135 B66-10506 01

Multiple correlation computer program
determines relationships between several
independent and dependent variables
M-FS-13024 B67-10327 06

KASPARECK, W. E.
High-torque precision stepping drive
M-FS-14772 B68-10549 05

KASTNER, M.
Neutron activation analysis traces copper
artifacts to geographical point of origin
ARG-119 B67-10036 02

KATSANIS, T.
Computer program performs flow analysis
through turbines
LEWIS-236 B66-10496 01

Computer program calculates velocities and
streamlines in turbomachines
LEWIS-10252 B68-10097 06

**MAGNTY - Program for calculating velocities
in magnified region of turbomachines
LEWIS-10789 B69-10132 06**

**FORTRAN 4 program calculates velocities
and streamlines in a tandem blade
turbomachine
LEWIS-10743 B69-10219 06**

KATZ, J. J.
Cytology is advanced by studying effects
of deuterium environment
ARG-205 B67-10304 04

Metabolic and toxicological effects of
water-soluble xenon compounds are studied
ARG-90239 B68-10076 04

The preparation, identification and
properties of chlorophyll derivatives
ARG-10205 B68-10409 03

Aggregation of metallochlorophylls -
Examination by spectroscopy
ARG-10273 B69-10163 04

Qualitative and quantitative analysis of
mixtures of compounds containing both
hydrogen and deuterium
ARG-10312 B69-10177 04

Substitution of stable isotopes in
Chlorella
ARG-10258 B69-10197 04

Purification and characterization of two
fully deuterated enzymes
ARG-10314 B69-10207 04

KATZ, H.
Boydolt, a positive-latch, simple-release
fastener
MSC-13061 B68-10512 05

KATZ, N.
Electrometer amplifier operates over
dynamic range of five orders of magnitude
ARC-75 B67-10199 01

KATZIN, L.
Packaging of electronic modules
JPL-801 B66-10664 01

Flat pack interconnection structure
simplifies modular electronic assemblies
JPL-819 B67-10560 01

Breakaway electrical connector
NPO-11140 B69-10474 01

Folded stick module
NPO-10854 B69-10498 01

KATZOFF, S.
Oil-smeared models aid wind tunnel
measurements
LANGLEY-4 B63-10311 03

KEDZIE, R. W.
Study of yttrium iron garnet rods reveals
new magnetostatic echo mode
ERC-37 B67-10153 01

KEEFER, J. M.
A phonocardiogram simulator
KSC-67-94 B67-10239 01

KEENEY, C. J., JR.
Beryllium fastener technology
M-FS-20306 B69-10019 05

KEIGHER, P. J.
Gas pressure feeds film into camera at high
speed
ARG-97 B66-10474 02

KEIPERT, F. A.
Fully automatic telemetry data processor
GSFC-10576 B68-10336 01

KELLER, C. W.
Study of hydrogen slush-hydrogen gel
utilization
M-FS-13068 B67-10413 02

KELLER, E. L.
Mechanisms of superconductivity

- investigated by nuclear radiation
M-FS-1944 B67-10057 02
- KELLER, K. R.
Reducing contact resistance at semiconductor
to metal or aluminum to metal interfaces
ERC-10254 B69-10689 01
- KELLER, L. P.
High-voltage pulse generator developed for
wide-gap spark chambers
ARG-10136 B68-10283 01
- KELLER, O. F.
High-pressure regulating system prevents
pressure surges
JPL-231 B63-10170 05
- KELLERMAYER, G. L.
Liquid laser cavities
GSFC-10592 B69-10234 02
Laser action from a terbium beta-ketoenolate
at room temperature
GSFC-10593 B69-10324 02
- KELLEY, R. C.
Heat-treatment of metal parts facilitated
by sand embedment
M-FS-1543 B66-10616 03
- KELLEY, W. B.
Simple device facilitates inert-gas welding
of tubes
M-FS-558 B66-10155 05
- KELLS, H. C.
Modified McLeod pressure gage eliminates
measurement errors
ARC-62 B66-10481 01
- KELLY, A.
Visual task analysis /VISTA/
M-FS-14716 B69-10394 06
- KELLY, D.
JPKWIC - General key word in context and
subject index report generator
NPO-10589 B68-10208 06
- KELLY, R. E.
Development of biaxial test fixture
includes cryogenic application
M-FS-14185 B68-10070 01
- KELMERS, A. D.
Improved inorganic ion exchange membranes
LEWIS-10737 B69-10451 03
- KEMMERER, W. W.
Tool samples subsurface soil free of
surface contaminants
MSC-10988 B67-10473 05
- KEMPER, J. T.
Program computes equilibrium normal shock
and stagnation point solutions for
arbitrary gas mixtures
LANGLEY-10090 B67-10509 06
- KEMPLE, S. B.
T-handle wrench has torque-limiting action
MSC-280 B66-10065 05
- KEMPSON, A., JR.
Junction connectors permit strategic
placement of television cameras
KSC-66-22 B66-10391 01
- KENDALL, J. M., SR.
Improved cavity-type absolute
total-radiation radiometer
JPL-807 B67-10557 01
- KENDALL, W. B.
Data processing method for a weak, moving
telemetry signal
NPO-11003 B69-10639 01
- KENDRICK, W. R.
New rapid-curing, stable polyimide
polymers with high-temperature strength
and thermal stability
LEWIS-10576 B69-10118 03
- KENNEDY, B. W.
UV detector monitors organic contamination
of optical surfaces
M-FS-20246 B68-10413 01
- KENNEL, H. F.
Study made of application of stereoscopic
display system to analog computer simulation
M-FS-1263 B66-10590 01
- KEON, T.
Simple, one transistor circuit boosts pulse
amplitude
GSFC-501 B66-10480 01
- KEPPLER, C. R.
Perforations in jet engine supersonic inlet
increase shock stability
NEO-8 B66-10530 05
- KERLEY, J. J., JR.
Wire mesh isolator protects sensitive
electronic components
GSFC-347 B65-10216 05
- KERN, D. D.
Repair of weld defects in thin-walled
stainless steel tubes
M-FS-16293 B69-10305 05
- KERN, W.
Irradiated gases transferred without
contamination or dilution
LEWIS-278 B67-10044 03
- KERNICK, A.
Electronic bidirectional valve circuit
prevents crossover distortion and threshold
effect
MSC-193 B66-10420 01
- KERR, D. A.
Development of biaxial test fixture
includes cryogenic application
M-FS-14185 B68-10070 01
- KERSLAKE, W.
Wire winding increases lifetime of oxide
coated cathodes
LEWIS-154 B65-10032 03
- KERNIN, W. J.
Thermal motor positions magnetometer sensors
ARC-51 B66-10078 05
Active rc networks of low sensitivity for
integrated circuit transfer function
ARC-10146 B68-10210 01
Active rc filter permits easy trade-off
of amplifier gain and sensitivity to gain
ARC-10042 B68-10539 01
Tunable bandpass filter with variable
selectivity
ARC-10191 B69-10130 01
- KESSLER, P. W.
Universal transloader moves delicate equipment
without stress
MSC-654 B66-10384 05
- KETALLY, E. C.
Complementary system vaporizes subcooled
liquid, improves transformer efficiency
M-FS-550 B66-10045 02
- KETCHAM, J. J.
A design procedure for the weight
optimization of straight finned radiators
GSFC-547 B66-10618 05
- KETOLA, H. M.
Visco seal design offers zero-leakage and
wear-free characteristics
WSO-329 B67-10047 05
- KETTUNEN, P. O.
Possible correlation between work-hardening
and fatigue-failure
ARG-10371 B69-10414 03
- KIBLER, K. S.
Hydraulic servo system increases accuracy
in fatigue testing
LANGLEY-217 B67-10637 01
- KILGORE, A. B.
Welding, brazing, and soldering handbook
M-FS-20504 B69-10264 05
- KILMA, S. J.
New cobalt alloys have high-temperature
strength and long life in vacuum
environments
LEWIS-47 B63-10351 03
- KILPATRICK, M.
Reaction of steam with molybdenum is
studied
ARG-295 B67-10502 03
Reaction studied of steam with niobium and
tantalum
ARG-10051 B68-10189 03
- KIMBALL, R. B.
Computer program provides linear sampled-
data analysis for high order systems
M-FS-12821 B67-10287 06
- KIMMEL, M.
Encapsulation technique eliminates thermal
stresses in welded electronic modules
M-FS-14581 B68-10307 01

- KINCINAS, J. E.
Fluid-bed fluoride volatility process
recovers uranium from spent uranium alloy
fuels
ARG-232 B67-10032 03
- KINDER, S. K.
Teflon sheet permits valve and valve
operator to move as a single unit in a
cryogenic pipe line
NU-0077 B66-10702 05
- KINDLEY, R. J.
Shock-absorbing caster wheel is simple and
compact
SAN-10019 B68-10266 05
- KING, C. B.
New method forms bond line free of voids
LANGLEY-20 B63-10558 05
Molding a high-density laminate
LANGLEY-10051 B68-10092 03
- KING, D.
Electronic gating circuit and ultraviolet
laser excitation permit improved dosimeter
sensitivity
ARG-10109 B68-10077 02
- KING, H. J.
Device provides controlled gas leaks
NPO-10298 B68-10142 03
- KING, H. M.
Improved molybdenum disulfide-silver motor
brushes have extended life
M-FS-64 B63-10479 03
- KING, O. D.
Turbine blade root design concept promises
superior alignment
M-FS-1685 B66-10620 05
- KING, R. B.
Preparation of high purity copper fluoride
by fluorinating copper hydroxyfluoride
LEWIS-10794 B69-10136 03
- KINSEY, M.
Computerized parts list system coordinates
engineering releases, parts control, and
manufacturing planning
NUC-10073 B67-10348 06
- KINZLER, J.
Method for reinforcing tubing joints
MSC-11108 B68-10115 05
- KIRCHNER, L. P.
Solar X-ray spectrum reproduced in vacuum
MSC-228 B67-10164 02
- KISILELSKI, W. E.
Effect of preparation procedures on
intensity of radioautographic labeling is
studied
ARG-10032 B67-10500 04
Combustion method for assay of biological
materials labeled with carbon-14 or tritium,
or double-labeled
ARG-10331 B69-10208 04
Direct in-vial collection for
liquid-scintillation assay of carbon-14
and tritium
ARG-10424 B69-10412 03
- KISPERT, R. C.
Continuous analysis of nitrogen dioxide
in gas streams of plants
ARG-10356 B69-10254 03
- KISSLER, H. R.
Mirror device aligns machine surface
perpendicular to sight lines
WOO-5 B63-10421 02
- KITTS, W. T.
Connector seals fluid lines at cryogenic
temperatures and high vacuums
GSFC-253 B64-10327 05
- KIZER, D.
Effects of surface preparation on quality
of aluminum alloy weldments
M-FS-13152 B68-10302 03
- KLASSEN, H. A.
Electronic visualization of gas bearing
behavior
LEWIS-10711 B69-10073 01
- KLEB, R.
Twin solution calorimeter determines
heats of formation of alloys at high
temperatures
ARG-10114 B68-10083 01
- KLEIN, E. L.
Semiautomatic inspection of microfilm
records
M-FS-20240 B69-10301 02
- KLEIN, P. D.
Tritiated alumina serves as reagent for
self-labeling analysis
ARG-209 B67-10315 03
Study of behavior of sterols at interfaces
ARG-10085 B68-10281 03
Novel multipurpose timer for laboratories
ARG-10147 B69-10410 01
- KLEINBERG, L. L.
Variable voltage supply uses Zener diode as
reference
GSFC-262 B65-10097 01
High-gain amplifier has excellent stability
and low power consumption
GSFC-272 B65-10138 01
Complementary monostable circuits achieve low
power drain and high reliability
GSFC-433 B66-10179 01
Microelectronic oscillator, 2
GSFC-10387 B69-10063 01
Microelectronic oscillator
GSFC-10375 B69-10064 01
- KLEPPA, O. J.
Twin solution calorimeter determines
heats of formation of alloys at high
temperatures
ARG-10114 B68-10083 01
- KLIEGEL, J. R.
Axisymmetric two-phase perfect gas
performance program
MSC-11774 B68-10374 06
One-dimensional reacting gas nonequilibrium
performance program
MSC-11777 B68-10375 06
One-dimensional two-phase reacting gas
nonequilibrium performance program
MSC-11780 B68-10376 06
Axisymmetric reacting gas nonequilibrium
performance program
MSC-11781 B68-10377 06
- KLIMA, S. J.
Fatigue cracks detected and measured without
test interruption
LEWIS-266 B66-10178 02
- KLINE, A. J.
Phase-lock loop frequency control and the
dropout problem
M-FS-13948 B68-10130 01
- KLINE, A. W., JR.
Communication system features dual mode
range acquisition plus time delay
measurement
M-FS-14323 B68-10306 01
- KLINGER, H. J.
Improved adhesive for cryogenic applications
cures at room temperature
WOO-132 B66-10185 03
- KLOPP, W. D.
Lower-cost tungsten-rhenium alloys
LEWIS-332 B66-10528 03
High-strength tungsten alloy with improved
ductility
LEWIS-10257 B67-10340 03
Improved high-temperature silicide coatings
LEWIS-10817 B69-10266 03
- KLUTH, J. T.
Portable Pulse Code Modulation /PCM/
MSC-11369 B68-10106 01
- KNIGHT, J. C.
Study of behavior of sterols at interfaces
ARG-10085 B68-10281 03
- KNIGHTON, J. B.
Magnesium-zinc reduction is effective in
preparation of metals
ARG-10050 B67-10579 03
Preparation of thorium magnesium-zinc
reduction
ARG-10245 B69-10079 03
- KNOELL, A. C.
Materials physically tested in variable-
environment chamber
JPL-789 B66-10130 01
- KNOTT, D.
Plastic molds reduce cost of encapsulating
electric cable connectors

M-FS-69	B63-10568	05	KOTORA, J., JR.	Traveling wire electrode increases productivity of Electrical Discharge Machining /EDM/ equipment	
KNOWLTON, P. H.			ARG-136		B67-10238 05
JFLIP-JPL FORTRAN language with interval pre-processor			Standard surface grinder for precision machining of thin-wall tubing		B67-10400 05
NPO-10835	B69-10187	06	ARG-10014		
KNUDSEN, I. E.			KOVALEVSKY, L.	Static structural analysis of shell-type structures	B68-10066 03
Computer program developed for flowsheet calculations and process data reduction			MSC-11555		
ARG-10134	B69-10023	06	KOZLOWSKI, F. J.	Maintainability methodology and maintenance analyses	B68-10075 05
Direct indication of particle size in fluidized beds			M-FS-14134		
ARG-10130	B69-10083	05	KRAEMER, A. R.	Improved relay optical element for spectroradiometer using cryogenically cooled detector	B68-10245 02
KOCH, L. J.			MSC-11688		
Remotely operated gripper provides vertical control rod movement			KRAITCHMAN, J.	Silicon oxide films grown in microwave discharge	B68-10171 01
ARG-10160	B68-10359	05	M-FS-14634		
KOCKS, U. F.			KRAMER, M.	Control circuit maintains unity power factor of reactive load	B66-10431 01
Possible correlation between work-hardening and fatigue-failure			MSC-192		
ARG-10371	B69-10414	03	KRAMER, P. J.	Antechamber facilitates loading and unloading of vacuum furnace	B68-10135 02
KODAT, C.			LEWIS-10265		
Solenoid permits remote control of stop watch and assures restarting			KRAMER, W. C.	Tungsten-rhenium alloy thermocouples effective for high-temperature measurement	B68-10109 03
FRC-17	B63-10024	01	ARG-10059		
KOEHLER, M. L.			Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/		B68-10368 03
Welding, brazing, and soldering handbook			ARG-10148		
M-FS-20504	B69-10264	05	KRASINSKY, J. E.	Metals plated on fluorocarbon polymers	B63-10612 03
Handbook for design of containers of fluids and gases for spacecraft			JPL-544		
M-FS-20502	B69-10279	05	KRASKA, I.	Thermal neutron image intensifier tube provides brightly visible radiographic pattern	B67-10296 02
KOELLER, F.			ARG-120		
Roll diffusion bonding of titanium alloy panels			Fiberglass container shells form contamination-free storage units		B66-10217 05
M-FS-14743	B68-10161	05	WOO-275		
KOERBER, K.			KRAUSE, F. R.	Study of hot wire techniques in low density flows with high turbulence levels	B66-10687 01
Automatic star-horizon angle measurement system			M-FS-1269		
MSC-11585	B69-10597	01	KRAUSE, H. G. L.	Theory of a refined earth model	B68-10228 02
KOLBA, V. M.			M-FS-14679		
Design of a strain-gage probe			KRAUSE, L. W.	High-pressure gas facilitates calibration of turbine flowmeters for liquid hydrogen	B68-10145 01
ARG-10338	B69-10343	05	LEWIS-10402		
KOLBER, J. M.			Venturi meter with separable diffuser		B68-10295 05
Dual photochemical replenisher system reduces chemical losses			LEWIS-10483		
KSC-67-111	B67-10485	02	A mass flux probe for measurement in a supersonic stream		B68-10533 02
KOLBLY, R. B.			LEWIS-10695		
High-power microwave power divider concept			Combination probe for airflow measurements		B68-10558 01
NPO-11031	B69-10290	01	LEWIS-10281		
Automatic frequency control of voltage-controlled oscillators			Flow direction measurement with fixed probes		B69-10714 02
NPO-11064	B69-10569	01	LEWIS-11044		
KONN, H.			KREBS, D. Q.	Magnetoresistor monitors relay performance	B66-10650 01
Computer program for optical systems ray tracing			M-FS-1754		
FRC-10017	B67-10549	06	Test instrumentation evaluates electrostatic hazards in fluid system		B67-10145 01
KOONS, W. E.			M-FS-2277		
Scoop attachment makes helicopter recoveries easier and safer			KREISHAN, W. S.	Feed-through connector withstands high temperatures in vacuum environment	B65-10328 01
MSC-130	B65-10229	05	GSFC-442		
KOPP, R. S.			Baking enables McLeod gauge to measure in ultrahigh vacuum range		B65-10329 01
Real-Time Operating System/360			GSFC-440		
MSC-12148	B69-10386	01	Cold cathode ionization gage has rigid metal housing		B66-10041 01
KOPPEL, L. E.			GSFC-445		
Computer program developed for flowsheet calculations and process data reduction					
ARG-10134	B69-10023	06			
KOPPI, R. K.					
Calibrated water tank facilitates proof-loading of cranes and derricks					
M-FS-15059	B69-10109	05			
KORKISCH, J.					
Separation of traces of metal ions from sodium matrices					
ARG-10341	B69-10168	03			
KOSMAHL, H. G.					
Calculations enable optimum design of magnetic brake					
LEWIS-251	B66-10073	05			
KOSO, D. A.					
Automatic star-horizon angle measurement system					
MSC-11585	B69-10597	01			
KOTHE, J.					
The compatible conversion system					
M-FS-15010	B69-10031	06			
KOTLER, R. A.					
Replacement of fluid-filter elements without interruption of flow					
MSC-15499	B69-10245	05			

AREJCI, H. F.		
IBM-1620 monitor 2-D disk-storage subroutines		
ARG-10376	B69-10618	01
KREJSA, M.		
Automatic cryogenic liquid level controller is safe for use near combustible substances		
LEWIS-195	B66-10482	01
KRESSIN, W. J.		
Split glass tube assures quality in electron beam brazing		
M-FS-564	B66-10151	05
KRIEGER, G. L.		
Indium adhesion provides quantitative measure of surface cleanliness		
SAN-10024	B68-10342	01
KRISTOFF, L.		
Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi		
NUC-10067	B67-10263	01
KROPP, C. J.		
Weld joint strength and mechanical properties in 2219-T81 aluminum alloy		
LEWIS-10479	B68-10561	03
KRSEK, A., JR.		
Optics used to measure torque at high rotational speeds		
LEWIS-13	B63-10338	01
Remote control thermal actuator		
LEWIS-10873	B69-10307	01
KRUGER, O. L.		
Laboratory arc furnace features interchangeable hearths		
ARG-125	B67-10052	05
Multi-feed cone for Cassegrainian antenna		
ARG-10025	B67-10484	03
Sintering characteristics and properties of PuS and PuP are determined		
ARG-10228	B69-10058	03
KRUPSKI, A. L.		
Testing the flammability of materials exposed to arcs		
MSC-15225	B69-10531	03
KUBICEK, W. B.		
New electrical plethysmograph monitors cardiac output		
MSC-11447	B68-10220	01
KUBIK, J.		
Suppressor plate eliminates undesired arcing during electron beam welding		
M-FS-1126	B66-10357	05
KUBITSCHEK, H. E.		
Method accurately measures mean particle diameters of monodisperse polystyrene latexes		
ARG-207	B67-10054	02
Internal and ancestral controls of cell-generation times		
ARG-10326	B69-10205	04
KUEHL, D. K.		
Rapid-response, light-exposure control system		
NPO-10238	B68-10502	01
KUEHNE, B. J.		
Eccentric drive mechanism is adjustable during operation		
M-FS-2576	B67-10373	05
KUHN, R. F., JR.		
Universal bellows joint restraint permits angular and offset movement		
WOO-102	B65-10371	05
High-strength braze joints between copper and steel		
M-FS-2519	B67-10211	05
KULPA, S. J.		
Spectrographic analysis of bismuth-tin eutectic alloys by spark-ignited low-voltage ac-arc excitation		
ARG-10288	B69-10081	03
KULSRUD, H. E.		
Sonic boom propagation in stratified atmosphere		
LANGLEY-10480	B69-10391	06
KUMMERFELD, K. R.		
Critical parts are stored and shipped in environmentally controlled reusable container		

M-FS-703	B66-10258	03
KUNNAMANN, W.		
Electrolytic separation of crystals of transition-metal oxides		
ARG-10506	B69-10642	03
KUNZ, R. W.		
Flexible arms provide constant force for pressure switch calibration		
HQ-38	B66-10317	05
KUBATA, F.		
Viscosity and density of methanol/water mixtures at low temperatures		
M-FS-14991	B68-10274	03
KUBINKO, C. D.		
Fatigue tester achieves true axial motion through flex plates and bars		
NU-0021	B66-10164	01
KURTZ, A. D.		
Electron beam seals outer surfaces of porous bodies		
M-FS-562	B66-10033	03
KURTZ, R. A.		
Electron beam seals outer surfaces of porous bodies		
M-FS-562	B66-10033	03
KUSTER, C. A.		
Undercoat prevents blistering of silver plating at elevated temperatures		
M-FS-2049	B67-10096	05
Electromotive series established for metals used in aerospace technology		
M-FS-18327	B68-10385	03
Corrosion protection of aluminum alloys in contact with other metals		
M-FS-18526	B69-10098	03
Improved nickel plating of Inconel X-750		
M-FS-18604	B69-10463	05
Rhodium-plated barrier against high-temperature fusion bonding		
M-FS-92155	B69-10544	05
KUZYK, W.		
Resistance thermometer has linear resistance-temperature coefficient at low temperatures		
WOO-190	B66-10612	01
KWONG, S. S.		
Computer program determines chemical composition of physical system at equilibrium		
MSC-1119	B66-10670	01
KYLE, M. L.		
Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys		
ARG-199	B66-10594	03
Titanium-nitrogen reaction investigated for application to gettering systems		
ARG-10208	B68-10414	03
Two systems developed for purifying inert atmospheres		
ARG-10234	B69-10026	03
L		
LABARTHE, L. C.		
Electrometer preamplifier has drift correction feedback		
JPL-SC-074	B65-10267	01
LABES, M.		
Production of crystalline polymers via liquid crystal monomers		
HQ-10235	B69-10744	03
LACCHIA, J. P.		
Modular packaging technique for combining integrated circuits and discrete components		
GSFC-10369	B69-10453	01
LADAKI, M.		
Cure of epoxy resins determined by simple tests		
M-FS-13131	B68-10043	03
LAIRD, A. K.		
Compound equation developed for postnatal growth of birds and mammals		
ARG-10192	B68-10427	04
LALACONA, F. P.		
Diffusion bond method of joining steel and a TFE-bronze composite		
M-FS-20482	B69-10237	03
LALLI, V. R.		
Pyrotechnic device provides one-shot		

heat source			
LEWIS-10131	B68-10062	03	
LAHAR, J. E.			
Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds			
LANGLEY-10191	B67-10666	06	
Modified Multhopp mean camber computer program			
LANGLEY-10376	B68-10446	06	
Modified Multhopp lifting surface loading program			
LANGLEY-10375	B68-10452	06	
LAMB, J. N.			
Electron beam welding of copper-Monel facilitated by circular magnetic shields			
M-FS-569	B66-10215	05	
LANBERMEYER, D. J.			
Plastic shoe facilitates ultrasonic inspection of thin wall metal tubing			
NUC-10010	B67-10542	02	
LANOTHE, R.			
Nondispersive X-ray emission analysis for geochemical exploration			
GSFC-10568	B69-10011	02	
LAMPERT, H. M.			
Technique for assessing potential fire hazards			
HQ-10279	B69-10287	03	
LANVERMEYER, D. J.			
Soft metal plating enables hard metal seal to operate successfully in low temperature, high pressure environment			
NUC-10083	B67-10350	03	
LANDAUER, F. P.			
TV synchronization system features stability and noise immunity			
JPL-915	B67-10118	01	
LANDEL, R. F.			
Process for preparing dispersions of alkali metals			
JPL-734	B66-10639	03	
Static electricity of polymers reduced by treatment with iodine			
NPO-10062	B67-10132	03	
LANDES, R. E.			
Analysis of filament reinforced metal-shell pressure vessels			
LEWIS-10352	B68-10405	06	
LANDY, D. G.			
Closed loop operation eliminates need for auxiliary gas in high pressure pumping station			
M-FS-893	B66-10408	05	
LANG, E. J.			
Pressure-control purge panel for automatic butt welding			
M-FS-18465	B69-10403	05	
LANG, E. R.			
Tool provides constant purge during tube welding			
M-FS-547	B66-10093	05	
LANG, K. T.			
Precision CW laser automatic tracking system investigated			
M-FS-1606	B66-10629	01	
LANGDON, W. M.			
System automatically supplies precise analytical samples of high-pressure gases			
M-FS-1814	B67-10090	01	
LANGE, O. H.			
Development of detonation reaction engine			
M-FS-14020	B67-10652	01	
Continuous detonation reaction engine			
M-FS-14019	B68-10034	03	
LANIEWSKI, J. P.			
Diffusion bonding makes strong seal at flanged connector			
M-FS-637	B66-10250	05	
LANKFOED, H.			
Keyed plugs and sockets prevent improper connections			
MSC-231	B65-10381	01	
LANTZ, P. A.			
Shortened horn-reflector antenna			
GSFC-502	B67-10017	01	
LANZO, C. D.			
Internal cooling increases range of immersion-type temperature probe			
LEWIS-171	B65-10157	02	
LAPINSKI, N. P.			
Shortened processing time technique for color industrial radiography			
ARG-10235	B69-10001	02	
LARKIN, B. D.			
Binary fluid amplifier solves stability and load problems			
ERC-15	B66-10177	01	
LARNER, J. W.			
Ellipsoidal optical reflectors reproduced by electroforming			
GSFC-92	B63-10547	05	
Lathe converted for grinding aspheric surfaces			
GSFC-115	B63-10556	05	
LARSEN, R. N.			
Pulse stretcher has improved dynamic range and linearity			
ARG-82	B66-10509	01	
Transistor biased amplifier minimizes diode discriminator threshold attenuation			
ARG-163	B67-10311	01	
Tunnel diode circuit used as nanosecond-range time marker			
ARG-90164	B68-10173	01	
High resolution Ge/Li/ spectrometer reduces rate-dependent distortions at high counting rates			
ARG-10144	B68-10420	01	
Current-switching technique for analog pulse circuits			
ARG-10479	B69-10445	01	
Manganese-56 coincidence-counting facility precisely measures neutron-source strength			
ARG-90261	B69-10621	01	
Pulse-height defect due to electron interaction in dead layers of Ge/Li/ gamma-ray detectors			
ARG-10362	B69-10767	02	
LARSON, A. V.			
Fast-acting calorimeter measures heat output of plasma gun accelerator			
LEWIS-388	B67-10192	01	
Ferromagnetic core valve gives rapid action on minimum energy			
LEWIS-10135	B67-10623	05	
Eddy current disk valve			
LEWIS-10123	B67-10638	05	
LARSON, E. W.			
Honeycomb seal backing ring increases turbopump disk life			
M-FS-13303	B67-10607	05	
LARSON, L. L.			
Single-element coaxial injector for rocket fuel			
NPO-11095	B69-10547	05	
LARSON, M. S.			
A calibration means for spectrum analyzers			
MSC-10987	B67-10254	01	
LARSON, R. E.			
Study of hot wire techniques in low density flows with high turbulence levels			
M-FS-1269	B66-10687	01	
LARSON, R. W.			
Food products for space applications			
MSC-11697	B68-10324	04	
LARSON, W. J.			
Monte Carlo simulation by computer for life-cycle costing			
M-FS-14754	B69-10590	05	
LARSEN, P. A.			
Microprobe investigation of brittle segregates in aluminum MIG and TIG welds			
M-FS-14720	B68-10334	03	
LASUK, S. R.			
Training course for radiation safety technicians			
ARG-216	B67-10477	02	
LAUB, J. E.			
Slit feeds reduce unbalanced torques in gas-lubricated bearings			
JPL-264	B65-10099	05	
LAUB, J. L.			
Elastic orifice automatically regulates gas bearings			
JPL-135	B63-10123	05	
LAUE, E. G.			
Fresnel cup reflector directs maximum energy from light source			

JPL-424	B63-10263	03	LE VAY, K. H.	Improved holder protects crystal during high acceleration and impact		
Small digital recording head has parallel bit channels, minimizes cross talk			JPL-463		B65-10037	05
JPL-0029	B63-10284	01	LEATHERWOOD, J. D.	Improved active vibration isolator		
LAUGHLIN, C. R., JR.			LANGLEY-10106		B68-10123	05
Diversity RF receiving system with improved phase-lock characteristics			LEAVENWORTH, H. W., JR.	Magnesium-lithium alloys developed for low temperature use		
IGS-01222	E68-10068	01	M-PS-1541		B67-10365	03
LAUGHLIN, J. C.			LEBDUSKA, R. L.	Epitaxial crystalline growth upon cold substrates		
Heated die facilitates tungsten forming			MSC-11196		B69-10494	01
LEWIS-25A	B66-10047	05	LEE, A. Y.	Computer program MCAP-TOSS calculates steady-state fluid dynamics of coolant in parallel channels and temperature distribution in surrounding heat-generating solid		
LAUMANN, E. A.			NUC-10042		B67-10456	06
Simple transducer measures low heat-transfer rates			Computer program TRACK performs transient and/or steady state thermal analysis with coupled fluid flow and heat conduction			
JPL-466	E64-10122	01	NUC-10189		B68-10450	06
LAUVER, R. R.			LEE, G. H.	Uranium isotopes quantitatively determined by modified method of atomic absorption spectrophotometry		
System measures response time of photomultiplier tubes			ARG-210		B67-10236	03
LEWIS-10437	B68-10382	01	LEE, K.	Studies of cycles for liquid-metal magnetohydrodynamic generation of power		
LAUVER, R. E.			ARG-10250		B69-10194	02
Microphone multiplex system provides multiple outlets from single source			LEE, P.	Nonreciprocal gain control for ring laser		
GSFC-426	B66-10308	01	M-PS-14041		B67-10653	02
LAVERDER, C. E.			LEE, R. C.	Fully automatic telemetry data processor		
Knob linkage permits one-hand control of several operations			GSFC-10576		B68-10336	01
MSC-30	B65-10022	05	LEE, R. D.	Remotely-actuated biomedical switch		
LAVERDER, D. E.			ARC-10105		B69-10117	01
Independent doubly truncated gamma variables			LEE, R. H.	Study made of corrosion resistance of stainless steel and nickel alloys in nuclear reactor superheaters		
M-PS-20143	B68-10345	02	ARG-230		B67-10051	03
LAVERICK, C.			LEE, S. Y.	Shock and vibration response of multistage structure		
Rectangular configuration improves superconducting cable			M-PS-14972		B68-10353	05
ARG-90088	B68-10098	02	Mass loading effects on vibrated ring and shell structures			
LAVERY, J. L.			M-PS-14979		B68-10532	03
Depth indicator and stop aid machining to precise tolerances			LEE, W. B.	Study made of Raney nickel technology		
M-PS-553	B66-10149	05	M-PS-2054		B67-10208	03
LAVERY, A. L.			LEE, W. S.	Method for reinforcing tubing joints		
Nosepiece respiration monitor			MSC-11108		B68-10115	05
ERC-10136	B68-10438	01	LEFEVRE, J. C.	Computer program simplifies design of rotating components of turbomachinery		
LAVIGNE, R. C.			NUC-10046		B67-10235	06
Variable voltage supply uses Zener diode as reference			LEGAULT, R. A.	Electrochemical study of aluminum corrosion in boiling high purity water		
GSFC-262	B65-10097	01	ARG-10306		B69-10033	03
Complementary monostable circuits achieve low power drain and high reliability			LEGER, L. J.	Heat-shrinkable jacket holds fluid in contact with tensile test specimen		
GSFC-433	B66-10179	01	MSC-13195		B69-10495	05
LAWRENCE, E. D.			LEHNER, F. E.	Seismometer designed for remote operation in random orientation		
An efficient, temperature-compensated subcarrier oscillator			JPL-320		B66-10085	01
JPL-SC-091	B67-10251	01	LEHRER, S.	Piezoelectric linear actuator		
LAWSON, C.			MSC-13194		B69-10469	02
Computer program utilizes FORTRAN 4 subroutines for contour plotting			LEIBECKI, H. F.	Refractory-metal compound impregnation of polytetrafluoroethylene		
NPO-10127	B67-10323	06	LEWIS-10733		B69-10072	03
LAWSON, D. D.			LEIDY, R. A.	Heated die facilitates tungsten forming		
Isostatic compression process converts polyaromatics into structural material			LEWIS-25A		B66-10047	05
JPL-892	B67-10168	03				
LAWSON, J. R.						
Improved gas ring laser						
MSC-11584	B68-10304	02				
High-speed pulse camera						
MSC-11353	B68-10329	02				
Ring laser angle encoder						
MSC-13099	B69-10115	01				
LAYMAN, W. E.						
Lightweight load support serves as vibration damper						
JPL-661	B65-10144	05				
LAYTON, J. P.						
Special mount improves remote transducer accuracy						
LEWIS-269	B66-10021	01				
LAZAR, L.						
Foil bearing support for high-speed rotor						
HQ-10315	B69-10661	05				
LAZARIDIS, L. J.						
Bypass rod transfers heat developed in thermionic diode						
JPL-SC-136	B66-10303	05				
LE BUIS, D.						
Foot-operated cell-counter						
ARG-10315	B69-10351	01				
LE DOUX, F. N.						
Bacteriostatic conformal coating for electronic components						
GSFC-10007	B67-10599	03				

LEIGH, J. D. Electroplating eliminates gas leakage in brazed areas M-FS-923	B66-10415	05	
LEIPOLD, M. H. Removable preheater elements improve oxide induction furnace JPL-288	B63-10193	01	
LEISS, A. Device measures fluid drag on test vehicles LANGLEY-34	B65-10195	01	
LEJK, R. A. Probabilistic approach to long range planning of manpower MSC-11524	B67-10510	06	
LEMONS, C. R. Flowmeter determines mix ratio for viscous adhesives M-FS-2308	B67-10378	01	
LEON, H. J. Multiple test tubes stirred mechanically ABC-42	B65-10120	01	
LEONARD, K. Device measures reaction engine thrust vector deviations JPL-SC-163	B66-10642	05	
LEONARD, W. F. Microwave technique measures plasma characteristics LANGLEY-134	B65-10122	02	
LEONARDI, S. J. Nozzles for size reclassification of microfog particles LEWIS-10705	B69-10076	05	
LEPPLA, F. E. ABTRAJ on-site tracking prediction program NPO-10836	B69-10103	06	
LERNER, S. R. Cobalt improves nickel hydroxide electrodes for batteries LEWIS-10760	B69-10228	01	
LESCO, D. J. Fatigue cracks detected and measured without test interruption LEWIS-266	B66-10178	02	
LESSMANN, G. G. Tube-to-header joint for bimetallic construction LEWIS-10282	B67-10464	05	
	Improved torch increases weld quality in refractory metals LEWIS-324	B68-10041	05
LESSOFF, H. Adding calcium improves lithium ferrite core ERC-10036	B69-10686	06	
LEVERONE, H. PTC thermistor protects multiloaded power supplies GSFC-236	B64-10281	01	
	Automatic solar lamp intensity control system XGS-10017	B68-10399	01
LEVIN, B. P. Ultraviolet photographic pyrometer used in rocket exhaust analysis M-FS-499	B66-10095	02	
LEVINE, F. Shortened procedure for obtaining reproducible copies of 35 mm color slides KSC-09957	B68-10560	02	
LEVINE, H. H. Synthesis of polyethers of hexafluorobenzene and hexafluoropentanediol M-FS-14962	B69-10636	03	
LEVINE, M. Automatic tuning of hydrogen masers GSFC-10127	B69-10452	01	
LEVINE, P. J. Test system accurately determines tensile properties of irradiated metals at cryogenic temperatures NUC-10521	B67-10617	02	
LEVINSON, M. Ellipsoidal optical reflectors reproduced by electroforming GSFC-92	B63-10547	05	
	Lathe converted for grinding aspheric surfaces GSFC-115	B63-10556	05
LEVINSON, C. Fixture tests bellows reliability through repetitive pressure/temperature cycling MSC-1176	B67-10111	01	
LEVITAN, J. Studies in zirconium oxidation ARG-10099	B68-10199	03	
LEVITZ, N. M. Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels ARG-232	B67-10032	03	
	Automatic filter-blowback systems used with sintered-metal filters ARG-10324	B69-10342	05
LEVOE, C. Method of welding joint in closed vessel improves quality of seam JPL-170	B63-10139	05	
LEVY, G. S. Data processing method for a weak, moving telemetry signal NPO-11003	B69-10639	01	
LEWALLEN, J. M. Trajectory optimization using regularized variables MSC-13370	B69-10810	02	
LEWANDOWSKI, K. Properties of air and combustion products of fuels with air LEWIS-11030	B69-10711	03	
LEWICKI, G. W. Development of Curie point switching for thin film, random access, memory device NPO-10402	B67-10633	02	
LEWIS, C. E., JR. Electrocardiograph transmitted by RF and telephone links in emergency situations FRC-10031	B68-10233	01	
LEWIS, D. R. CINDA - Chrysler Improved Numerical Differencing Analyzer computer program M-FS-2298	B67-10278	06	
LEWIS, E. B. Planetary camera control improves microfiche production HQ-1	B65-10313	01	
LEWIS, J. C. Preformed stiffeners used to fabricate structural components for pressurized tanks M-FS-1796	B66-10688	05	
LEWIS, R. M. High voltage potential divider calibrated by simple device ARG-83	B66-10497	01	
	Precision capacitor has improved temperature and operational stability ARG-189	B67-10313	01
	Transistorized Marx bank pulse circuit provides voltage multiplication with nanosecond rise-time ARG-10110	B68-10328	01
	Flexible high-voltage supply for experimental electron microscope ARG-10482	B69-10603	01
LIBBY, J. M. Ring counter may be advanced or retarded by command signal GSFC-101	B64-10144	01	
LIBEROTTI, J. Control for maintaining constant level of a cryogenic liquid NPO-11177	B69-10573	05	
LIBERTONE, C. Modified drill permits one-step drilling operation M-FS-559	B66-10169	05	
LIEB, D. P. Collector/collector guard ring balancing circuit eliminates edge effects JPL-SC-143	B66-10563	01	
LIEB, J. H. Evaluation of a fluorocarbon plastic used in cryogenic valve seals M-FS-18189	B68-10523	03	
LIEBING, L. Fast-acting calorimeter measures heat output			

- of plasma gun accelerator
LEWIS-388 B67-10192 01
- LIEN, D. R.
Conversion of continuous-direct-current
TIG welder to pulse-arc operation
M-FS-16411 B69-10393 05
- LILEY, B.
Water-glycol system volume calculation
MSC-15193 B69-10563 02
- LILIENTHAL, P. A.
Torsion system for creep testing with
multiple stress reversals
HQ-10039 B69-10147 03
- LIN, H. C.
Integrated circuit with multiple collector
current source
M-FS-20177 B69-10126 01
- LIND, D. L.
Multiaxial analyzer detects low-energy
electrons
GSFC-329 B65-10213 01
- LINDBERG, J.
Improved head-controlled TV system produces
high-quality remote image
ARG-128 B67-10317 01
- LINDBERG, J. G.
Control system maintains compartment at
constant temperature
JPL-SC-145 B66-10188 05
- LINDENMEYER, C. W.
Laser measuring system accurately locates
point coordinates on photograph
ARG-74 B66-10560 02
- LINDFORS, J. A.
Flow ring valve is simple, quick-acting
M-FS-752 B66-10255 05
- LINDGREN, A. R.
Inexpensive insulation is effective for
cryogenic transfer lines
MSC-618 B66-10348 02
- Temperature-sensed cryogenic bleed maintains
liquid state in transfer line
M-FS-12681 B67-10424 01
- LINDHOLM, I.
Mass transport mechanism in porous fuel cell
electrodes
HQ-10343 B69-10135 01
- LINDSEY, J. F., III
Astronaut space suit communication antenna
MSC-12101 B68-10238 01
- LINDSEY, W. F.
Exposure Value /EV/ system expanded to
include filter factors and transmittance
LANGLEY-190 B66-10602 02
- Stereo photomacrography system
LANGLEY-10176 B68-10141 01
- LINN, C. C.
Self-aligning fixture used in lathe chuck jaw
refacing
FRC-21 B65-10198 05
- LINNEKIN, J. S.
Computer routine adds plotting capabilities
to existing programs
GSFC-490 B66-10511 01
- LIPIN, R.
Measurement technique for the determination
of antenna directivity
M-FS-12799 B69-10677 01
- LIPONA, P. C.
System converts slow-scan to standard
fast-scan TV signals
MSC-90534 B69-10748 01
- LIPPITT, M. W.
Improved electrode gives high-quality
biological recordings
MSC-17 B64-10025 04
- Device induces lungs to maintain known
constant pressure
MSC-50 B64-10108 04
- Improved cure method for single component
silicone rubber
MSC-12230 B69-10749 03
- LIPSCOMB, W. G.
Coaxial cable stripper for confined areas
KSC-10167 B68-10444 05
- LISAGOR, W. B.
Glass bead shot peening retards stress
corrosion failure of titanium tanks
LANGLEY-319 B67-10198 05
- LISTER, J. L.
Thermally conducting electron transfer
polymers
GSFC-10703 B69-10511 03
- LISTER, L. R.
High-efficiency step-up regulator
M-FS-20049 B68-10432 01
- LITANT, I.
Improved method of dicing integrated circuit
wafers into chips
ERC-10138 B69-10441 01
- LIU, L. S.
Analysis of stability-critical orthotropic
cylinders subjected to axial compression
M-FS-12869 B67-10375 03
- LIYES, J. G.
Shock and vibration response of multistage
structure
M-FS-14972 B68-10353 05
- LOBELL, G.
Rectangular configuration improves
superconducting cable
ARG-90088 B68-10098 02
- LOCKE, J. N.
Lead plated aluminum ring provides static
high pressure seal for large diameter
pressure vessel
NUC-10008 B67-10539 05
- LOCKS, M. O.
Exact minimal-state system reliability
analysis
M-FS-16551 B69-10409 06
- LOCKWOOD, J. A.
Improved pulse shape discriminator for fast
neutron-gamma ray detection system
HQ-10151 B69-10481 01
- LOEB, M. B.
Study made of pneumatic high pressure piping
materials /10,000 psi/
KSC-10133 B67-10437 03
- Handbook of cryogenic data in graphic form
KSC-10009 B67-10610 02
- LOESS, R. E.
Study of corrosion of 1100 aluminum
ARG-10045 B67-10578 03
- Study of crevice-galvanic corrosion of
aluminum
ARG-10013 B67-10583 03
- Instrumentation for potentiostatic corrosion
studies with distilled water
ARG-10409 B69-10413 03
- LOFTUS, W. D.
Electronic circuit provides accurate
sensing and control of dc voltage
NU-0089 B66-10591 01
- LOGSDON, T. S.
Algebraic Monte Carlo procedure reduces
statistical analysis time and cost factors
M-FS-1887 B67-10434 01
- LOGUE, S. H.
Laser interferometer micrometer system
M-FS-14747 B69-10633 02
- LOGUE, S. S.
System converts optical phase changes to
RF phase changes
M-FS-20091 B68-10430 01
- LOHR, J. J.
Mechanical properties of plastics
predetermined by empirical method
ARC-28 B64-10068 03
- Concept for design of variable stiffness
damper
ARC-11225 B67-10483 05
- LOKERSON, D. C.
MOSFET improves performance of power
supply regulator
GSFC-10022 B67-10569 01
- Linear voltage-to-frequency converter
GSFC-10546 B69-10220 01
- LONBORG, J. O.
Simple control device senses solar position
JPL-638 B65-10061 01
- Electrostatically driven dynamic capacitor
employs capacitive feedback
JPL-771 B65-10293 01
- LONG, E. J. R.
Safety switch permits emergency bridge crane
shutdown
M-FS-549 B66-10168 05

LONG, L. E.	Nosepiece respiration monitor ERC-10136	B68-10438	01	NU-0057	B66-10279	05
LONGNECKER, A.	Electronic gating circuit and ultraviolet laser excitation permit improved dosimeter sensitivity ARG-10109	B68-10077	02	LOY, R. E.	Determination of permissible applied load stress in structural elements M-FS-16556	B69-10823 02
LONGO, S. E.	Concept for using laser beams to measure electron density in plasmas M-FS-965	B66-10645	01	LOYD, J. R.	Substituting gold for silver improves electrical connections M-FS-2390	B67-10228 03
LOOK, G. F.	Organic reactants rapidly produce plastic foam LANGLEY-37	B65-10288	03		Thin film heat transfer gage is stable at higher temperatures M-FS-12396	B68-10051 01
LORENZEN, H. C.	Chemical milling solution produces smooth surface finish on aluminum MSC-549	B66-10312	03	LUBERACKI, W.	Digital computer program predicts effects of local pressure transients on deformation and stresses in cylindrical ducts M-FS-13058	B67-10631 06
LORENZO, C. P.	Computer program determines system stability /DIGSTA/ LEWIS-10395	B68-10216	06	LUBOWITZ, H. R.	New class of thermosetting plastics has improved strength, thermal and chemical stability LEWIS-10108	B67-10197 03
	Symbolic reduction of block diagrams using FORMAC LEWIS-10409	B68-10423	06		New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability LEWIS-10576	B69-10118 03
LORY, C. B.	Compensation of pulse-rebalanced inertial instruments MSC-13098	B69-10216	01	LUCAS, E.	Evaluation of superconducting magnets, a study M-FS-14808	B68-10396 02
LOSELE, W. A.	Detecting hydrogen-containing contaminants on metal surfaces M-FS-20456	B69-10192	03	LUCKS, H.	Beam profiles measured with thermoluminescent dosimeters ARG-10229	B69-10024 02
LOTHSCHUETZ, F. X.	Orthopedic stretcher with average-sized person can pass through 18-inch opening M-FS-811	B66-10573	05	LUCY, R. P.	Optical superheterodyne receiver uses laser for local oscillator M-FS-1605	B66-10584 01
LOTT, S. K.	Reaction of steam with molybdenum is studied ARG-295	B67-10502	03		Precision CW laser automatic tracking system investigated M-FS-1606	B66-10629 01
	Reaction studied of steam with niobium and tantalum ARG-10051	B68-10189	03	LUDWIG, A.	Computer programs for antenna feed system design and analysis NPO-10359	B67-10504 06
LOVE, E. G.	Meter accurately measures flow of low-conductivity fluids JPL-0021	B63-10280	01		Computer program aids dual reflector antenna system design NPO-10501	B68-10139 06
LOVE, T. H.	Shoulder adapter steadies spot welding gun M-FS-321	B66-10076	05	LUDWIG, C. B.	Prediction of thermal radiation from a rocket's exhaust plume M-FS-20414	B69-10371 02
LOVELADY, R. W.	System locates randomly placed remote objects LANGLEY-209	B66-10315	01	LUDWIG, L. P.	Spiral-grooved shaft seals substantially reduce leakage and wear LEWIS-10397	B68-10270 05
LOVING, D. K.	Oil-smeared models aid wind tunnel measurements LANGLEY-4	B63-10311	03		Hermetically sealed pump LEWIS-10837	B69-10320 05
LOVITT, T. F.	Electropneumatic transducer automatically limits motor current LEWIS-253	B66-10160	01	LUEBBERS, S. S.	Thermionic diode switching has high temperature application NPO-10404	B67-10672 01
LOVOY, C. V.	Heat treatment study of aluminum casting alloy M-45 M-FS-2397	B67-10159	03	LUI, K.	Mixed ether bath for electrodeposition of aluminum LANGLEY-10200	B69-10737 03
	Stress-corrosion characteristics of aluminum casting alloy M-45 M-FS-14817	B68-10184	03	LUKE, H. P.	Weight Control System M-FS-15028	B69-10041 06
LOWDER, R. S.	Gas-injection valve operates at high speed HQ-49	B66-10381	05	LUM, J. Y.	Soldering iron temperature is automatically reduced ARC-57	B66-10203 01
LOWDERMILK, W. H.	Rotating magnetic poles used to pump mercury LEWIS-276	B66-10434	05	LUNDQUIST, J. R.	Preparation of high purity copper fluoride by fluorinating copper hydroxyfluoride LEWIS-10794	B69-10136 03
LOWE, E. H.	Opaque microfiche masthead permits easy reading HQ-7	B65-10306	01	LUNDY, C.	Emission tester for high-power vacuum tubes JPL-628	B64-10158 01
LOWRIE, A. R.	Study of fast response thermocouple measurement of temperatures in cryogenic gases M-FS-1659	B66-10661	01	LUOMA, W. L.	High-emittance coatings on metal substrates LEWIS-10325	B68-10381 03
LOY, J. L.	Magnetic latches provide positive overpressure control			LUSBAUGH, W. A.	Improved circuit minimizes generation time of pseudonoise check bits JPL-698	B65-10275 01
				LUSBY, T. K., JR.	Handtool facilitates extraction of circuit	

- modules
 LANGLEY-38 B65-10231 05
 LUSHBAUGH, W. A.
 Logic realization of simple majority voting
 connectives
 JPL-727 B67-10511 06
 LUSIC, R. F.
 Bellows design features low spring rate and
 long life
 MSC-521 B66-10190 05
 LUTZ, E. B.
 Operational integrator
 NPO-10230 B68-10547 01
 LYLE, G. C.
 A computer program for a line-by-line
 calculation of spectra from diatomic
 molecules and atoms assuming a Voigt
 line profile
 ARC-10221 B69-10232 06
 LYNCH, E. D.
 Glassy materials investigated for nuclear
 reactor applications
 ARG-10075 B68-10103 03
 LYNCH, J. W.
 New anemometer has fast response, measures
 dynamic pressure directly
 LANGLEY-28 B63-10530 05
 LYNCH, R. J.
 Solid-state time-to-pulse-height converter
 developed
 ARG-170 B67-10053 01
 LYNN, E. K.
 Experiments with ceramic coatings
 M-FS-18150 B68-10355 03
 LYNNWORTH, L. C.
 Ultrasonic temperature measuring device
 LEWIS-10446 B68-10319 01
 LYON, R. H.
 Study made of interaction between sound
 fields and structural vibrations
 HQ-26 B67-10068 02
 LYSYJ, I.
 Analytical technique characterizes all
 trace contaminants in water
 MSC-11032 B67-10243 03
 LYTLE, W. J.
 Method of improving contact bonds in
 silicon integrated circuits
 M-FS-1753 B67-10335 01
- M**
- MAASBERG, W. A.
 Self-correcting, synchronizing ring counter
 using integrated circuit devices
 M-FS-13901 B68-10067 01
 MAC DONALD, J. A.
 Development of mechanized ultrasonic
 scanning system
 M-FS-13638 B68-10004 05
 MAC DOWALL, J.
 Discrimination of fish oil and mineral
 oil slicks on sea water
 HQ-10412 B69-10673 01
 MAC FADDEN, J. A.
 Rotating mandrel speeds assembly of plastic
 inflatables
 LANGLEY-155 B66-10137 05
 MAC GLASHAN, W. F.
 Vented piston seal prevents fluid leakage
 between two chambers
 JPL-179 B63-10141 05
 High-pressure regulating system prevents
 pressure surges
 JPL-231 B63-10170 05
 Packless valve with all-metal seal handles
 wide temperature, pressure range
 JPL-361 B63-10228 05
 Filter for high-pressure gases has easy take-
 down, assembly
 JPL-373 B63-10234 03
 New package for Belleville spring permits
 rate change, easy disassembly
 JPL-392 B63-10247 05
 Valve designed with elastic seat
 JPL-447 B65-10040 05
 Improved fluid control valve extends diaphragm
 life
 JPL-345 B65-10147 05
- Tensile-strength apparatus applies high
 strain-rate loading with minimum shock
 JPL-28 B66-10063 05
- MAC NAUGHTON, F. G.
 Remote preamplifier circuit maintains
 stability over wide temperature range
 WOO-278 B66-10432 01
 MACEK, W. M.
 Neon isotopes cancel errors in gas laser
 M-FS-1476 B66-10583 02
 MACIAS, E. S.
 Daughter growth in freshly separated
 Ra-226, Ac-227 and U-232
 ARG-10226 B69-10003 02
 MACINKO, J.
 Instrument continuously measures density
 of flowing fluids
 LEWIS-309 B67-10080 01
 MACK, M.
 Specimen holder design improves accuracy
 of X-ray powder analysis
 JPL-SC-165 B66-10075 02
 MACKAY, T. L.
 Flame sprayed dielectric coatings improve
 heat dissipation in electronic packaging
 M-FS-13569 B67-10534 01
 MACEY, R. T., SR.
 Numerical Control Machine Data Manual
 M-FS-14342 B68-10080 05
 MAGURA, P.
 Simplified fixture permits precision
 alignment of an optical target
 M-FS-1181 B66-10556 01
 MAHON, J. C.
 Suppressor plate eliminates undesired arcing
 during electron beam welding
 M-FS-1126 B66-10357 05
 MAHUGH, R. A.
 Glow discharge density sensor probe life is
 extended
 M-FS-1707 B67-10229 01
 MAIER, H.
 Vacuum test fixture improves leakage rate
 measurements
 MSC-271 B66-10286 01
 MAJESKI, S. J.
 Quick-closing valve is actuated by explosive
 discharge
 ARC-55 B66-10233 05
 MAJNERI, L. A.
 Automatic fluid separator supplies own driving
 power
 WOO-085 B66-10008 02
 MALEY, W. E.
 Adjustable hinge permits movement of knee
 in plaster cast
 M-FS-1756 B67-10056 04
 MALIK, D. F.
 New method for critical failure prediction
 of complex systems
 M-FS-14133 B68-10252 02
 MALIK, W. M.
 Blood oxygen saturation determined by
 transmission spectrophotometry of
 hemolyzed blood samples
 MSC-11018 B67-10252 04
 Improved sample capsule for determination
 of oxygen in hemolyzed blood
 MSC-11017 B67-10408 04
 MALIN, C. O.
 Controlled ferrite content improves
 weldability of corrosion-resistant steel
 M-FS-568 B67-10069 03
 Tensile and fatigue properties of Inconel
 718 at cryogenic temperatures
 M-FS-18192 B69-10068 03
 Manual of typical low temperature
 mechanical properties of several materials
 M-FS-18331 B69-10179 03
 MALLING, L. R.
 Design concept for improved photo-scan tube
 JPL-818 B67-10157 01
 MALIN, J. G.
 Xenon forms stable compound with fluorine
 ARG-4 B66-10467 03
 Pure xenon hexafluoride prepared for thermal
 properties studies
 ARG-10056 B67-10577 03

MANATT, S. L.
An improved nuclear magnetic resonance spectrometer
JPL-762 B67-10234 01

MANDEL, J. A.
Nylon shock absorber prevents injury to parachute jumpers
MSC-226 B66-10080 05

MANDELES, S.
Large volume continuous counterflow dialyzer has high efficiency
HQ-10055 B67-10395 04

MANDELL, N.
PTC thermistor protects multiloaded power supplies
GSFC-236 B64-10281 01
Automatic solar lamp intensity control system
XGS-10017 B68-10399 01

MANDY, J.
The compatible conversion system
M-FS-15010 B69-10031 06

MANGUS, J.
Selective vignetting of Type 1 X-ray telescopes
GSFC-10682 B69-10075 02

MANKOVITZ, R. J.
Circuit exhibits power efficiency greater than 75 percent
MSC-254 B66-10034 01
Computer program simulates physical systems by solving the simultaneous differential equations describing the systems
NPO-10019 B67-10193 06

MANN, H. M.
High resolution Ge/Li/ spectrometer reduces rate-dependent distortions at high counting rates
ARG-10144 B68-10420 01

MANNING, C. R.
Glass bead shot peening retards stress corrosion failure of titanium tanks
LANGLEY-319 B67-10198 05

MANNING, R. C., JR.
Thoriated nickel bonded by solid-state diffusion method
LANGLEY-116 B65-10220 03

MAPLE, W. E.
Apparatus enables accurate determination of alkali oxides in alkali metals
LEWIS-256 B66-10296 03

MAPLES, H. G.
Light-intensity modulator withstands high heat fluxes
MSC-246 B66-10532 02

MARCOWITZ, S. M.
Beam profiles measured with thermoluminescent dosimeters
ARG-10229 B69-10024 02

MARGASON, R. J.
Computer program calculates wing aerodynamic characteristics for fixed wings with dihedral and variable-sweep wings at subsonic speeds
LANGLEY-10191 B67-10666 06

MARIMAN, B. A.
Positive displacement cylinder measures corrosive liquid volume
MSC-1038 B66-10589 05

MARION, C. W.
High transients suppressed in electromagnetic devices
KSC-66-13 B67-10031 01

MARIS, S. J.
Logic system aids in evaluation of project readiness
MSC-753 B66-10457 05

MARKLE, D. A.
A new method for producing optical mirrors
HQ-10227 B69-10529 02
Airborne Fraunhofer Line Discriminator
MSC-13146 B69-10594 02

MARKLEY, F. W.
Epoxy resins produce improved plastic scintillators
ARG-241 B67-10596 03

MARKOWITZ, I. N.
Circuit increases capability of hysteresis synchronous motor
MSC-1080 B67-10084 01

MARLEY, J.
Leads integral with the internal interconnection that penetrate the molded wall of a package
LANGLEY-10228 B69-10436 01

MAROPIS, N.
Ultrasonic wrench produces leaktight connections
M-FS-12561 B67-10353 05

MARRINER, G. E.
Binary counter accumulates time by complementary preset
MSC-242 B65-10399 01

MARSH, H. W.
Pressure responsive seal handles static and dynamic loads
GSFC-441 B65-10327 05

MARSHALL, J. H.
Field effect transistor presents high input impedance in ac amplifier
JPL-500 B65-10232 01

MARSHALL, T. C.
Semiautomatic device tests components with biaxial leads
MSC-516 B66-10337 03

MARSIK, S. J.
Production of metals and compounds by radiation chemistry
LEWIS-10231 B69-10123 03

MARTENSON, A. J.
Pressure-welded flange assembly provides leaktight seal at reduced bolt loads
M-FS-640 B66-10247 05

MARTIN, C. T.
Conditioning of pulses from aerosol-particle detectors
ERC-10250 B69-10691 01

MARTIN, D. C.
Welding of commercial base plates is investigated
M-FS-13649 B68-10192 03

MARTIN, G.
Nondestructive testing techniques used in analysis of honeycomb structure bond strength
M-FS-1214 B67-10574 01
Instrumentation for nondestructive testing of composite honeycomb materials
M-FS-20405 B69-10366 03

MARTIN, K. B.
Cryogenic seal remains leaktight during thermal displacement
ARG-96 B67-10134 02

MARTIN, N. C.
Novel clamps align large rocket cases, eliminate back-up bars
M-FS-1 B63-10376 05

MARTIN, R. H., JR.
Solution of differential equations by application of transformation groups
M-FS-14802 B68-10276 02

MARTIN, W. H.
Life detection
NPO-10510 B69-10475 04

MARTINAGE, L. H.
Control circuit maintains unity power factor of reactive load
MSC-192 B66-10431 01

MARTINECK, H. G.
Contact-spring forming machine for flat conductor cable receptacles
M-FS-20126 B68-10550 05

MARTINEZ, J. S.
Inexpensive check valve is installed in standard AN fittings
JPL-2A B65-10222 05

MARTINO, J. A.
One-handed hammer-spanner for chucks
M-FS-18581 B69-10398 05

MARTUCCI, V. J.
Magnetron tuner has locking feature
INP-09771 B69-10119 05

MARX, H.
Vacuum test fixture improves leakage rate measurements
MSC-271 B66-10286 01

MARZULLO, R. A.
Removal of retaining washers of the waifle-spring type

MSC-15531	B69-10350	05	Metal tube reducer is inexpensive and simple to operate		
MASERJIAN, J.			ARG-49	B67-10401	05
Thin film thermal detector					
JPL-943	B67-10505	01	Fabrication techniques developed for small-diameter, thin-wall tungsten and tungsten alloy tubing		
MASKELL, C. E.			ARG-10100	B68-10284	05
Oxygen-hydrogen torch is a small-scale steam generator			Consolidation and fabrication techniques for vanadium-20 w/o titanium /TV-20/		
NU-0042	B66-10120	03	ARG-10148	B68-10368	03
Corrosion of metal samples rapidly measured					
NU-0041	B66-10140	03			
MASLOWSKI, E. A.			MAYO, J. W.		
Positive and negative output circuits			Threaded split ring connector separates structural sections		
LEWIS-10715	B69-10151	01	LANGLEY-145	B65-10383	05
MASON, K. A.					
Oculometer for remote tracking of eye movement			MAYTONE, F. F.		
ERC-10114	B69-10444	02	Reparable, high-density microelectronic module provides effective heat sink		
MASAGLIA, J. L.			M-PS-13075	B67-10356	01
Internal velocity factors					
MSC-15002	B68-10403	06	MAZER, L.		
MASTERS, E. H.			Tester automatically checks paper tape punch and reader after maintenance		
Magnetic field mapper			ARC-66	B67-10267	01
LEWIS-10782	B69-10476	01			
MATCHETT, M. W.			MC LOUSKI, R. M.		
Simple, one transistor circuit boosts pulse amplitude			Impurity diffusion process for silicon semiconductors is fast and precise		
GSFC-501	B66-10480	01	GSFC-397	B65-10300	01
MATHES, K. W.			MC AFEE, D. F.		
Study made of dielectric properties of promising materials for cryogenic capacitors			High-pass RF coaxial filter rejects dc and low frequency signals		
M-PS-13620	B67-10366	03	GSFC-73	B64-10173	01
MATHEWSON, R. C.			MC ALLISTER, J. W.		
Electrically heated diaphragm eliminates use of pyrotechnics			Rock anchors restore broken swamp anchors economically		
MSC-241	B65-10400	01	WLP-10004	B67-10498	05
MATHISON, R. P.			MC AVOY, M.		
Modified filter prevents conduction of microwave signals along high-voltage power supply leads			Liquid laser cavities		
JPL-63	B63-10091	01	GSFC-10592	B69-10234	02
MATRAS, S.			Laser action from a terbium beta-ketoenolate at room temperature		
Metallographic holding fixture permits polishing of soft metals on vibratory lapping machine			GSFC-10593	B69-10324	02
ARG-42	B66-10562	05	MC BRIDE, B. J.		
MATTOX, D. H.			Computer program for calculation of ideal gas thermodynamic data		
Ion plating technique improves thin film deposition			LEWIS-10254	B68-10025	06
SAN-10006	B68-10212	03	MC CALL, A. J.		
MATTY, T. C.			Function generator eliminates necessity of series summation		
Digital logic elements provide additional functions from analog input			GSFC-214	B66-10351	01
MSC-64	B64-10064	01	MC CAMPBELL, W. M.		
MATUS, S. T.			Generation of sonic power during welding		
J-beveling of pipe ends with a hand-held tool			M-PS-20339	B69-10404	05
KSC-10356	B69-10229	05	MC CANN, D. H.		
Tool simplifies machining of pipe ends for precision welding			Electronic aperture control devised for solid state imaging system		
KSC-10361	B69-10231	05	M-PS-12428	B68-10028	01
MAUCH, H. R.			Lateral PNP bipolar transistor with aiding field diffusions		
Deployable lattice column			MSC-13072	B69-10741	01
NPO-10228	B68-10082	05	MC CANN, R. J.		
MAUCHLY, J.			Colloidal suspension simulates linear dynamic pressure profile		
Application of cryptanalytic techniques to the analysis of NiCd space batteries			WOO-266	B66-10214	05
GSFC-10569	B69-10731	01	MC CARTHY, J. R.		
MAURIN, A. L.			Clamp provides efficient connection for high-density currents		
Insertion device for pressure testing			M-PS-2417	B67-10140	01
MSC-15185	B69-10061	03	MC CARTY, R. D.		
MAXWELL, R. F., JR.			Thermodynamic properties of saturated liquid parahydrogen charted for important temperature range		
Point-source detection system rejects spatially extended radiation sources			NUC-10018	B67-10346	03
GSFC-486	B66-10622	01	Computer programs for thermodynamic and transport properties of hydrogen		
MAY, J. L.			NUC-10537	B68-10150	06
Mixing weld gases offers advantages			MC CARTY, V.		
M-PS-16413	B69-10145	05	Improved circuit for measuring capacitive and inductive reactances		
MAYER, R. W.			M-PS-13083	B67-10513	01
Special coatings control temperature of structures			Seismographic recording of large rocket engine operation		
GSFC-444	B65-10337	03	M-PS-20545	B69-10756	01
MAYFIELD, R. M.			MC CAUL, P.		
Hydraulic fluid serves as mandrel for small diameter refractory tube drawing			Binary system generates sidereal rate from standard solar rate		
ARG-44	B66-10523	05	GSFC-190	B64-10200	01
Ductile mandrel and parting compound facilitate tube drawing			MC CAULEY, D. D.		
ARG-43	B66-10571	05	Light-controlled resistors provide quadrature signal rejection for high-gain servo systems		

- W50-340 B67-10552 01
 MC CLELLAN, E. L.
 Telescoping of instrumentation tubing
 eliminates swaging
 M-FS-546 B66-10116 05
 MC CLELLAND, G. W.
 Polaroid film helps locate objects in
 inaccessible areas quickly
 MSC-960 B67-10008 02
 MC CLUSKEY, J. K.
 Niobium-uranium alloys with voids of
 predetermined size and total volume
 ARG-10490 B69-10641 03
 MC CORNICK, W. J.
 DYANA - An advanced programming system for
 large classes of dynamic and equivalent
 systems
 M-FS-12084 B67-10524 06
 MC COWN, J. J.
 Separation technique provides rapid
 quantitative determination of cesium-137
 in irradiated nuclear fuel
 NUC-10047 B67-10194 03
 MC COY, J. W.
 Epoxy-coated containers easily opened by
 wire band
 M-FS-592 B66-10174 05
 MC CRAE, A. W., JR.
 Double copper sheath multiconductor
 instrumentation cable is durable and
 easily installed in high thermal or nuclear
 radiation area
 NUC-10007 B67-10538 01
 MC CRAW, D.
 Lathe converted for grinding aspheric surfaces
 GSFC-115 B63-10556 05
 MC CREARY, R. A.
 Leaf-spring suspension provides accurate
 parallel displacements
 JPL-480 B65-10104 05
 MC CULLOUGH, C. E.
 Computer circuit calculates cardiac output
 MSC-274 B66-10006 01
 MC CUNE, J. E.
 Method for determining properties of
 microinstabilities of a magnetized plasma
 HQ-10447 B69-10462 02
 MC CUSKER, T. J.
 Cone and column solar energy concentrator
 LANGLEY-210 B67-10517 01
 MC DANIELS, D. L.
 Tungsten fiber-reinforced copper composites
 form high strength electrical
 conductors
 LEWIS-338 B66-10572 03
 MC DARRIS, R. A.
 Emergency escape system uses self-braking
 mechanism on fixed cable
 KSC-66-44 B66-10575 05
 MC DERMOND, D.
 Frequency divider is free of spurious outputs
 GSFC-308 B65-10334 05
 MC DEVITT, F. R.
 Coolants with selective optical filtering
 characteristics for ruby laser applications
 M-FS-20188 B68-10508 02
 MC DONALD, R. T.
 High- and low-pressure pneumotachometers
 measure respiration rates accurately in
 adverse environments
 FRC-10012 B68-10188 01
 Electrocardiograph transmitted by RF and
 telephone links in emergency situations
 FRC-10031 B68-10233 01
 MC DOWELL, W. P.
 Accurate nine-decade temperature-compensated
 logarithmic amplifier
 ARG-10480 B69-10429 01
 MC FALL, J. C., JR.
 System locates randomly placed remote objects
 LANGLEY-209 B66-10315 01
 MC FARLAND, J. E.
 Grit blasting nozzle fabricated from mild
 tool steel proves satisfactory
 M-FS-1420 B66-10597 05
 MC GARRITY, A. L.
 Computer program resolves radiative,
 conductive, and convective heat transfer
 problems for variety of geometries
 M-FS-1910 B67-10329 06
 MC GARTY, T. P.
 Ring laser angle encoder
 MSC-13099 B69-10115 01
 MC GEHEE, J. R.
 Break-up of metal tube makes one-time shock
 absorber, bars rebound
 LANGLEY-1A B63-10304 05
 MC GLASHAN, W. F., JR.
 Elastic guides reduce hysteresis effect in
 Belleville spring package
 JPL-910 B67-10011 05
 MC GOLDRICK, G. J.
 Inflatable bladder to facilitate handling
 of heavy objects - A concept
 M-FS-14272 B69-10069 05
 MC GOUGH, J. T.
 Emergency escape system uses self-braking
 mechanism on fixed cable
 KSC-66-44 B66-10575 05
 MC GOWAN, G. F.
 Circuit provides accurate four-quadrant
 multiplication
 W00-272 B66-10331 02
 MC GOWAN, R. D.
 Consolidation and fabrication techniques
 for vanadium-20 w/o titanium /TV-20/
 ARG-10148 B68-10368 03
 MC GREW, J. M.
 Visco seal design offers zero-leakage and
 wear-free characteristics
 W50-329 B67-10047 05
 MC GROARTY, J. D.
 Spherical joint connects axially misaligned
 flanges
 M-FS-2238 B67-10273 05
 MC GUNIGAL, T. E.
 An improved atomic hydrogen frequency and
 time standard
 GSFC-10706 B69-10341 02
 MC INTOSH, F. J.
 SEAL /Subnetwork Enumeration And
 Listing/
 ERC-10116 B68-10227 06
 MC INTURFF, R. G.
 Multichip packaging with thermal insulation
 M-FS-14076 B68-10119 02
 MC JONES, R. W.
 Indicator system provides complete data of
 engine cylinder pressure variation
 LEWIS-291 B66-10470 05
 MC KENZIE, C. P.
 Fluidic analog amplifier
 ERC-10102 B68-10538 05
 MC KINNEY, R. L.
 Reliable, self-calibrating vibration
 transducer
 LANGLEY-89 B68-10124 01
 MC KOWEN, P.
 Solar activity history model
 M-FS-20529 B69-10776 01
 MC KOWN, R. D.
 Braze joint quality tested
 electromagnetically
 M-FS-12795 B67-10333 01
 MC LAIN, M.
 Evaluation of ignition mechanisms in
 selected nonmetallic materials
 MSC-11645 B68-10167 03
 MC LEAN, M. V.
 Legibility of electroluminescent instrument
 panels investigated
 MSC-494 B66-10316 02
 MC LELLAN, W.
 Silicon strain sensors enable pressure
 measurement at cryogenic temperatures
 M-FS-14703 B68-10262 01
 MC LOUSKI, R. E.
 Impurity diffusion process for silicon
 semiconductors is fast and precise
 GSFC-397 B65-10300 01
 MC MILLEN, G. C.
 Computer graphics data conditioning
 M-FS-14695 B68-10296 06
 MC MURCHY, D. D.
 Tester automatically checks paper tape
 punch and reader after maintenance
 ARC-66 B67-10267 01

- MCNALLY, W. D.
MAGNTY - Program for calculating velocities
in magnified region of turbomachines
LEWIS-10789 B69-10132 06
FORTRAN 4 program calculates velocities
and streamlines in a tandem blade
turbomachine
LEWIS-10743 B69-10219 06
- MC QUILLEN, R. B.
An electrical connector pin protector
MSC-15660 B69-10742 01
- MC SMITH, D. G.
Mouthpiece adapter for pipettes protects mouth
from harmful liquids
LANGLEY-47 B65-10043 03
Tube swaging device uses explosive force
LANGLEY-10092 B68-10235 05
- MC VAY, L.
The compatible conversion system
M-FS-15010 B69-10031 06
- MC VAY, R. E.
Evaluation of magnetic materials for static
inverters and converters
LEWIS-10343 B69-10306 01
- MC WILLIAMS, I. G.
The Quantasyn, an improved quantum
detector
ERC-10148 B69-10443 01
- MC WILLIAMS, J. L.
Monte Carlo direct view factor and
generalized radiative heat transfer
programs
M-FS-15051 B69-10038 06
- MC CAMPBELL, W. M.
System maintains constant penetration
during fusion welding
M-FS-937 B67-10091 01
- MC DONALD, J. A.
Ultrasonic water column probe speeds up
testing of welds
HQ-58 B66-10577 01
- MC GANN, E. J.
Precision CW laser automatic tracking
system investigated
M-FS-1606 B66-10629 01
- MC GEE, W. M.
Sprayable birefringent coating enables
strain measurements on large surfaces
M-FS-1484 B66-10578 03
- MC GOWAN, G. F.
Solid-state switch increases switching speed
WOO-298 B66-10430 01
- MC GROARTY, J. D.
Concept of planetary gear system to control
fluid mixture ratio
M-FS-1785 B66-10477 05
- MCDONALD, G. E.
Fuel element concept for long life high
power nuclear reactors
LEWIS-10309 B69-10154 03
- MEAD, D. C.
Function generator eliminates necessity
of series summation
GSFC-214 B66-10351 01
An efficient, temperature-compensated
subcarrier oscillator
JPL-SC-091 B67-10251 01
- MEALY, G.
Technique eliminates high voltage arcing
at electrode-insulator contact area
LEWIS-10133 B67-10470 01
- MECHAN, W. J.
Characteristics of fluidized-packed beds
ARG-10049 B68-10278 03
- MEDVED, D. B.
Concept for improved vacuum pressure
measuring device
M-FS-20172 B69-10421 02
- MEE, R. W.
Two-light circuit continuously monitors ac
ground, phase, and neutral wires
MSC-356 B66-10163 01
- MEHARG, L. S.
Instrumentation for bone density measurement
MSC-11388 B68-10140 01
- MEHNERT, R. S.
Heat treatment stabilizes welded aluminum
jigs and tool structures
MSC-800 B66-10458 03
- MEHRA, R. C.
Magnetic forming studies
M-FS-14217 B68-10186 02
- MEINHARD, J. E.
Thermal and bias cycling stabilizes planar
silicon devices
ERC-48 B67-10176 01
- MEISENHOLDER, G. W.
Solar-angle sensor has no moving parts
JPL-418 B63-10260 02
- MEISSNER, C. W., JR.
Literal readout of identification signals
in Morse code
LANGLEY-10222 B69-10479 01
- MEISTER, K.
Laser-Doppler gas-velocity instrument
M-FS-20039 B68-10349 02
- MELCHER, J. R.
Synchronous charge-constrained
electroquasistatic generator
HQ-10231 B69-10461 01
- MELDE, J. E.
Axisymmetric reacting gas nonequilibrium
performance program
MSC-11781 B68-10377 06
- MELFI, L. T.
Rapid helium-air analyzer can measure other
binary gas mixtures
LANGLEY-16 B63-10557 03
- MELGREEN, B. E.
Plastic tubing protects flexible copper hose
M-FS-772 B66-10588 05
- MELLOR, C. H.
Protective coating withstands high temperature
in oxidizing atmosphere
M-FS-529 B66-10044 03
- MELTON, D. E.
Fluid-pressure meter can be calibrated without
removal from flow line
M-FS-98 B63-10502 05
- MELTON, R. E.
Ballpoint probe gives optimum results in
ultrasonic testing
M-FS-13590 B67-10620 01
System for measuring roundness and
concentricity of large tanks
M-FS-13362 B68-10099 05
- MEND, W. G.
Multichip packaging with thermal insulation
M-FS-14076 B68-10119 02
- MENDENHALL, M. M.
Mixing weld gases offers advantages
M-FS-16413 B69-10145 05
- MERCHANT, J.
Electronic filter discriminates between
true and false reflections
HQ-55 B67-10071 02
Oculometer for remote tracking of eye
movement
ERC-10114 B69-10444 02
- MEREWETHER, E. K.
Computer program determines performance
efficiency of remote measuring systems
M-FS-1137 B66-10503 01
- MERRIAM, R. L.
Liquid-metal heat transfer in a cocurrent-
flow, double-pipe heat exchanger is
investigated
ARG-10261 B69-10091 02
- MERRITT, H., JR.
Visual task analysis /VISTA/
M-FS-14716 B69-10394 06
- MERTE, H., JR.
Dynamics of moving bubbles in single and
binary component systems
M-FS-14845 B68-10339 02
- MERZ, K. W.
Dynamic linearity measurement technique
KSC-10186 B68-10290 01
Technique for tuning antenna systems
producing negligible signal radiation
KSC-10060 B69-10215 01
Optimum FM pre-emphasis
KSC-10151 B69-10359 01
- MESNY, P. R.
Intermediate rotating ring improves

reliability of dynamic shaft seal M-FS-575	B66-10197	05	LEWIS-10127	B67-10362	01
METHERELL, A. F. Mechanical properties of a lap joint under uniform clamping pressure M-FS-14538	B69-10141	05	MILLER, E. G. Body-fitted harness provides safe and easy component handling M-FS-533	B66-10202	05
METTA, D. Neutron activation analysis traces copper artifacts to geographical point of origin ARG-119	B67-10036	02	MILLER, E. L. Microprobe investigation of brittle segregates in aluminum MIG and TIG welds M-FS-14720	B68-10334	03
METZ, A. J. Simple tunnel diode circuit for accurate zero crossing timing ARG-10309	B69-10116	01	Technique for pinpointing submicron particles in the electron microprobe HQ-10043	B69-10465	01
METZLER, J. W. Welding, brazing, and soldering handbook M-FS-20504	B69-10264	05	MILLER, G. E. Legibility of electroluminescent instrument panels investigated MSC-494	B66-10316	02
MEYER, H. L. A simplified PERT system M-FS-2267	B67-10241	05	MILLER, H. B. Connector for thermocouple leads saves costly wire, makes reliable connectors LANGLEY-26	B63-10529	01
MEYER, J. A. Nondestructive testing of brazed rocket engine components M-FS-18191	B68-10394	03	Calorimeter accurately measures thermal radiation energy LANGLEY-173	B66-10058	02
MEYER, K. High-temperature, high-pressure spherical segment valve provides quick opening ARC-13	B63-10431	05	Instrument accurately measures small temperature changes on test surface LANGLEY-174	B66-10637	01
MEYER, W. A. Hand-tightened, high-pressure seal M-FS-18416	B68-10417	05	MILLER, J. V. Stepping switch with simple actuator provides many contacts in small space JPL-122	B63-10118	01
MEYERSTEIN, D. Reduction by monovalent zinc, cadmium, and nickel cations ARG-10328	B69-10170	03	Apparatus of small size can be extended into long, rigid boom JPL-305	B63-10200	05
MICKA, E. Z. Improved process for making thin-film sodium niobate capacitors MSC-11231	B68-10163	01	MILLER, L. L. Welder analyzer MSC-12068	B68-10242	01
MIDDLEKOOP, J. H. Large diameter metal ring seal prevents gas leakage at 5000 psi M-FS-1064	B66-10422	05	MILLER, M. Computer program ETC improves computation of elastic transfer matrices of Legendre polynomials P/0/ and P/1/ NUC-10070	B67-10566	06
MIDDLETON, R. L. Insulation for cryogenic tanks has reduced thickness and weight M-FS-326	B66-10183	02	MILLER, W. M., JR. An electronic circuit for sensing malfunctions in test instrumentation KSC-10209	B69-10392	01
MIKESSELL, C. X-ray film holder permits single continuous picture of tubing joint LEWIS-10382	B68-10343	05	MILLETT, A. V. Automatic reel controls filler wire in welding machines MSC-416	B66-10236	05
MIKSZAN, D. P. Frequency-shift-keyer circuit improves PCM conversion for radio transmission GSFC-80	B63-10511	01	Hand tool permits shrink sizing of assembled tubing MSC-504	B66-10239	05
MILAM, J. K. Silicon surface barrier detectors used for liquid hydrogen density measurement M-FS-14115	B68-10166	01	Tool separates sleeve-type unions without heat MSC-497	B66-10253	05
MILBERGER, W. E. Solid state high-voltage pulser operates with low supply voltage M-FS-14034	B68-10308	01	MILLIGAN, G. C. Transfluxor circuit amplifies sensing current for computer memories JPL-406	B63-10255	01
MILDICE, J. W. Direction indicator system does not require complicated optics WOO-305	B66-10407	01	MILLS, J. A. Antechamber facilitates loading and unloading of vacuum furnace LEWIS-10265	B68-10135	02
MILLENBAM, S. E. Concept for passive system to control gas flow independently of temperature M-FS-982	B66-10343	05	MILLS, W. R., JR. Dual-mode operation of a neutron source, a concept HQ-10106	B69-10248	02
MILLENSON, D. H. Automated drafting system uses computer techniques M-FS-788	B66-10362	01	MILSTEAD, J. Neutron irradiation of Am-241 effectively produces curium ARG-10030	B67-10501	03
MILLER, C. E. Instrument continuously measures density of flowing fluids LEWIS-309	B67-10080	01	Daughter growth in freshly separated Ra-226, Ac-227 and U-232 ARG-10226	B69-10003	02
Metabolic and toxicological effects of water-soluble xenon compounds are studied ARG-90239	B68-10076	04	MILSTED, J. Neutron activation analysis traces copper artifacts to geographical point of origin ARG-119	B67-10036	02
MILLER, C. F., JR. A polar graphic method for determining the attitude of rocket vehicles GSFC-10860	B69-10591	02	MINER, R. R. Computer program conducts facilities utilization and occupancy survey NPO-10326	B67-10476	06
MILLER, D. B. Movable RF probe eliminates need for calibration in plasma accelerators			Computer program conducts facilities utilization and occupancy survey NPO-10438	B68-10137	06
			MING, L. J. Equivalent circuit for a field effect transistor established for computer		

simulation			
M-PS-1752	B66-10690	01	
MINGESZ, D.			
Improved head-controlled TV system produces			
high-quality remote image			
ARG-128	B67-10317	01	
Improved electromechanical master-slave			
manipulator			
ARG-10027	B68-10372	05	
MINKIN, H. L.			
Ball bearing used in design of rugged			
flowmeter			
LEWIS-159	B64-10170	05	
High pressure cryogenic liquid flow sight			
assembly provides streamlined flow for easy			
observation			
LEWIS-310	B66-10394	01	
MINNICH, S. H.			
Study made of dielectric properties of			
promising materials for cryogenic			
capacitors			
M-PS-13620	B67-10366	03	
MINOTT, P. O.			
Communication system uses modulated laser beam			
GSFC-377	B65-10333	01	
MISHLER, H. W.			
Welding of commercial base plates is			
investigated			
M-PS-13649	B68-10192	03	
MITCHELL, D.			
Plug-in connector socket accepts coaxial			
cable end			
ARG-9	B66-10478	01	
MITCHELL, D. K.			
Ultrasonic hand tool allows convenient			
scanning of spot welds			
M-PS-539	B66-10289	02	
Gas leak detector is simple and			
inexpensive			
M-PS-1206	B66-10669	01	
Rotary-knife stripper facilitates removal			
of X-ray film from pack			
M-PS-14837	B68-10509	05	
MITCHELL, G. R.			
An electrical connector pin protector			
MSC-15660	B69-10742	01	
MITCHELL, J. A.			
Cryogenic fluid sampling device permits			
testing under hazardous conditions			
M-PS-1927	B66-10654	02	
MITCHELL, K. L.			
Computer program determines thermal			
environment and temperature history of			
lunar orbiting space vehicles			
M-PS-12916	B67-10307	06	
MITCHELL, R. T.			
Midcourse maneuver operations program			
NPO-10735	B69-10105	06	
MITCHELL, S. M.			
Spiral-flow apparatus for measuring			
permeation of solids by gases			
M-PS-16517	B69-10357	03	
MITCHELL, V. M.			
Digital cardiometer computes and displays			
heartbeat rate			
MSC-93	B64-10258	01	
MLAVSKY, A. I.			
Silicon carbide diode for increased light			
output			
M-PS-20063	B69-10096	01	
MOACANIN, J.			
Ionene membrane battery separator			
NPO-11091	B69-10501	03	
MOBERLY, C. L.			
Solid state phase detector replaces bulky			
transformer circuit			
MSC-11007	B67-10253	01	
MOCKER, H.			
Design concepts using ring lasers for			
frequency stabilization			
M-PS-2448	B67-10143	01	
MOE, H. J.			
Training course for radiation safety			
technicians			
ARG-216	B67-10477	02	
MOEDE, L. W.			
Simple circuit provides adjustable voltage			
with linear temperature variation			
JPL-W00-029	B63-10537	01	
MOEN, W. K.			
Modified thermocouple is effective from			
minus 250 deg to 5000 deg F			
MSC-420	B66-10461	01	
MOFFITT, F. L.			
Camera lens adapter magnifies image			
M-PS-11955	B67-10431	02	
MOHR, R. J.			
Detachable caster adapter			
MSC-91215	B69-10164	05	
MOHR, W. C.			
Apparatus for fabrication of americium-			
beryllium neutron sources prevents capsule			
contamination			
ARG-184	B67-10202	05	
Portable, high intensity isotopic neutron			
source provides increased experimental			
accuracy			
ARG-90250	B68-10243	02	
MOLER, R. B.			
A fast-neutron spectrometer of advanced			
design			
M-PS-1664	B66-10555	01	
MOLLO, R. A.			
Rectangular-bore, high-gain laser plasma			
tube			
HQ-10234	B69-10193	02	
MONFORD, L. G., JR.			
Radiometric temperature reference			
MSC-13276	B69-10507	01	
MONROE, E. W.			
Elimination of dissolved gases in			
hypergolic engine propellants			
M-PS-16179	B69-10692	03	
MONROE, R. E.			
Welding of commercial base plates is			
investigated			
M-PS-13649	B68-10192	03	
MONTERNOSO, J. C.			
Adhesives for laminating polyimide			
insulated flat conductor cable			
M-PS-12066	B67-10429	03	
MONTET, G. L.			
Reaction rates of graphite with ozone			
measured by etch decoration			
ARG-10086	B68-10101	03	
Analytical techniques for determining boron			
in graphite			
ARG-10087	B68-10102	03	
MONTGOMERY, L. C.			
Encapsulation process sterilizes and preserves			
surgical instruments			
JPL-484	B64-10066	05	
MOORE, D. J.			
Standoff tool speeds placement of friction-fit			
electrical terminals			
W00-029	B65-10348	05	
MOORE, D. L.			
Reconnect mechanism			
M-PS-12968	B67-10670	05	
MOORE, E. T.			
Transistorized trigger circuit is frequency-			
controllable			
GSFC-111	B63-10553	01	
Liquid switch is remotely operated by low dc			
voltage			
GSFC-119	B63-10599	01	
Circuit controls transients in SCR inverters			
GSFC-120	B63-10600	01	
Full wave dc-to-dc converter using energy			
storage transformers			
LEWIS-10375	B69-10140	01	
An unconventional magnetically-coupled			
multivibrator			
HQ-10226	B69-10480	01	
MOORE, H. D.			
Ring counter may be advanced or retarded by			
command signal			
GSFC-101	B64-10144	01	
MOORE, H. J., JR.			
Evaluation of high temperature stranded			
hookup wire			
M-PS-2478	B67-10122	03	
MOORE, J. F.			
Nondestructive testing techniques used in			
analysis of honeycomb structure bond			
strength			
M-PS-1214	B67-10574	01	
Instrumentation for nondestructive testing			

of composite honeycomb materials M-FS-20405	B69-10366	03	nuclear and atomic physics NUC-10330	B69-10705	02
MOORE, J. M. Method of reducing time base error in digital magnetic recorders GSFC-10108	B68-10317	01	MORTON, R. W. Improved variable-reluctance transducer measures transient pressures LANGLEY-1C	B63-10321	01
MOORE, R. Method for predicting pump cavitation performance LEWIS-10916	B69-10446	02	MOSCATER, R. E. Machining technique prevents undercutting in tensile specimens LANGLEY-10281	B68-10352	05
MOORE, R. L. Investigation of the development of cracks in solder joints M-FS-20444	B69-10807	01	MOSER, J. B. Sintering characteristics and properties of PuS and PuP are determined ARG-10228	B69-10058	03
MOORE, W. T. CIRCUS--A digital computer program for transient analysis of electronic circuits M-FS-15002	B68-10416	06	MOSES, H. Dewpoint temperature inversions analyzed ARG-10316	B69-10057	02
MOORHEAD, J. E. Lamp enables measurement of oxygen concentration in presence of water vapor MSC-10043	B67-10387	01	MOSIER, B. Rugged pressed disk electrode has low contact potential MSC-158	B65-10320	01
MORAN, L. L. GAMBIT program NUC-10243	B69-10433	06	Quick don-doff electrode pastes MSC-13249	B69-10598	04
MORATH, W. D. Fluorocarbon seal replaces metal piston ring in low density gas environment LEWIS-10277	B67-10591	05	MOSSINO, R. L. Tiny sensor-transmitter can withstand extreme acceleration, gives digital output ARC-22	B63-10561	01
MORECROFT, J. H. Motion drive system is accurately controlled in the 1-micron range JPL-864	B66-10695	05	MOSTRUM, R. A. Experimental coherent fractional frequency multiplier at S-band M-FS-2427	B67-10250	01
VICAR-DIGITAL image processing system NPO-10770	B69-10139	06	MOULTON, K. S. Calibration standard for dynamic evaluation of a profile-plotter M-FS-16476	B69-10458	05
MORELLI, F. A. Encapsulation process sterilizes and preserves surgical instruments JPL-484	B64-10066	05	MOUNTVALA, A. J. Improved thermal insulation materials made of foamed refractory oxides M-FS-735	B66-10288	03
MORGAN, N. E. Indicator system provides complete data of engine cylinder pressure variation LEWIS-291	B66-10470	05	MOWERS, R. E. Evaluation of a fluorocarbon plastic used in cryogenic valve seals M-FS-18189	B68-10523	03
Fluorocarbon seal replaces metal piston ring in low density gas environment LEWIS-10277	B67-10591	05	MOXLEY, H. E. Dynamic valve seal is reliable at cryogenic temperatures M-FS-12987	B67-10526	05
MORI, S. Study of corrosion of 1100 aluminum ARG-10045	B67-10578	03	MOYER, R. A. Digital filter synthesis computer program ARC-10130	B68-10164	06
Study of crevice-galvanic corrosion of aluminum ARG-10013	B67-10583	03	MROZ, T. S. Fogging technique used to coat magnesium with plastic LEWIS-10316	B67-10584	03
MORIN, H. P. Chart system simplifies identification of complex design assemblies MSC-752	B66-10460	05	MRUS, G. Optical automatic gain channel M-FS-1550	B66-10596	02
MORITA, W. H. Concept to standardize space vehicle piggyback experiment modules M-FS-1697	B68-10038	05	MUELLER, H. H. Real-Time Operating System/360 MSC-12148	B69-10386	01
MORRELL, L. Dynamic linearity measurement technique KSC-10186	B68-10290	01	MUELLER, J. J. Segmented SiGe-PbTe couples GSFC-10746	B69-10233	01
MORRIS, D. B. Visual attitude orientation and alignment system MSC-647	B67-10120	02	MUELLER, T. F. Precision mounting for instrument optical elements provided by polyimide bonding M-FS-20293	B69-10310	05
MORRIS, E. E. Analysis of filament reinforced metal-shell pressure vessels LEWIS-10352	B68-10405	06	MULAC, W. A. Reduction by monovalent zinc, cadmium, and nickel cations ARG-10328	B69-10170	03
MORRIS, R. A. The X square statistic and goodness of fit test GSFC-10547	B68-10136	02	MULLAND, P. W. Etching process mills PH 14-8 Mo alloy steel to precise tolerances MSC-270	B66-10110	03
MORRISON, R. Vented piston seal prevents fluid leakage between two chambers JPL-179	B63-10141	05	MULLEN, D. L. Mm-wave power meter mount NPO-10348	B68-10152	01
MORRISON, T. Heavy-duty staple remover operated by hand JPL-IT-1004	B63-10292	05	MULLER, A. N. Flame sprayed dielectric coatings improve heat dissipation in electronic packaging M-FS-13569	B67-10534	01
MORRISON, T. J. Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03	Sprayed shielding of plastic-encapsulated electronic modules M-FS-13570	B69-10607	01
MORSE, W. J. Handbook explaining the fundamentals of			MULLER, K. High intensity radiation heat source is capable of sustained operation ARC-61	B66-10547	02

MULLER, P. M.
MOP /Matrix Operation Programs
system/
NPO-10429 B68-10005 06

MULLER, R. M.
Substituting transistor for diode improves
rectifying means
GSFC-474 B66-10295 01
Digital system detects binary code patterns
containing errors
GSFC-541 B66-10516 01
Concept for automatic Doppler compensation
in two-way communication systems
GSFC-10213 B67-10643 01

MULLIKEN, S. R.
Jet engine powers large, high-temperature
wind tunnel
M-FS-13544 B67-10621 02

MULLINS, R. E.
Chromatographic detection and analysis
of traces of hydrocarbons
KSC-10388 B69-10716 02

MUNFORD, J. A.
Areas of irregular, discontinuous patterns
rapidly and accurately measured
GSFC-10184 B67-10674 01

MUNOZ, R. M.
Field-effect transistor improves electrometer
amplifier
ARC-36 B64-10143 01
Nonlinear feedback reduces analog-to-digital
converter error
ARC-46 B65-10277 01
Digital filter synthesis computer program
ARC-10130 B68-10164 06

MURA, T.
Wall-thickness changes predicted in
hollow-drawn tubing
ARG-10425 B69-10428 02

MURPHY, C. L.
A piezo-bar pressure probe
LEWIS-393 B67-10259 01

MURPHY, D. W.
Combined actuator and latch for
cartridge powered actuator
MSC-11242 B67-10488 05

MURPHY, J. R.
Advances in light-gas gun technology
M-FS-14270 B68-10288 05

MURRAY, S. F.
High temperature coatings for gas bearings
LEWIS-10793 B69-10200 03

MUSER, C.
Roll diffusion bonding of titanium alloy
panels
M-FS-14743 B68-10161 05

MUSSER, C. W.
Eddy current probe measures size of cracks
in nonmetallic materials
M-FS-14059 B67-10645 03

MUSSET, E. E.
High-reluctance rotor rings improve
homopolar generator performance
ARG-104 B66-10543 01

MYERS, D. A.
Improved chlorate candle provides
concentrated oxygen source
MSC-1137 B67-10095 03

MYERS, W. J.
Instrument calculates moments of inertia of
complex plane figures
MSC-628 B66-10306 01

MYLES, K. M.
Thermodynamic properties of solid
palladium-silver alloys and other alloys are
investigated by torsion-effusion technique
ARG-277 B67-10324 03

N

NACE, D. A.
Traveling-wave tube circuit simplifies
microwave relay
GSFC-299 B65-10127 01

NAKANISHI, S.
Glass coated single grid for charged
particle acceleration
LEWIS-10106 B68-10215 03

NAMENSON, A. I.
Ge-diode detector combined with
crystal-diffraction spectrometer permits
high-resolution gamma ray spectroscopy
ARG-10190 B69-10005 02

NAKHOONG, D., JR.
Study made of heat transfer and pressure
drop through tubes with internal
interrupted fins
LEWIS-10280 B67-10555 05

NARDELLA, P. C.
Automatic star-horizon angle measurement
system
MSC-11585 B69-10597 01

NASH, J. R.
Improved pH buffering agent for sodium
hypochlorite
MSC-15443 B69-10084 03

NASON, G. H.
Astronaut space suit communication antenna
MSC-12101 B68-10238 01

NASSOS, G. P.
Propagation of density disturbances in
air-water flow
ARG-10260 B69-10043 02

NATHAN, R.
Digital computer processing of X-ray photos
JPL-792 B67-10005 04
Computer program for Video Data Processing
System /VDP/ NPO-10042 B67-10630 06
VICAR-DIGITAL image processing system
NPO-10770 B69-10139 06

NAVICKAS, J.
Thermal conductivity probe
M-FS-20566 B69-10780 03

NAY, D. L.
Flexible fastener effects airtight material
closure
JPL-684 B66-10304 05

NAYLOR, T. K.
Digital data averager improves conventional
measurement system performance
MSC-12078 B68-10018 01

NEAL, P. F.
Emergency escape system uses self-braking
mechanism on fixed cable
KSC-66-44 B66-10575 05

NEARY, K. J.
Inflatable C-ring seal would ease closing of
hatch cover plate
MSC-740 B66-10385 05

NECKER, D. E.
Toggle operated double latch
MSC-11377 B68-10117 05

NEEL, C. B.
Reference black body is compact, convenient to
use
ARC-3 B63-10004 03

NEFF, G. A.
Amplifier provides dual outputs from a
single source with complete isolation
NUC-10056 B67-10221 01

NEFF, H.
Improved VHF direction finding system
M-FS-20439 B69-10378 01

NEFF, J. E.
Camera shutter is actuated by electric signal
ARC-20 B63-10560 05
Self-supported aluminum thin films produced by
vacuum deposition process
ARC-58 B66-10387 03

NEIN, H. J.
Device damps fluid pressure oscillations in
vent valve
M-FS-13290 B68-10078 05

NELLANS, R. N.
Neutron therapy of cancer
ARG-10310 B69-10203 04

NELSON, B.
Simple switch actuated by force applied
over wide solid angle
XNP-09808 B69-10032 01

NELSON, C. A.
Bipolar current driver for memory circuits

PERSONAL AUTHOR INDEX

NUGENT, J. B.

GSFC-213	B66-10469	01	NICHOLLS, A. H.	Radiant heat source, vacuum bag, provide portable bonding oven	MSC-11342	B67-10570	03
NELSON, D. H.				A method for observing gas evolution during plastic laminate cure	MSC-15592	B69-10530	03
New shield for gamma-ray spectrometry	B69-10344	02	NICHOLS, G. B.	Computer determines high-frequency phase stability	GSFC-113	B63-10555	01
ARG-10388				Digital system accurately controls velocity of electromechanical drive	GSFC-287	B65-10096	01
NELSON, K. H.			NICKERSON, G. R.	Axisymmetric two-phase perfect gas performance program	MSC-11774	B68-10374	06
Analytical technique characterizes all trace contaminants in water	B67-10243	03		Axisymmetric reacting gas nonequilibrium performance program	MSC-11781	B68-10377	06
MSC-11032			NICKERSON, T. B.	Projection transparencies from printed material	M-FS-14608	B68-10112	01
NELSON, M. B.				Ring laser angle encoder	MSC-13099	B69-10115	01
Cleanroom air sampler counts, categorizes, and records particle data	B67-10076	01	NIGH, W. G.	Cure of epoxy resins determined by simple tests	M-FS-13131	B68-10043	03
M-FS-2221			NIKLAS, W.	Thermal neutron image intensifier tube provides brightly visible radiographic pattern	ARG-120	B67-10296	02
NELSON, P. A.			NITTA, H.	High-temperature, high-pressure spherical segment valve provides quick opening	ARC-13	B63-10431	05
Use of steel and tantalum apparatus for molten Cd-Mg-Zn alloys	B66-10594	03	NIXON, D. L.	A compact rotary vane attenuator	NPO-10562	B69-10427	01
ARG-199				Data processing method for a weak, moving telemetry signal	NPO-11003	B69-10639	01
Radiation counting technique allows density measurement of metals in high-pressure/high-temperature environment	B67-10316	02	NOLIS, W. M.	Increased performance reliability obtained with dual /redundant/ oscillator system	GSFC-36	B63-10027	01
ARG-124			NONDSIECK, A. J.	Adaptive control circuit prevents amplifier saturation	ERC-10026	B67-10648	02
Study made of resistance of stainless steels to zinc-vapor corrosion	B67-10582	03	NORD, D. B.	Brazing process provides high-strength bond between aluminum and stainless steel	M-FS-803	B66-10352	05
ARG-10055			NORK, C. L.	Screen of cylindrical lenses produces stereoscopic television pictures	M-FS-273	B66-10086	02
Flow properties of suspensions rich in solids	B69-10622	02	NORMAN, G.	Qualitative and quantitative analysis of mixtures of compounds containing both hydrogen and deuterium	ARG-10312	B69-10177	04
ARG-10481				Four-bar linkage for thermal compensation in test mounts for structures	NPO-11059	B69-10298	05
NELSON, R. A.			NORTHERN, B. J.	Gage provides audible signal to facilitate checkout of connector pins	KSC-10335	B69-10173	01
Chart case opens to form briefing easel	B66-10135	05	NORTON, B.	Electrically conductive fibers thermally isolate temperature sensor	GSFC-456	B66-10349	01
MSC-349			NORWOOD, L. B.	System remotely inspects, measures, and records internal irregularities in piping	M-FS-14545	B68-10149	01
NELSON, R. E.			NUGENT, J. B.	Technique for abrasive cutting of thick-film conductors for hybrid circuits	MSC-13242	B69-10235	03
Mounting method improves electrical and vibrational characteristics of screen electrodes	B69-10097	01					
M-FS-20169							
NELSON, R. F.							
Identification of thermocouple material	B69-10356	01					
M-FS-18540							
NELSON, R. H., JR.							
Low level accelerometer test methods are investigated	B66-10510	01					
M-FS-908							
NERREN, B. H.							
Fractography can be used to analyze failure modes in polytetrafluoroethylene	B69-10066	03					
M-FS-20294							
NETUSIL, W. F.							
Mossbauer vibration calibration systems evaluated	B69-10125	01					
M-FS-20014							
NEUPERT, W. M.							
Multiple element soft X-ray source produces wide range of radiation	B65-10082	02					
GSFC-286							
Glancing incidence telescope for far ultraviolet and soft X-rays	B67-10508	02					
GSFC-10052							
NEUSCHAEFER, R. W.							
Detection and location of metallic objects imbedded in nonmetallic structures	B68-10183	01					
M-FS-14790							
NEW, T. C.							
New microelectronic power amplifier	B68-10073	01					
M-FS-13621							
NEWBERRY, M. H.							
Computer program performs statistical analysis for random processes	B66-10525	01					
M-FS-723							
NEWCOMB, A. L., JR.							
Solid-state switching used to speed up capacitive integrator	B65-10159	01					
LANGLEY-104							
NEWCOMB, R. W.							
Active rc networks of low sensitivity for integrated circuit transfer function	B68-10210	01					
ARC-10146							
NEWGARD, P. M.							
Direct force-measuring transducer used in blood pressure research	B65-10325	01					
ARC-53							
NEWMAN, P. A.							
Radiation tolerant silicon nitride insulated gate field effect transistors	B69-10253	01					
GSFC-10581							
NEWSBAUM, J. B.							
Multiple correlation computer program determines relationships between several independent and dependent variables	B67-10327	06					
M-FS-13024							

HUGENT, R. E. Dual wire weld feed proportioner M-FS-18037	B68-10332	05	ARG-10130	B69-10083	05
			OLSON, G. A. Portable fixture facilitates pressure testing of instrumentation fittings M-FS-2032	B67-10121	03
			Conceptual dead weight device to provide pressure calibration M-FS-14672	B68-10264	01
OBERSCHNIDT, H. Flow-test device fits into restricted access passages MSC-1078	B67-10074	01	OLTHUIS, R. W. Neon isotopes cancel errors in gas laser M-FS-1476	B66-10583	02
OBRIEN, T. J. Logic system aids in evaluation of project readiness MSC-753	B66-10457	05	OLTHANS, D. A. Mm-wave power meter mount NPO-10348	B68-10152	01
OCCHIPINTI, G. C. Mechanized X-ray inspection system for large tanks M-FS-12867	B67-10564	02	OMAHONY, M. L. Earth orbit rendezvous evaluation program M-FS-13016	B67-10407	06
OCENOR, J. Optical system facilitates inspection of printed circuit boards GSFC-07971	B68-10021	02	OMAHONY, M. S. Computer program for mass optional solutions of some endpoint trajectory problems M-FS-12976	B67-10310	06
ODLE, F. L. Pocket-size manual tape reader device aids computer tape checking KSC-10058	B67-10361	01	OPENSHAW, F. L. Limit circuit prevents overdriving of operational amplifier NUC-10082	B67-10343	01
ODONNELL, P. M. Beryllium fluoride film protects beryllium against corrosion LEWIS-363	B67-10026	03	OPENSHAW, R. L. Simple circuit provides reliable multiple signal average and reject capability NU-0069	B66-10282	01
ODOR, M. E. Hand tool permits shrink sizing of assembled tubing MSC-504	B66-10239	05	ORANGE, T. W. Crack growth measured on flat and curved surfaces at cryogenic temperatures LEWIS-389	B67-10384	01
			Welds chilled by liquid coolant manifold M-FS-679	B66-10354	05
OPARRELL, H. O. Assembly jig assures reliable solar cell modules GSFC-455	B66-10040	05	ORLANDINI, K. A. Separation of traces of metal ions from sodium matrices ARG-10341	B69-10168	03
OFFIK, W. G. Emergency escape system protects personnel from explosion and fire KSC-66-12	B66-10634	05	ORR, J. Composite bulkhead fabrication development M-FS-1264	B66-10582	05
OGILVIE, K. W. Multiaxial analyzer detects low-energy electrons GSFC-329	B65-10213	01	ORTH, H. W. Antechamber facilitates loading and unloading of vacuum furnace LEWIS-10265	B68-10135	02
OKANE, J. H. One-piece transparent shell improves design of helmet assembly MSC-187	B66-10390	05	OSBORNE, D. W. Pure xenon hexafluoride prepared for thermal properties studies ARG-10056	B67-10577	03
OKELLY, K. P. Aluminum oxide filler prevents obstructions in tubing during welding MSC-222	B66-10125	05	OSGOOD, D. R. Hydra 1 data display system MSC-11594	B68-10155	01
OLEKSIAK, C. E. Portable machine welding head automatically controls arc M-FS-12763	B67-10272	05	OSMOND, L. H. Hollow plastic hoops protect thermocouple in storage and handling NU-0023	B65-10256	05
OLIVARI, H. Iris-leaf core retainer for a surface drill MSC-11402	B69-10496	05	OSTRUM, G. K. Isostatic compression process converts polyaromatics into structural material JPL-892	B67-10168	03
OLIVER, D. H. Improved table for cutting and welding MSC-15537	B69-10346	05	OSULLIVAN, W. J., JR. Variable-transparency wall regulates temperatures of structures LANGLEY-25	B63-10528	03
OLMORE, A. E. Valve seat pores sealed with thermosetting monomer M-FS-900	B66-10322	03	OSWALT, F. W. Apparatus automatically measures soluble residue content of volatile solvents SAN-10032	B69-10292	03
OLNOWICH, R. T. Automatic channel switching device MSC-832	B67-10086	01	OSWALT, L. Check valve installation in pilot operated relief valve prevents reverse pressurization M-FS-1925	B66-10655	05
OLSEN, E. Neutron activation analysis traces copper artifacts to geographical point of origin ARG-119	B67-10036	02	OTOSHI, T. Y. The effect of mismatched components on microwave noise-temperature calibrations NPO-11163	B69-10333	01
OLSEN, M. G. Effects of heat input rates on T-1 and T-1A steel welds M-FS-2475	B67-10163	03	A compact rotary vane attenuator NPO-10562	B69-10427	01
OLSEN, W. F. Direct indication of particle size in fluidized beds			OTTS, J. W. Servo system facilitates photoelastic strain measurements on resins JPL-504	B64-10280	01
			OUTLAW, R. A. Auxiliary titanium sublimation pump produces ultrahigh /10 to the minus 11 torr/ vacuum LANGLEY-212	B66-10388	02
			OWEN, J. R., III Short circuit protection for a power		

- distribution system
M-FS-14993 B68-10443 01
- P**
- PACKARD, J. H.**
Laser communication system is insensitive to atmospherically induced noise
GSFC-10396 B67-10587 01
- PACKER, D. B.**
Pump simulator provides variable pressure-flow characteristics
LEWIS-10122 B67-10453 05
- PADILLA, V. E.**
Portable tool removes burrs from pipe and tubing
MSC-237 B65-10360 05
- PADLOG, J.**
Digital computer program predicts effects of local pressure transients on deformation and stresses in cylindrical ducts
M-FS-13058 B67-10631 06
- PAIGE, W. S.**
Lamp enables measurement of oxygen concentration in presence of water vapor
MSC-10043 B67-10387 01
- PAIK, W. W.**
Microbiological aspects of sterilization development laboratories
NPO-11197 B69-10593 04
- PALEMO, J. S.**
Technique for abrasive cutting of thick-film conductors for hybrid circuits
MSC-13242 B69-10235 03
- PALMER, G. H.**
Combustion chamber struts can be effectively transpiration cooled
M-FS-1830 B66-10643 03
- PALMER, J. P.**
Liquid-metal-piston MHD generator
ARG-10500 B69-10771 02
- PALMORE, J. I.**
Computer program offers new method for constructing periodic orbits in nonlinear dynamical systems
M-FS-14654 B68-10217 06
- PALMOUR, H.**
Fabrication method produces high-grade alumina crucibles
M-FS-216 B65-10078 05
- PALOS, C.**
Production of crystalline polymers via liquid crystal monomers
HQ-10235 B69-10744 03
- PAN, C. H. T.**
Squeeze-film gas bearing technology
M-FS-14821 B68-10180 05
- PANSON, P. L.**
Data processing method for a weak, moving telemetry signal
NPO-11003 B69-10639 01
- PAO, T.-H.**
Problem of oscillating cone in supersonic flow is solved by small perturbation techniques
M-FS-869 B66-10700 02
- PAOLETTI, C. J.**
Determination of quadric equation coefficients describing three-dimensional surfaces, their constraint and skewed planes, and view point areas
M-FS-15043 B69-10435 06
- Spacecraft Thermal Radiation Environment Computer Program**
M-FS-15054 B69-10574 06
- PAPPELL, S. S.**
Magnetic fluid readily controlled in zero gravity environment
LEWIS-126 B65-10335 03
- PARK, C. E.**
A concept for magazine Bimat processor
KSC-06786 B69-10275 02
- PARK, J. J.**
Coiled sheet metal strip opens into tubular configuration
GSFC-425 B66-10009 03
- PARK, R.**
Strain gage circuitry provides fatigue testing machine with accurate cycle count
- NU-0114** B67-10093 01
- PARKER, E. R.**
Retention of ductility in high-strength steels
ARG-10497 B69-10616 03
- PARKER, G. L.**
Hydraulic system provides smooth control of large tracking and antenna drive systems at very low tracking rates
NPO-10316 B67-10418 05
- Multipurpose binocular scanning apparatus**
NPO-11002 B69-10311 02
- PARKER, J. A.**
Mechanical properties of plastics predetermined by empirical method
ARC-28 B64-10068 03
- Fire retardant foams developed to suppress fuel fires**
ARC-10098 B68-10358 03
- PARKER, J. F., JR.**
Improved perceptual-motor performance measurement system
HQ-10123 B69-10385 01
- PARKER, O. J.**
Strainer fits inside flared-tube fittings
LANGLEY-180 B65-10388 05
- PARKER, P. E.**
Saturn S-2 Automatic Software System /SASS/
M-FS-1741 B67-10405 06
- PARKER, R. J.**
Control of component differential hardness increases bearing life
LEWIS-190 B65-10251 05
- High-temperature bearing lubricants**
LEWIS-10408 B68-10249 05
- PARNERTER, S.**
Purification and characterization of two fully deuterated enzymes
ARG-10314 B69-10207 04
- PARRISH, W.**
Improved camera for better X-ray powder photographs
HQ-10424 B69-10537 01
- PASCALÉ, C.**
Small, high-intensity flasher permits continuous close-in photography
NU-0043 B66-10119 03
- PASCOLLA, J. A.**
Burst diaphragm leak detector
M-FS-14500 B69-10543 03
- PASS, D.**
Midcourse maneuver operations program
NPO-10735 B69-10105 06
- PATEL, R. D.**
Surface-renewal models for heat-transfer between walls and fluidized beds
ARG-10372 B69-10772 02
- PATRO, S.**
Battery case shear
GSFC-10783 B69-10127 05
- PATTERSON, A.**
Mechanisms of superconductivity investigated by nuclear radiation
M-FS-1944 B67-10057 02
- PATTERSON, J. H.**
Alpha particle backscattering measurements used for chemical analysis of surfaces
ARG-116 B67-10186 03
- PATTERSON, J. L.**
Improved variable-reluctance transducer measures transient pressures
LANGLEY-10 B63-10321 01
- PATTERSON, R. L.**
Refractory coating protects intricate graphite elements from high-temperature hydrogen
NU-0027 B66-10084 01
- PATTERSON, R. P.**
New electrical plethysmograph monitors cardiac output
MSC-11447 B68-10220 01
- PAUL, H. I.**
Liquid oxygen dicting cleaned by falling film method
M-FS-11816 B67-10299 03
- PAUL, R. D.**
Newly developed foam ceramic body shows promise as thermal insulation material at 3000 deg F

M-FS-11968	B67-10441	03	PERKINS, G. S.	Sleeve and cutter simplify disconnecting welded joint in tubing		
PAUL, V. M.			JPL-384		B63-10240	05
Accurate nine-decade temperature-compensated logarithmic amplifier			Precise gimballing mechanism			
ARG-10480	B69-10429	01	NPO-11057		B69-10270	01
PAULKOVICH, J.			PERKINS, R. D.	Teleprinter uses thermal printing technique		
Electronic ampere-hour integrator is accurate to one percent			MSC-11327		B67-10572	01
GSFC-203	B65-10308	01	PERKINS, T. G.	Temperature-controlled resistor		
Control circuit ensures solar cell operation at maximum power			NPO-10713		B69-10440	01
GSFC-432	B67-10061	01	PERKINS, W. E.	Proposed method of rotary dynamic balancing by laser		
Battery charge regulator is coulometer controlled			M-FS-12422		B67-10452	02
GSFC-561	B67-10446	01	Teleprinter uses thermal printing technique		B67-10572	01
Converter provides constant electrical power at various output voltages			MSC-11327			
GSFC-519	B67-10481	01	PERKO, L. M.	Large-amplitude inviscid fluid motion in an accelerating container		
Charge control of nickel-cadmium batteries by coulometer and third electrode method			MSC-11560		B68-10170	02
GSFC-10487	B68-10431	01	PERLMAN, M.	Binary sequence detector uses minimum number of decision elements		
PAULL, S.			JPL-673		B66-10264	01
Variable frequency magnetic multivibrator generates stable square-wave output			PERNET, D. F.	System enables more complete calibrations of dynamic-pressure transducers		
GSFC-AE-21	B65-10124	01	M-FS-2063		B67-10099	01
PAUS, L. L.			PERRIN, J. L.	Minimum permissible leakage resistance established for instrumentation systems		
Method for X-ray study under extreme temperature and pressure conditions			M-FS-848		B66-10397	01
MSC-11232	B67-10474	02	PERRY, J.	Front and back printed circuit layouts presented on single sheet		
PAVLOVIC, D. M.			GSFC-93		B63-10596	01
Gage of 6.5 per cent Si-Fe sheet is chemically reduced			PERZ, D. A.	Method for measuring alternator voltage transients		
MSC-537	B66-10454	03	LEWIS-10373		B68-10513	01
Evaluation of magnetic materials for static inverters and converters			PESCH, W. A.	Variable-speed, portable routing skate		
LEWIS-10343	B69-10306	01	M-FS-13772		B67-10525	05
PAYNE, P.			PESSAGNO, E. H.	Lathe converted for grinding aspheric surfaces		
Electron beam parallel X-ray generator			GSFC-115		B63-10556	05
MSC-11022	B67-10372	02	PETERS, C. J.	Precision CW laser automatic tracking system investigated		
PAYNE, V. E.			M-FS-1606		B66-10629	01
Ballast barge concept for underwater structures			PETERS, G. A.	Tool facilitates installation of Marmon clamps		
KSC-10196	B68-10168	05	M-FS-2039		B67-10105	05
PEA, R. O.			Power torque wrench concept for precision torque application		B67-10547	05
Transducer senses displacements of panels subjected to vibration			M-FS-13546			
ARC-37	B65-10085	01	Connector shorting cap provides pin alignment, inspection, and stray voltage protection		B67-10635	01
PEASE, L. L.			M-FS-13111			
Run numbering system for use with data recorders			PETERS, H. E.	An improved atomic hydrogen frequency and time standard		
M-FS-2557	B67-10215	01	GSFC-10706		B69-10341	02
PECK, J. C.			PETERS, R. L.	Freon, T-B1 cutting fluid		
Color-televized medical microscopy			MSC-11486		B69-10485	05
MSC-13086	B68-10314	01	A method for precision anodize stripping		B69-10581	03
PECK, R. E.			MSC-15040			
Tracer of electrical conduit or pipes			PETERS, R. W.	Bearing transmits rotary and axial motion		
MSC-15223	B69-10347	01	LANGLEY-27		B64-10130	05
PEDDREW, K. H.			PETERSON, R. G.	Thick transducers used for generating short-duration stress pulses in thin specimens		
A microlagoon technique for the culture of mammalian cells			ARG-10232		B69-10045	01
LANGLEY-10407	B68-10554	04	An ultrasonic method for studying elastic moduli as a function of temperature		B69-10082	02
PELLETIER, A. J.			ARG-10187			
Jig protects transistors from heat while tinning leads			PETERSON, R. H.	Improved system for documenting measurement data		
MSC-515	B66-10240	05	M-FS-18269		B69-10513	01
PELTO, E. V.			PETERSON, R. M.	Calibrating ultrasonic test equipment for		
Assembly processor program converts symbolic programming language to machine language						
M-FS-13262	B67-10493	06				
PENNINGTON, F. C.						
The preparation, identification and properties of chlorophyll derivatives						
ARG-10205	B68-10409	03				
PENQUE, W. J.						
Compact microwave mixer has high conversion efficiency						
GSFC-197	B66-10625	01				
PEPPIN, G. B.						
Rod and dish cathode improves penning-type vacuum gage						
GSFC-447	B66-10082	01				
PERETKO, H. T.						
Use of both linear and logarithmic transfer functions to increase dynamic range of visual channel						
GSFC-10675	B69-10037	01				

- checking thin metal strip stock
NUC-10009 B67-10127 01
- Plastic shoe facilitates ultrasonic inspection of thin wall metal tubing
NUC-10010 B67-10542 02
- PETERSON, V. S.
Millivolt signal limiter
LEWIS-90297 B69-10015 01
- Flow angle sensor and readout system
LEWIS-90298 B69-10050 01
- PETRASEK, D. W.
Tungsten fiber-reinforced nickel superalloy
LEWIS-10424 B68-10369 03
- PETRICK, J. R.
Pulse technique provides more accurate checkout of exploding bridge wire device
HQ-62 B66-10561 01
- PETRICK, M.
Magnetohydrodynamic generators using two-phase liquid-metal flows
ARG-10168 B69-10162 01
- Studies of cycles for liquid-metal magnetohydrodynamic generation of power
ARG-10250 B69-10194 02
- PEWITT, E. G.
Cryogenic seal remains leaktight during thermal displacement
ARG-96 B67-10134 02
- PFEIFFER, A. F.
Two-way digital driver/receiver uses one set of lines
ERC-10055 B68-10437 01
- PFEIFFER, C. G.
Crystal measures short-term, large-magnitude forces
JPL-77 B65-10187 01
- PFIFFNER, H. J.
Bootstrap unloader
XNP-09768 B69-10120 01
- PFLUGER, R. O.
External linkage tie permits reduction in ducting system flange thickness
M-FS-823 B66-10326 05
- Spherical pipe joint delivers loads equally to mating flange
M-FS-807 B66-10665 05
- PFLUGER, H. L.
Separator for alkaline batteries
GSFC-10173 B68-10557 03
- PHARES, R. L.
Design of dissipative linear phase filters
M-FS-14698 B68-10572 01
- PHILIPP, W. H.
Production of metals and compounds by radiation chemistry
LEWIS-10231 B69-10123 03
- PHILLIPS, A.
Technique for pinpointing submicron particles in the electron microprobe
HQ-10043 B69-10465 01
- PHILLIPS, D. E.
Voltage regulator/amplifier is self-regulated
MSC-1240 B67-10156 01
- PHILLIPS, I. E., JR.
Copper foil provides uniform heat sink path
MSC-262 B66-10004 02
- PHILLIPS, J. D.
Pneumatic separator gives quick release to heavy loads
KSC-66-10 B66-10294 05
- PHILLIPS, M. D.
Workmanship standards for fusion welding
NUC-10050 B67-10200 05
- PHILYAN, B. K.
Rocket engine analog simulation
M-FS-14511 B68-10511 01
- PHLIEGER, G. A., JR.
Separation simulator
KSC-67-15 B69-10315 01
- PICCILOLO, G. L.
Mass culture of photobacteria to obtain luciferase
GSFC-10563 B69-10294 04
- Quantitative determination of flavin nucleotide using the bacterial bioluminescent reaction
GSFC-10565 B69-10715 04
- PICKARD, R. F.
Substituting gold for silver improves electrical connections
M-FS-2390 B67-10228 03
- Thin film heat transfer gage is stable at higher temperatures
M-FS-12396 B68-10051 01
- PIECZONKA, W. A.
Electrically controlled optical latch and switch requires less current
JPL-SC-111 B66-10414 01
- PIERCE, B. L.
Computer program MCAP provides for steady state thermal and flow analysis of multiple parallel channels in heat generating solid
NUC-10043 B67-10457 06
- PIERCE, R. D.
Two techniques enable sampling of filtered and unfiltered molten metals
ARG-150 B67-10034 03
- Titanium-nitrogen reaction investigated for application to gettering systems
ARG-10208 B68-10414 03
- Induction probe determines levels of liquid metals
ARG-10348 B69-10256 03
- PIERCE, W. B.
Circuit reliability boosted by soldering pins of disconnect plugs to sockets
JPL-447 B64-10002 01
- PIERSON, E. S.
Channel-wall limitations in the magnetohydrodynamic induction generator
ARG-10128 B69-10255 02
- PIESKI, E. T.
Predicting surface heating rates and pressures resulting from hot exhaust gases
MSC-971 B66-10633 05
- PILICHI, C. A.
Compact monitoring and control console for pressurized gas bottles
M-FS-14874 B68-10401 05
- PILTCH, A.
Gage monitors quality of cross-wire resistance welds
GSFC-90549 B68-10002 01
- PIPERSKY, E.
Technique for ultrasonic cleaning with volatile solvents eliminates need for hoods or condensers
MSC-15611 B69-10552 03
- PIPPEN, D. L.
High voltage pulse generator
MSC-12178 B69-10548 01
- PIRKLE, J. C., JR.
Quantum mechanical calculations of reactive scattering cross sections in bimolecular encounters
M-FS-13594 B67-10527 03
- PISCOPO, A.
Double emitter suppressed carrier modulator uses commercially available components
M-FS-2494 B67-10101 01
- PITKIN, R. G.
Simple motor drive system operates heavy hinged door
NU-0093 B66-10712 05
- Swing-out rail system separates overhead crane rails
NU-0094 B66-10713 05
- PIZZO, J.
Braking mechanism is self actuating and bidirectional
M-FS-1299 B66-10484 05
- PLAMONDON, J. A., JR.
Improved cavity-type absolute total-radiation radiometer
JPL-807 B67-10557 01
- PLATNER, J. L.
Reaction heat used in static water removal from fuel cells
M-FS-532 B66-10013 01
- PLATT, L. W.
Low energy ohmmeter can be used to test sensitive circuits, other meters
SAN-10013 B68-10269 01
- PLATT, P. K.
Connector seals fluid lines at cryogenic temperatures and high vacuums
GSFC-253 B64-10327 05
- PLATUS, D. L.
Torus elements used in effective shock

- absorber
WOO-114 B66-10318 05
- PLESSET, M.
JPKNIC - General key word in context and
subject index report generator NPO-10589 B68-10208 06
- PLITT, K. F.
Composite seal reduces alkaline battery
leakage GSFC-337 B65-10271 01
- PLOTT, M.
Geometry and design point performance of
axial flow turbines LEWIS-10471 B69-10111 06
- PLOURDE, H. S.
Low level accelerometer test methods are
investigated M-FS-908 B66-10510 01
- POFERL, D. J.
Properties of air and combustion products
of fuels with air LEWIS-11030 B69-10711 03
- POHL, H. O.
Two-step rocket engine bipropellant valve
concept MSC-10951 B69-10280 05
- POHLEN, J. C.
Land landing couch dynamics computer program
MSC-1210 B67-10233 06
- POINDEXTER, A. M.
Aluminum-titanium hydride-boron carbide
composite provides lightweight neutron
shield material NUC-10069 B67-10265 03
- POLAKOWSKI, N. H.
Ductile mandrel and parting compound
facilitate tube drawing ARG-43 B66-10571 05
- POLHEMUS, F. C.
Study made to establish parameters and
limitations of explosive welding M-FS-13006 B67-10393 05
- POLLACK, F. G.
Surface temperature mapping with infrared
photographic pyrometry LEWIS-10763 B69-10113 01
- POLLACK, R. A.
Land landing couch dynamics computer program
MSC-1210 B67-10233 06
- POLLAN, W. D.
Real-Time Operating System/360 MSC-12148 B69-10386 01
- POLLARD, R. A.
Buoyant Stokes litter assembly used for sea
rescue operations MSC-131 B66-10019 05
- POND, J. E.
Determination of quadric equation
coefficients describing three-dimensional
surfaces, their constraint and skewed planes,
and view point areas M-FS-15043 B69-10435 06
- POORMAN, R. M.
Tube welding and brazing M-FS-20348 B69-10085 05
- POPE, J. M.
Cardiotachometer with linear beat-to-beat
frequency response ARC-10033 B67-10598 01
- Automatic patient respiration failure
detection system with wireless transmission
ARC-10174 B68-10365 01
- POPICK, H.
Laser system used for dynamic balancing of
gyros M-FS-12218 B68-10225 05
- POPPER, G. F.
Refractory oxide insulated thermocouple
designed and analyzed for high temperature
applications ARG-10202 B69-10053 03
- PORGES, K. G.
Live-timer method of automatic dead-time
correction for precision counting ARG-10478 B69-10612 01
- PORGES, K. G. A.
Manganese-56 coincidence-counting facility
precisely measures neutron-source strength
ARG-90261 B69-10621 01
- PORTER, R. N.
Device transmits rotary motion through
hermetically sealed wall JPL-303 B63-10198 05
- POSAKONY, G. J.
Nondestructive testing of welds on
thin-walled tubing M-FS-18144 B69-10402 01
- POSEVER, F. C.
Determination of permissible applied load
stress in structural elements M-FS-16556 B69-10823 02
- POSTMA, R. W.
Damper reduces effects of resonance on
force transducer WSO-321 B66-10550 05
- POTTER, N. B.
Circuit prevents overcharging of secondary
cell batteries GSFC-454 B66-10492 01
- Electrochemical sintering process for
producing electrodes from cadmium felt and
a nickel or silver grid GSFC-10764 B69-10227 05
- POTTER, P. D.
Flange on microwave antenna subreflector cuts
ground noise JPL-362 B63-10229 01
- Novel horn antenna reduces side lobes,
improves radiation pattern JPL-425 B63-10264 01
- Computer program for machine design of
Cassegrain feed systems NPO-10588 B68-10421 06
- POTTS, C.
Improved head-controlled TV system produces
high-quality remote image ARG-128 B67-10317 01
- Improved electromechanical master-slave
manipulator ARG-10027 B68-10372 05
- POTTS, G. L.
Fluid-bed fluoride volatility process
recovers uranium from spent uranium alloy
fuels ARG-232 B67-10032 03
- POWELL, R. A.
Translator program converts computer
printout into braille language M-FS-2061 B67-10087 01
- POWERS, E. L.
Radiation effects on bacterial cells ARG-10064 B68-10169 04
- PRAGER, M.
Heat treatment procedure to increase
ductility of degraded nickel alloy M-FS-12410 B68-10029 03
- Pre-weld heat treatment improves welds in
Rene 41 M-FS-18174 B68-10285 03
- Strain-age cracking in Rene 41 alloy
M-FS-18650 B69-10605 03
- PRATER, L.
Device facilitates centering of workpieces in
lathe chuck M-FS-685 B66-10277 05
- PRESSMAN, G. L.
Direct force-measuring transducer used in
blood pressure research ARC-53 B65-10325 01
- PRESTON, C. C.
A fast-neutron spectrometer of advanced
design M-FS-1664 B66-10555 01
- PRINAK, W.
Hydrogen peroxide etching proves useful for
germanium ARG-10170 B68-10454 03
- Determination of the absolute contours of
optical flats ARG-10352 B69-10209 05
- PRINCE, D. C.
Computer programs calculate potential and
charge distributions in a plasma M-FS-871 B66-10553 01
- PRITSKER, B.
GERT EXCLUSIVE-OR combining paths and
loops of electrical networks

ERC-10206 B68-10435 06
 GERT simulation program for GERT network
 analysis
 ERC-10209 B68-10457 06
PROFFITT, R. T.
 Infrared television used to detect hydrogen
 fires
 M-FS-654 B66-10363 01
PROK, G. M.
 Vapor condensation process produces slurry of
 magnesium particles in liquid hydrocarbons
 LEWIS-263 B66-10104 03
PROKOPIUS, P. R.
 Fluidic oscillator used as humidity sensor
 LEWIS-340 B67-10063 05
PRONO, E.
 Segmented ball valve is easy to open and close
 WOO-248 B66-10195 05
PROSCH, J.
 General frequency response program calculates
 frequency response of system, open at any
 specified element
 M-FS-12817 B67-10521 06
PROVISOR, H.
 Photographic and drafting techniques
 simplify method of producing engineering
 drawings
 MSC-716 B68-10128 02
PRZYBYSZEWSKI, J.
 Electron bombardment improves vacuum chamber
 efficiency
 LEWIS-160 B65-10280 02
 Application of the solid lubricant
 molybdenum disulfide by sputtering
 LEWIS-10544 B68-10340 03
PRZYBYSZEWSKI, J. S.
 Complex surfaces plated by thin-film
 deposition in one operation
 LEWIS-292 B67-10006 05
 Liquid gallium rotary electric contact
 LEWIS-10828 B69-10138 03
PRZYBYSZEWSKI, J. S., JR.
 Pulsed high-voltage dc RF sputtering
 LEWIS-10920 B69-10699 01
PUCCINELLI, A. A.
 Respiratory transfer value has fail-safe
 feature
 ARC-1 B65-10369 01
PURCELL, J. R.
 Experimental prediction of performance
 by superconducting cables
 ARG-10215 B69-10161 01

Q

QUAN, V.
 One-dimensional two-phase reacting gas
 nonequilibrium performance program
 MSC-11780 B68-10376 06
 Axisymmetric reacting gas nonequilibrium
 performance program
 MSC-11781 B68-10377 06
QUANTINETZ, M.
 Double gloves reduce contamination of dry box
 atmosphere
 LEWIS-211 B65-10117 03
QUARLES, J. D.
 Earth orbit rendezvous evaluation program
 M-FS-13016 B67-10407 06
QUARTERMAN, L. A.
 Xenon fluoride solutions effective as
 fluorinating agents
 ARG-217 B67-10133 03
QUANTINETZ, M.
 Submicron metal powders produced by ball
 milling with grinding aids
 LEWIS-188 B66-10221 03
 Antechamber facilitates loading and
 unloading of vacuum furnace
 LEWIS-10265 B68-10135 02
QUIGG, R. J.
 Nickel base alloy with improved stress
 rupture properties
 LEWIS-10283 B68-10344 03
QUINN, E. A.
 Sterilization training manual
 M-FS-20437 B69-10277 04
QUINN, J. D.
 Solid state detectors monitor relay contacts

JPL-785 B66-10396 01
R
RADCLIFFE, S. W.
 Experimental design for research on
 shock-turbulence interaction
 M-FS-20031 B69-10604 02
RADECKE, T. F.
 Compact coaxial connector for printed circuit
 adds reliability
 MSC-57 B64-10016 01
RADNIK, J. L.
 Environmental study of miniature slip rings
 M-FS-2443 B67-10210 05
RADNOSKY, M. I.
 New inflatable liferaft is nontippable
 MSC-4A B64-10001 05
 Self-inflating lifevest stores in small
 package
 MSC-5A B66-10184 04
 Pneumatic raft automatically reforms after
 rupture of buoyant member
 MSC-11562 B68-10011 05
RADYS, R. G.
 One-shot pulse shaper circuit
 XGS-11379 B68-10012 01
RAFFO, P. L.
 Lower-cost tungsten-rhenium alloys
 LEWIS-332 B66-10528 03
 High-strength tungsten alloy with improved
 ductility
 LEWIS-10257 B67-10340 03
RAGGIO, L. J.
 Hand-held instrument should relieve
 hematoma pressure
 MSC-599 B67-10332 04
RAGSDALE, R.
 Technique for predicting temperature
 distribution in gases
 LEWIS-10918 B69-10329 01
RAINWATER, L.
 Measurement technique for the determination
 of antenna directivity
 M-FS-12799 B69-10677 01
RAINWATER, W. J.
 Electron interaction in matter
 M-FS-14886 B69-10674 02
RAMASWAMI, D.
 Fluid-bed fluoride volatility process
 recovers uranium from spent uranium alloy
 fuels
 ARG-232 B67-10032 03
 Effect of interparticle forces on the
 fluidization of fine particles
 ARG-10264 B69-10195 03
RANIREZ, M.
 Improved table for cutting and welding
 MSC-15537 B69-10346 05
RAMOS, G. L.
 Temperature controlled strain gaged
 extensometer
 LEWIS-10353 B68-10543 01
RANSEY, J. G., JR.
 Tools made of ice facilitate forming of
 soft, sticky materials
 KSC-10262 B69-10199 05
RANCK, H. H.
 Vis-A-Plan /visualize a plan/ management
 technique provides performance-time scale
 KSC-10073 B67-10240 06
RANDALL, J. C.
 Simple control device senses solar position
 JPL-638 B65-10061 01
RANDAZZO, G. J.
 Rocket engine analog simulation
 M-FS-14511 B68-10511 01
RANGER, C. S.
 Interior servicing platform simplifies
 maintenance of storage tanks
 M-FS-1300 B66-10425 05
RAPHAEL, H. A.
 Inspection of fine wires simplified by
 capillary tube wire holder
 MSC-358 B66-10329 01
RAPPAPOORT, P.
 Simplified method introduces drift fields
 into cells
 GSFC-572 B67-10102 03

- | | | | | | | | | | |
|----------------------|--|------------|-----------|----|------------------|---|---------------|-----------|----|
| BASOR, N. S. | Photoelectric scanner makes detailed work function maps of metal surface | JPL-SC-176 | B66-10440 | 01 | M-FS-20423 | Apparatus permits flexure testing of specimens at cryogenic temperatures | B65-10129 | 02 | |
| | Thermionic scanner pinpoints work function of emitter surfaces | JPL-SC-177 | B66-10444 | 01 | M-FS-257 | Laminated sheet composites reinforced with modular filament sheet | B68-10146 | 03 | |
| RASQUIN, J. R. | Coolants with selective optical filtering characteristics for ruby laser applications | M-FS-20188 | B68-10508 | 02 | M-FS-20657 | Explosive bonding of metal-matrix composites | B69-10804 | 05 | |
| RATHEBUN, F. O., JR. | Diffusion bonding makes strong seal at flanged connector | M-FS-637 | B66-10250 | 05 | REED, J. H. | Device induces lungs to maintain known constant pressure | MSC-50 | B64-10108 | 04 |
| RATHEBUN, R. J. | Modular Porous Plate Sublimator /MPPS/ requires only water supply for coolant | M-FS-1374 | B66-10409 | 01 | REED, R. W. | Computer program reduces and provides profile plot of surface plate calibration data | M-FS-13866 | B67-10492 | 06 |
| RATTI, N. | Concept to convert electrical power | GSFC-10222 | B68-10321 | 01 | REED, W. H., III | New anemometer has fast response, measures dynamic pressure directly | LANGLEY-28 | B63-10530 | 05 |
| RATTHAN, W. J. | Wideband, high efficiency optical modulator requires less than 10 watts drive power | M-FS-12733 | B67-10289 | 01 | | Viscous-pendulum damper suppresses structural vibrations | LANGLEY-45 | B64-10272 | 05 |
| RAUSCH, J. L. | Multilayer refractory nozzles produced by plasma-spray process | WOO-318 | B66-10611 | 05 | | Suspended chains damp wind-induced oscillations of tall flexible structures | LANGLEY-10193 | B68-10042 | 05 |
| RAUSCHL, J. A. | Adjustable knife cuts honeycomb material to specified depth | MSC-475 | B66-10237 | 05 | REED, W. R. | Multiplex television transmission system | MSC-11595 | B67-10576 | 01 |
| | Mill profiler machines soft materials accurately | M-FS-692 | B66-10254 | 05 | REHN, I. M. | Excellent spring properties developed in two nickel alloys for use at cryogenic temperatures | NUC-10084 | B67-10349 | 03 |
| | Fixed vacuum plate clamps styrofoam for machining | M-FS-683 | B66-10283 | 05 | REID, W. J. | Electronic frequency discriminator | M-FS-2434 | B67-10151 | 01 |
| | Versatile machine mills, saws light materials | M-FS-827 | B66-10364 | 05 | REILLY, R. E. | Improved perceptual-motor performance measurement system | HQ-10123 | B69-10385 | 01 |
| RAWF, R. A. | A biaxial weld strength prediction method | M-FS-20019 | B69-10471 | 05 | REILLY, R. R. | Interference effects eliminated in random oriented space station antenna system | MSC-11004 | B67-10435 | 01 |
| RAWSON, R. D. | Data retrieval system provides unlimited hardware design information | MSC-1144 | B67-10170 | 01 | REISMAN, P. A. | Fiber length and orientation prevent migration in fluid filters | M-FS-541 | B66-10319 | 05 |
| RAYLE, W. | Cryopumping of hydrogen in vacuum chambers is aided by catalytic oxidation of hydrogen | LEWIS-15 | B63-10340 | 05 | REIN, J. | Standard surface grinder for precision machining of thin-wall tubing | ARG-10014 | B67-10400 | 05 |
| RAYMOND, R. | Spray-on technique simplifies fabrication of complex thermal insulation blanket | M-FS-497 | B66-10053 | 03 | REINFELDS, J. | New computer system simplifies programming of mathematical equations | M-FS-441 | B66-10361 | 01 |
| READER, A. F. | Process sequence produces strong, lightweight reflectors of excellent quality | LEWIS-331 | B67-10010 | 05 | REINHARDT, E. C. | Lifting clamp positively grips structural shapes | M-FS-593 | B66-10176 | 05 |
| READER, T. | Review of research and development in fluid logic elements | M-FS-420 | B67-10438 | 01 | REINHARDT, G. | Double gloves reduce contamination of dry box atmosphere | LEWIS-211 | B65-10117 | 03 |
| READER, T. D. | Binary fluid amplifier solves stability and load problems | ERC-15 | B66-10177 | 01 | REISMANN, H. | Digital computer program predicts effects of local pressure transients on deformation and stresses in cylindrical ducts | M-FS-13058 | B67-10631 | 06 |
| READY, D. W. | Surface profilometer for examining grain-boundary grooves | ARG-10290 | B69-10345 | 05 | REITMAN, J. | A technique for making animal restraints | ARC-25 | B63-10564 | 05 |
| REAMS, L. T. | LABCON - Laboratory Job Control program | M-FS-18141 | B69-10106 | 06 | REHBAUM, A. | Process for preparing dispersions of alkali metals | JPL-734 | B66-10639 | 03 |
| REBELEIN, P. R. | Automatic planning concept - An analysis of optimum scheduling | M-FS-14198 | B68-10127 | 06 | | Primary cells utilize halogen-organic charge transfer complex | JPL-926 | B66-10682 | 02 |
| RECHTER, H. L. | Pigmented coating resists thermal shock | JPL-SC-083 | B65-10354 | 03 | | Static electricity of polymers reduced by treatment with iodine | NPO-10062 | B67-10132 | 03 |
| | Improved thermal insulation materials made of foamed refractory oxides | M-FS-735 | B66-10288 | 03 | | Primary cell uses neither liquid nor fused electrolytes | NPO-10001 | B67-10275 | 04 |
| REDMON, J. W. | Journal gas bearing for curved surfaces | | | | | | | | |

Photovoltaic effect in organic polymer-iodine complex NPO-10373	B67-10634	03	
Heparin insolubilized with crosslinking agent NPO-10834	B69-10299	03	
REHLEY, G. A. Vapor deposition process provides new method for fabricating high temperature thermocouples NUC-10152	B67-10616	01	
REMUS, G. A. Device for obtaining separation of oxygen LANGLEY-11007	B69-10477	01	
RENNER, R. Heavy-duty staple remover operated by hand JPL-IT-1004	B63-10292	05	
RENNIE, T. A. Concept for modifying drafting instruments to minimize smearing KSC-10056	B67-10283	05	
RESSEL, J. E. Floating device aligns blind connections MSC-256	B66-10007	05	
RESTER, D. H. Electron interaction in matter M-FS-14886	B69-10674	02	
REYNOLDS, J. C. Automatic computation of data-set definitions ARG-10475	B69-10608	06	
COGENT programming manual ARG-10463	B69-10656	06	
RHO, J. H. Automated urinalysis technique determines concentration of creatine and creatinine by colorimetry NPO-10149	B67-10245	04	
RHODES, J. E. Optically exciting a magnetic memory - A feasibility study M-FS-14854	B69-10060	02	
RICCITIELLO, S. R. Fire retardant foams developed to suppress fuel fires ARC-10098	B68-10358	03	
RICE, M. E. Nosepiece respiration monitor ERC-10136	B68-10438	01	
RICE, R. E. Braze alloys used as temperature indicators NU-0063	B66-10274	01	
Logic circuit detects both present and missing negative pulses in superimposed wave trains M-FS-12518	B67-10565	01	
RICH, E., JR. Mass culture of photobacteria to obtain luciferase GSFC-10563	B69-10294	04	
RICH, S. Coincident switch closing reduces error in motor-driven timer JPL-182	B63-10143	05	
RICHARD, P. J. Subroutines GEORGE and DRASTC simplify operation of automatic digital plotter NUC-10044	B67-10222	06	
RICHARD, R. R. Angular acceleration measured by deflection in sensing ring MSC-250	B66-10105	01	
RICHARDS, H. K. Potassium plasma cell facilitates thermionic energy conversion process ARG-10010	B67-10399	01	
Performance of low-pressure thermionic converters is evaluated ARG-10276	B69-10090	01	
RICHARDS, W. E. Optically induced free carrier light modulator GSFC-10216	B69-10114	01	
RICHARDSON, G. L. Seal surfaces protected during assembly NU-0067	B66-10266	05	
RICHARDSON, M. B. Two-functional seal for hose connection			
M-FS-14062	B69-10588	05	
RICHARDSON, W. R. Accurate depth control provided for thermocouple junction locations LANGLEY-289	B66-10632	01	
RICHARDSON, P. J. Tungsten thermal neutron dosimeter LEWIS-10880	B69-10249	02	
RICHMEY, D. Controlled substrate cooling improves reproducibility of vapor deposited semiconductor composites ERC-10161	B69-10732	01	
RICHMOND, J. C. Ellipsoidal-mirror reflectometer accurately measures infrared reflectance of materials GSFC-566	B67-10444	01	
RICHTER, H. L. Low speed, long term tracking electric drive system has zero backlash NPO-10173	B67-10220	01	
RICKENMAN, E. C. Concept for passive system to control gas flow independently of temperature M-FS-982	B66-10343	05	
RICKS, L. O. SOC-DS computer code provides tool for design evaluation of homogeneous two-material nuclear shield NUC-10142	B67-10537	06	
Computer program calculates gamma ray source strengths of materials exposed to neutron fluxes NUC-10143	B67-10665	06	
RIEBLING, R. W. Two-fluid, impinging-sheet injector NPO-10547	B68-10338	05	
RIISE, H. W. Water cooled anode increases life of high temperature arc lamp NPO-10180	B67-10247	02	
RILEY, R. H., JR. Hole saw drill attachment has zero force reaction MSC-543	B66-10604	05	
RILEY, T. Study made of destructive sectioning of complex structures for examination LEWIS-341	B66-10676	05	
RINARD, G. Apparatus alters position of objects to facilitate demagnetization GSFC-234	B64-10277	05	
RINDFLEISCH, T. VICAR-DIGITAL image processing system NPO-10770	B69-10139	06	
RINDNER, W. Pressure-sensitive bonded junction transducers ERC-10087	B68-10563	01	
Miniature backward-diode pressure sensor features stability and low power consumption ERC-10229	B69-10690	01	
RISH, F. L. Static structural analysis of shell-type structures MSC-11555	B68-10066	03	
RITCHIE, V. S. Averaging probe reduces static-pressure sensing errors LANGLEY-36	B65-10114	05	
RIVARD, J. G. Study of vortex valve for medium temperature solid propellants LANGLEY-204	B66-10524	01	
RIVET, E. J. Method for copper staining of germanium crystals ARG-10403	B69-10257	03	
ROBB, M. A. Portable machine welding head automatically controls arc M-FS-12763	B67-10272	05	
ROBERTS, D. L. Laser system used for dynamic balancing of gyros M-FS-12218	B68-10225	05	
ROBERTS, J. A., JR. Digital data averager improves conventional			

measurement system performance MSC-12078	B68-10018	01	RODGERS, J. D. Ferroelectric bolometer measures RF absolute power at submillimeter wavelengths GSFC-422	B66-10051	01
ROBERTS, J. S. Thin film process forms effective electrical contacts on semiconductor crystals M-FS-2343	B67-10142	01	ROEBUCK, J. A., JR. Integrated mobility measurement and notation system MSC-726	B67-10114	04
Process facilitates photoresist mask alignment on SiC crystals M-FS-2394	B67-10144	01	ROEDER, E. R. New brazing alloy eliminates metal-stress cracking WOO-249	B65-10397	03
ROBERTS, L. A. A positive taper traveling-wave tube LANGLEY-10263	B69-10407	01	ROEHRRIG, J. R. Absolute low-pressure calibration system M-FS-13085	B68-10160	02
ROBERTS, R. H. Modified cryogenic storage tank subsystem KSC-10380	B69-10556	02	ROESKE, P. W. Inductive system detects level of conducting fluids LEWIS-322	B66-10392	01
ROBERTS, R. W. Ambient temperature catalyst for hydrogen ignition LEWIS-10551	B68-10520	03	ROESHER, J. Radioactive method enables determination of surface areas rapidly and accurately NU-0088	B66-10710	03
ROBERTSON, J. B. X-Y plotter adapter developed for SDS-930 computer NPO-10220	B67-10654	06	ROGALLO, V. L. Ultra-sensitive transducer advances micro-measurement range ARC-26	B64-10004	01
ROBERTSON, J. E. Experimental program to investigate transonic flow around protuberances M-FS-20037	B69-10609	05	Method permits mechanical and electrical checkout of piezoelectric transducers while installed in a system ARC-73	B66-10533	01
ROBERTSON, M. D. Gas chromatograph injection port protective device M-FS-18585	B69-10788	03	Miniature piezoelectric triaxial accelerometer measures cranial accelerations ARC-71	B66-10534	01
ROBERTSON, S. J. Study of theory and application of long duration heat flux transducers M-FS-1265	B66-10614	01	ROGERO, R. S., JR. Shock mount isolates pressure transducers from vibration JPL-631	B65-10113	05
ROBERTSON, T. L. Hand-held instrument should relieve hematoma pressure MSC-599	B67-10332	04	ROGERS, G. L. Lithium-tellurium bimetallic cell has increased voltage ARG-10141	B68-10400	01
ROBERTSON, W. A. Improved anode design for metal-oxygen cells LEWIS-10871	B69-10318	01	Analysis of secondary cells with lithium anodes and immobilized fused-salt electrolytes ARG-10452	B69-10613	01
ROBINSON, C. C. Study of fast response thermocouple measurement of temperatures in cryogenic gases M-FS-1659	B66-10661	01	ROHLIK, H. E. Radial inflow turbine design charts LEWIS-10720	B68-10567	05
ROBINSON, D. A. Improved fire resistant radio frequency anechoic materials M-FS-16600	B69-10450	05	ROHRBERG, R. G. Flexible drive allows blind machining and welding in hard-to-reach areas MSC-524	B66-10428	05
ROBINSON, G. Tiny sensor-transmitter can withstand extreme acceleration, gives digital output ARC-22	B63-10561	01	ROHRER, J. A. Magnetically controlled torque wrench prevents overtightening SAN-10002	B68-10209	05
ROBINSON, G. B. Gapped toroid provides infinite resolution of delay-line pickup GSFC-370	B65-10258	01	Compressible sleeve provides automatic centering for grinding or turning of cylinders SAN-10021	B68-10318	05
Added diodes increase output of balanced mixer circuit GSFC-354	B65-10276	01	ROJEC, E. A. High-speed camera synchronization M-FS-18062	B68-10282	02
ROBINSON, G. P. Heat flux sensor design reduces extraneous source effects MSC-400	B66-10531	01	ROKOP, S. Purification and characterization of two fully deuterated enzymes ARG-10314	B69-10207	04
ROBINSON, W. J., JR. Feasibility study of wireless power transmission systems M-FS-14691	B68-10309	01	ROLFE, E. Laser-Doppler gas-velocity instrument M-FS-20039	B68-10349	02
ROBISON, R. J. Accumulator for shaft encoder M-FS-13599	B68-10093	01	ROLL, J. A. Radioactive method enables determination of surface areas rapidly and accurately NU-0088	B66-10710	03
RODDICK, R. G. Solid-state time-to-pulse-height converter developed ARG-170	B67-10053	01	ROLLER, R. Electronic skewing circuit monitors exact position of object underwater NUC-10146	B67-10629	01
RODEN, W. A. Electron beam welder X-rays its own welds LEWIS-10111	B67-10216	02	Deflection circuit monitors force on object under water NUC-10147	B68-10147	01
RODER, H. M. Thermodynamic properties of saturated liquid parahydrogen charted for important temperature range NUC-10018	B67-10346	03	ROLLINS, C. T. Experiments with ceramic coatings M-FS-18150	B68-10355	03
Computer programs for thermodynamic and transport properties of hydrogen NUC-10537	B68-10150	06	ROM, F. E. Fuel element concept for long life high power nuclear reactors LEWIS-10309	B69-10154	03

ROMAN, J. A.	High- and low-pressure pneumotachometers measure respiration rates accurately in adverse environments PRC-10012	B68-10188	01	
ROHMEL, M. A.	Sniffer used as portable hydrogen leak detector M-FS-846	B66-10356	01	
ROHEY, J. A.	Fixture facilitates helium leak testing of pipe welds M-FS-2167	B67-10178	05	
	Hand-operated plug insertion valve M-FS-12019	B67-10466	05	
ROSA, A. G.	Improved anode design for metal-oxygen cells LEWIS-10871	B69-10318	01	
ROSALES, L. A.	Multiple-orifice throttle valve XNP-09698	B69-10030	05	
ROSE, R. M.	One hundred angstrom niobium wire LEWIS-10128	B68-10279	03	
ROSELAND, L. M.	Nonwoven glass fiber mat reinforces polyurethane adhesive M-FS-2309	B67-10113	03	
ROSEN, B. W.	Study made of mechanics of deformation and fracture of fibrous composites HQ-10035	B67-10660	03	
ROSEN, H. A.	Compact microwave mixer has high conversion efficiency GSFC-197	B66-10625	01	
ROSEN, M.	Thick transducers used for generating short-duration stress pulses in thin specimens ARG-10232	B69-10045	01	
ROSENBAUM, B. J.	Flow-test device fits into restricted access passages MSC-1078	B67-10074	01	
ROSENBERG, G. S.	Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes ARG-10274	B69-10047	02	
	Identification and evaluation of linear damping models in beam vibrations ARG-10275	B69-10196	03	
ROSENBERG, H. W.	Diaphragm spring gives clutch over-center toggle effect GSFC-499	B66-10297	05	
ROSENBLUM, L.	Apparatus enables accurate determination of alkali oxides in alkali metals LEWIS-256	B66-10296	03	
ROSENCHECK, A. J.	Electronic dummy for acoustical testing MSC-206	B67-10298	01	
ROSENHANN, W.	Negative feedback system reduces pump oscillations M-FS-1852	B67-10064	05	
ROSENTHAL, N. A.	Inhibition of browning in foodstuffs HQ-10177	B69-10493	04	
ROSETT, B.	Image position sensor M-FS-14101	B69-10783	02	
ROSINE, D. R.	Integrated sequence display device KSC-10381	B69-10316	01	
ROSS, A. O.	Ohmmeter senses depletion of lubricant in journal bearings LEWIS-37	B64-10042	01	
ROSS, H. H.	Fixture aids soldering of electronic components on circuit board ARC-56	B66-10162	01	
ROSS, W.	Evaluation of ignition mechanisms in selected nonmetallic materials MSC-11645	B68-10167	03	
ROSSELLO, D.	Simple test for physical stability of cryogenic tank insulation M-FS-12547	B68-10048	03	
ROSSIN, A. D.	Procedure developed for reporting fast-neutron exposure ARG-10035	B68-10190	02	
	Susceptibility of irradiated steels to hydrogen embrittlement ARG-10115	B68-10194	03	
ROSTAFINSKI, W.	Prediction of performance of centrifugal pumps during starts under pressure LEWIS-10900	B69-10263	05	
ROTH, B.	Sensor detects hydrocarbon oil contaminants in fluid lines M-FS-522	B66-10068	01	
	Radioactive tracer system detects oil contaminants in fluid lines M-FS-512	B66-10090	03	
	Fingertip current control facilitates use of arc welding gun MSC-289	B66-10092	05	
	Pressure vessels fabricated with high-strength wire and electroformed nickel M-FS-580	B66-10218	05	
ROTBE, D. E.	Multichannel spectroscopy guide HQ-10441	B69-10550	01	
ROTHMAN, D.	Computer program simulates design, test, and analysis phases of sensitivity experiments M-FS-1496	B67-10077	01	
	Computer program reduces calculation time of normal response functions M-FS-1517	B67-10108	01	
ROTHWELL, G. E.	Body-fitted harness provides safe and easy component handling M-FS-533	B66-10202	05	
ROUGELOT, R. S.	Video signal processing system uses gated current mode switches to perform high speed multiplication and digital-to-analog conversion MSC-781	B66-10429	01	
ROUGHTON, N. A.	Vibration analysis utilizing Mossbauer effect M-FS-11974	B67-10339	01	
ROUTSON, J. W.	Pressure levels and pulsation frequencies can be varied on high pressure/frequency testing device LEWIS-10205	B67-10360	05	
ROUZE, E. R.	Ball and socket joints provide accurate biaxial gimbal JPL-658	B65-10205	05	
ROY, M. M.	Electrically controlled optical latch and switch requires less current JPL-SC-111	B66-10414	01	
	Improved method of fabricating planar gallium arsenide diodes XNP-04235	B69-10271	01	
ROY, N.	Oscilloscope used as X-Y plotter or two-dimensional analyzer LEWIS-311	B67-10269	01	
ROYER, D. R.	Midcourse maneuver operations program NPO-10735	B69-10105	06	
ROYSTER, D. M.	Machining technique prevents undercutting in tensile specimens LANGLEY-10281	B68-10352	05	
RUBENSTEIN, L. S.	High-strength tungsten alloy with improved ductility LEWIS-10257	B67-10340	03	

RUBIN, D. K.	Veitch diagram plotter simplifies Boolean functions	JPL-385	B63-10241	05	surface areas rapidly and accurately	NU-0088	B66-10710	03
RUDDEROW, T.	Work platform is supported by self-locking blades	M-FS-2297	B67-10180	05	S			
RUDEK, F. P.	Improved fuel-cell-type hydrogen sensor	M-FS-14656	B68-10263	01				
RUDNICK, S. J.	High resolution Ge/Li/ spectrometer reduces rate-dependent distortions at high counting rates	ARG-10144	B68-10420	01	SABO, W.	Continuous internal channels formed in aluminum fusion welds	M-FS-2399	B67-10183 05
	Multichannel analyzers at high rates of input	ARG-10355	B69-10214	02	SABOE, J. M.	Technique for improving solid state mosaic images	M-FS-20532	B69-10676 01
	Live-timer method of automatic dead-time correction for precision counting	ARG-10478	B69-10612	01	SABOE, M. M.	Selective video blanking technique	M-FS-20013	B68-10434 01
	Highly stable high-rate discriminator for nuclear counting	ARG-10483	B69-10614	01	SABOL, A. P.	Pulsed plasma accelerator operates repetitively without complex controls	LANGLEY-48	B65-10062 01
RUGGERI, R.	Method for predicting pump cavitation performance	LEWIS-10916	B69-10446	02		Nitrogen dioxide produced by self-sustained pyrolysis of nitrous oxide	LANGLEY-32	B65-10074 05
RUMPH, D. G.	Flow liner extends operating life of high-angulation bellows	M-FS-12023	B67-10512	05	SACCOCIO, R. M.	Captive nut fastener securely joins brittle materials	NU-0008	B65-10245 05
RUPNIK, D. R.	Solid state circuit switches ac load	JPL-798	B66-10465	01	SACHER, G. A.	Investigation of temperature dependence of development and aging	ARG-10145	B69-10022 04
RUPPE, E. P.	Liquid trap seals thermocouple leads	M-FS-688	B66-10212	05	SACCHANE, G. H.	Vacuum chamber is remotely sealed by eutectic metal	NU-0091	B67-10059 05
	Strippable grid facilitates removal of grid-surfaced conical workpiece from die	M-FS-716	B66-10334	01	SACRANONE, P. J.	Method of disjoining adhesively bonded electronic cordwood modules	MSC-12060	B68-10086 01
	Brazing retort manifold design concept may minimize air contamination and enhance uniform gas flow	M-FS-707	B66-10371	05	SAKAKURA, H. D.	Thermal Network Analyzer Program	NUC-10540	B69-10239 06
RUSCH, W. V. T.	Scanning means for Cassegrainian antenna	JPL-946	B67-10174	05	SAKELLAROPOULOS, E. G.	Resonant microwave dichroic surface	GSFC-10658	B69-10274 01
RUSH, R. E.	Tool repairs tube components in situ	MSC-15348	B69-10379	05	SALCEDO, G.	Magnetic tape transport controlled by rotating transducer heads	GSFC-483	B68-10079 01
RUSSEL, J. M., III	Sensors measure surface ablation rate of reentry vehicle heat shield	LANGLEY-287	B66-10592	01	SALIGA, T. V.	Digital voltage-controlled oscillator	GSFC-512	B67-10449 01
RUSSELL, L. D.	Method of measuring thermal conductivity of high performance insulation	M-FS-14088	B68-10013	02	SALISBURY, S. S.	Deposition monitor and control	NPO-10706	B69-10722 01
RUSSELL, W. E.	Process sequence produces strong, lightweight reflectors of excellent quality	LEWIS-331	B67-10010	05	SALKOWSKI, M. J.	Solvent residue content measured by light scattering technique	M-FS-850	B66-10320 01
RUTHER, W. E.	Study made of corrosion resistance of stainless steel and nickel alloys in nuclear reactor superheaters	ARG-230	B67-10051	03	SALLEY, G. C.	Thread cutting with 3-axis N/C milling machine	LANGLEY-10017	B68-10055 06
	Corrosion reduction of aluminum alloys in flowing high-temperature water	ARG-10244	B69-10029	03	SALTER, F. O.	Digital filter suppresses effects of nonstatistical noise bursts on multichannel scaler digital averaging systems	ARG-90143	B68-10193 06
RUTKOWSKI, M. D.	Improved fuel-cell-type hydrogen sensor	M-FS-14656	B68-10263	01	SALZANO, G. H.	Carriage system remotely moves drawer over extended distance	NU-0092	B66-10711 05
RYAN, E.	A request-oriented information selection program	LEWIS-10255	B68-10451	06	SALZMAN, R. M.	Study made of large amplitude fuel sloshing	M-FS-12381	B67-10439 03
RYAN, K. E.	System for computing operational probability equations	M-FS-16410	B69-10566	06	SAMMIS, J. C.	A prototype high power portable lamp	M-FS-20229	B69-10189 02
RYERSON, C. M.	Development of reliability prediction technique for semiconductor diodes	GSFC-10231	B67-10651	06	SAMPSON, J. A. R.	Ion chambers simplify absolute intensity measurements in the vacuum ultraviolet	ERC-10	B66-10439 01
RYNER, G. T.	Radioactive method enables determination of				SAMUEL, L. W.	Circuit board hole coordinate locator concept	M-FS-14737	B69-10539 01
					SAN MIGUEL, A.	Miniature stress transducer has directional capability		

JPL-591	B65-10023	01	SCHAEDEL, G. C.	Water-glycol system volume calculation		
SANDBORN, V. A.			MSC-15193		B69-10563	02
Cooling method prolongs life of hot-wire transducer			SCHAEFFER, D. H.	Simple pulse counting circuit computes sum of squares		
LEWIS-41	B63-10344	02	GSFC-391		B65-10260	01
New apparatus increases ion beam power density			Frequency correction device uses digital circuitry		B65-10307	01
LEWIS-73	B63-10440	01	GSFC-268	Simple circuit performs binary addition and subtraction		
SANDER, R. C.			GSFC-399		B65-10355	01
Recording and time expansion technique for high-speed, single-shot transient video signal			Digital voltage-controlled oscillator		B67-10449	01
ARC-10003	B67-10139	01	GSFC-512			
SANDERS, L. H.			SCHAEFFER, J. H.	Flat cable insulation stripping machine		
Feed-through has polyterminal feature			M-FS-13776		B67-10581	05
M-FS-25	B65-10057	01	SCHAEFFER, J. L.	Rating of electrical wires in vacuum environments		
SANDFORD, R. W., JR.			MSC-15108		B68-10362	01
The thermodynamic properties of the wustite phase are studied			SCHAEER, G. R.	Electroformed screens with uniform hole size		
ARG-10200	B68-10408	03	LEWIS-10117		B68-10107	05
SANDROCK, G. D.			SCHAEFFER, R. J.	Submicron metal powders produced by ball milling with grinding aids		
Cobalt-tungsten, ferromagnetic high-temperature alloy			LEWIS-188		B66-10221	03
LEWIS-10378	B68-10095	03	SCHAEFFER, W. G., JR.	Modified soldering iron speeds cutting of synthetic materials		
SAPERSTEIN, Z.			M-FS-725		B66-10246	05
Effects of surface preparation on quality of aluminum alloy weldments			SCHAFF, F. L.	Subminiature deflection circuit operates integrated sweep circuits in TV camera		
M-FS-13152	B68-10302	03	MSC-1263		B67-10155	01
SAPOVCHAK, B. J.			High efficiency, high frequency magnetic deflection driver		B68-10116	01
N-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program			MSC-11597			
NUC-10126	B67-10536	06	SCHAEFFER, R. J.	Pressure transducer 3/8-inch in size can be faired into surface		
SARKADY, A. A.			WOO-065		B64-10021	05
Multichannel pulse height analyzer is inexpensive, features low power requirements			SCHAEFFERT, J. C.	Circuit improvement produces monostable multivibrator with load-carrying capability		
HQN-10020	B67-10258	01	GSFC-34A		B65-10011	01
SATHER, B. I.			SCHARTAU, G. H.	Sealing a rubber bladder between two sections of an accumulator		
Fluid-pressure measurement apparatus uses short-length manometer tubes			M-FS-20403		B69-10355	05
LEWIS-28	B65-10027	05	SCHAUS, R. B.	Bearing puller facilitates removal and replacement of bearing assemblies		
SAUR, W.			M-FS-1538		B66-10418	05
Qualitative and quantitative analysis of mixtures of compounds containing both hydrogen and deuterium			SCHELL, J. T.	Insulation for cryogenic tanks has reduced thickness and weight		
ARG-10312	B69-10177	04	M-FS-326		B66-10183	02
SAVAGE, H.			SCHELLENBACH, R. R.	Digital data averager improves conventional measurement system performance		
Isothermal drop calorimeter provides measurements for alpha active, pyrophoric materials			MSC-12078		B68-10018	01
ARG-10186	B69-10002	02	SCHNEIDER, J. R.	Neon isotopes cancel errors in gas laser		
SAVELLE, C. R., JR.			M-FS-1476		B66-10583	02
Study made of acoustical monitoring for mechanical checkout			SCHERBA, E. S.	Electrical upsetting of metal sheet forms weld edge		
M-FS-13372	B67-10430	02	M-FS-720		B66-10248	05
Improved dc voltage multiplier			Boron fiber-reinforced aluminum alloy tubing /experimental/		B69-10509	05
M-FS-14042	B68-10074	01	MSC-15633			
SAVINO, J. H.			SCHILB, J. D.	Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide		
A method for predicting interfacial freezing of a liquid flowing over a cold surface			ARG-10154		B68-10293	02
LEWIS-10813	B69-10321	02	SCHILLING, W. F.	Improved method of producing oxide-dispersion-strengthened alloys		
SAVOCHKA, S. G.			HQ-10461		B69-10536	03
Calibration technique for electromagnetic flowmeters			SCHINBECKLER, K. D.	Tools made of ice facilitate forming of soft, sticky materials		
LEWIS-10328	B67-10554	01	KSC-10262		B69-10199	05
SAXTON, T. R.						
Adhesives for laminating polyimide insulated flat conductor cable						
M-FS-12066	B67-10429	03				
SCALZOTT, L. L.						
Computer program determines system stability /DIGSTA/						
LEWIS-10395	B68-10216	06				
SCAPICCHIO, A. J.						
Improved method of dicing integrated circuit wafers into chips						
ERC-10138	B69-10441	01				
SCATES, J. H.						
Monte Carlo direct view factor and generalized radiative heat transfer programs						
M-FS-15051	B69-10038	06				
Spacecraft Thermal Radiation Environment Computer Program						
M-FS-15054	B69-10574	06				
Engineering thermal analyzer /BETA 2/						
M-FS-15055	B69-10760	06				

- SCHLENK, F.
Ultraviolet microscopy aids in cytological and biomedical research
ARG-178 B67-10590 04
- SCHLOSS, A. I.
Hybrid solid state switch replaces motor-driven power switch
JPL-931 B67-10165 01
- SCHLUTER, R. R.
Study made of corrosion resistance of stainless steel and nickel alloys in nuclear reactor superheaters
ARG-230 B67-10051 03
- SCHNADEBECK, R.
Numerical least-square method for resolving complex pulse height spectra
GSPC-10142 B67-10480 06
Nondispersive X-ray emission analysis for geochemical exploration
GSPC-10568 B69-10011 02
- SCHMELE, L.
Computer program performs stiffness matrix structural analysis
NPO-10502 B68-10096 06
- SCHMIDT, A.
Thermal neutron image intensifier tube provides brightly visible radiographic pattern
ARG-120 B67-10296 02
- SCHMIDT, E. H.
Boron-deoxidized copper withstands brazing temperatures
M-FS-762 B66-10273 03
Cryogenic fatigue data developed for Inconel 718
M-FS-702 B67-10049 03
Effect of surface irregularities on bellows fatigue life
M-FS-14480 B68-10229 05
Tensile and fatigue properties of Inconel 718 at cryogenic temperatures
M-FS-18192 B69-10068 03
- SCHMIDT, H. W.
Design of valve permits sealing even if the stem is misaligned
LEWIS-38 B63-10341 05
Quick-disconnect coupling safe transfer of hazardous fluids
LEWIS-125 B65-10202 01
- SCHMIDT, K.
Sensitive bridge circuit measures conductance of low-conductivity electrolyte solutions
ARG-147 B67-10294 01
- SCHMIDT, L. F.
Solar-angle sensor has no moving parts
JPL-418 B63-10260 02
Automatic design of optical systems by digital computer
NPO-10265 B67-10632 06
FORTRAN optical lens design program
NPO-10603 B68-10354 06
- SCHMIDT, M. H.
Two-stage emitter follower is temperature stabilized
MSC-20 B63-10493 01
- SCHMIDT, R. F.
Antenna simulator permits preinstallation system checkout
GSPC-522 B66-10518 01
- SCHMIDT, W. C.
Star/horizon simulator used to test space guidance system
MSC-407 B67-10110 02
- SCHMITZ, F.
Dispersion of borax in plastic is excellent fire-retardant heat insulator
ARG-5 B67-10016 03
Multi-feed cone for Cassegrainian antenna
ARG-10025 B67-10484 03
- SCHMITZ, G.
Ultrasonic emission method enables testing of adhesive bonds
M-FS-799 B66-10341 01
Dot patterns provide reproducible flaw areas for study of adhesive bonds
M-FS-862 B66-10367 05
- SCHNUS, F.
Computer program performs aerothermodynamic flight test data correlation
MSC-10075 B67-10494 06
- SCHNAKE, P.
White primer permits a corrosion-resistant coating of minimum weight
M-FS-304 B66-10207 03
- SCHNASS, E. R.
Infrared viewing permits human iris response studies
ERC-10003 B68-10206 04
- SCHNEIDER, W. E.
Threaded pilot insures cutting tool alignment
M-FS-527 B66-10074 05
- SCHNITZER, T. E.
Valve effectively controls amount of contaminant in flow stream
M-FS-1771 B66-10683 05
- SCHNIZLEIN, J. G.
Ignition of binary alloys of uranium
ARG-10057 B68-10280 01
- SCHNOPPER, H. W.
Aluminized thin-window proportional-counter tube is stronger, more responsive in long wavelength region
JPL-689 B67-10015 01
- SCHOEBERLE, D. F.
Analysis of transient thermal stress in heat-generating plates and hollow cylinders caused by sudden environmental temperature changes
ARG-10274 B69-10047 02
- SCHOPPHAN, R. A.
Portable tool removes burrs from pipe and tubing
MSC-237 B65-10360 05
Improved tool easily removes brazed tube connectors
MSC-263 B66-10003 05
- SCHRAIDT, J.
Square tubing reduces cost of telescoping bridge crane hoist
ARG-13 B67-10293 05
- SCHRAUT, E. H.
Self-starting circuit for switching regulators
LEWIS-10686 B69-10128 05
- SCHREIBHANS, F. A.
Copper foil provides uniform heat sink path
MSC-262 B66-10004 02
- SCHREINER, F.
Pure xenon hexafluoride prepared for thermal properties studies
ARG-10056 B67-10577 03
- SCHUCK, J. W.
Control system maintains selected liquid level
M-FS-470 B66-10039 01
- SCHUERER, P. H.
Integral ribs formed in metal panels by cold-press extrusion
M-FS-230 B65-10141 05
Fiber glass dies speed forming of large metal sheets
M-FS-214 B65-10210 05
- SCHULIEN, H. E.
Dynamic-reservoir lubricating device
M-FS-14652 B68-10261 05
- SCHULLER, F. T.
Low cost techniques for fabricating lobed bearings
LEWIS-10296 B68-10441 05
- SCHULTZ, F. E.
Computer simulation program is adaptable to industrial processes
LEWIS-240 B66-10426 01
- SCHUMACHER, C. N.
Antenna configurations provide polarization diversity
GSPC-74 B66-10066 01
- SCHUMACHER, P. E.
Probe samples components of rocket engine exhaust
M-FS-485 B65-10384 03
Modified blackbody device emits high-density radiation
M-FS-12744 B67-10388 02
Foil radiometer accessory improves measurements

SHAFFERNOCKER, W. H.

I-819

lightweight gas sampling system PRC-31	B65-10264	01	pigment ARG-10415	B69-10425	03
SHALTENS, R. K. Pulsed high-voltage dc RF sputtering LEWIS-10920	B69-10699	01	SHERMAN, A. Fluid properties handbook M-FS-13462	B67-10440	03
SHANFIELD, I. A piezo-bar pressure probe LEWIS-393	B67-10259	01	SHERMAN, I. S. High resolution Ge/Li/ spectrometer reduces rate-dependent distortions at high counting rates ARG-10144	B68-10420	01
SHAPIRO, H. Test device prevents molecular bounce-back GSFC-82	F63-10546	03	SHEWMAKE, G. A. New inflatable liferaft is nontippable MSC-4A	B64-10001	05
Heater decomposes oil backstreaming from high-vacuum pumps GSFC-356	B65-10224	02	Buoyant stokes litter assembly used for sea rescue operations MSC-131	B66-10019	05
SHAPIRO, J. Fastener distributes stress evenly from sandwich-panel-hung items MSC-236	B65-10358	05	Pneumatic raft automatically reforms after rupture of buoyant member MSC-11562	B68-10011	05
SHAUB, K. D. Rugged switch responds to minute pressure differentials M-FS-12704	B67-10389	01	SHIEBER, H. Device measures reaction engine thrust vector deviations JPL-SC-163	B66-10642	05
SHAW, J. Tester automatically checks insulation of individual conductors in multiple-strand cables NUC-10068	B67-10260	01	SHIEH, T. C. Xenon fluorides show potential as fluorinating agents ARG-113	B67-10185	03
Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi NUC-10067	B67-10263	01	SHIELDS, R. A. Aluminized thin-window proportional-counter tube is stronger, more responsive in long wavelength region JPL-689	B67-10015	01
SHAW, H. J. Neutron therapy of cancer ARG-10310	B69-10203	04	X-ray source uses interchangeable target anodes to vary X-ray wavelength NPO-10036	B67-10218	02
SHEAFFER, E. F. Effect of surface irregularities on bellows fatigue life M-FS-14480	B68-10229	05	SHIM, J. Nozzles for size reclassification of microfog particles LEWIS-10705	B69-10076	05
SHEAR, E. E. Tunnel diode circuit used as nanosecond-range time marker ARG-90164	B68-10173	01	SHIMADA, K. Thermionic diode switching has high temperature application NPO-10404	B67-10672	01
SHEEHY, R. N. Monitor senses amount of contamination deposited on surfaces GSFC-10212	B68-10089	01	SHIMOTAKE, H. Lithium-tellurium bimetallic cell has increased voltage ARG-10141	B68-10400	01
SHEFSIEN, P. K. Distillation device supplies cesium vapor at constant pressure XNP-08124	B68-10020	03	New bimetallic EMF cell shows promise in direct energy conversion ARG-10183	B68-10415	01
SHEFT, I. Xenon fluoride solutions effective as fluorinating agents ARG-217	B67-10133	03	Technical report on galvanic cells with fused-salt electrolytes ARG-10297	B69-10155	01
SHEIBLEY, D. W. Tungsten thermal neutron dosimeter LEWIS-10880	B69-10249	02	Analysis of secondary cells with lithium anodes and immobilized fused-salt electrolytes ARG-10452	B69-10613	01
SHELTON, S. Portable lightweight cell provides controlled environment MSC-648	B66-10370	05	Analysis of cell performance and thermal regeneration of a lithium-tin cell having an immobilized fused-salt electrolyte ARG-10453	B69-10627	03
SHENKMAN, J. S. Device without electrical connections in tank measures liquid level WOO-235	B66-10198	01	Self-discharge in bimetallic cells containing alkali metal ARG-10347	B69-10631	01
SHEPPARD, J. F. Improved liquid-level sensor for cryogenics ARG-10162	B69-10210	02	SHINAULT, L. H. Segmented ball valve is easy to open and close WOO-248	B66-10195	05
SHERBA, E. S. Preformed stiffeners used to fabricate structural components for pressurized tanks M-FS-1796	B66-10688	05	SHINN, B. H. Resilient clamp holds fuel cell stack through resilient clamp holds fuel cell stack through thermal cycle MSC-313	B66-10035	05
SHERFEY, J. M. Elastomers bonded to metal surfaces seal electrochemical cells GSFC-168	B64-10113	03	SHINOZUKA, M. Optimum structural design based on reliability and proof-load testing NPO-11228	B69-10723	31
Gas pressure in sealed electrochemical cells measured externally GSFC-10004	B67-10551	03	SHIPLEY, J. W. Analysis of problems related to slingshot shock machine high-velocity shock testing NPO-11193	B69-10506	05
Frangible electrochemical cell and sealing technique XGS-10010	B69-10056	01	SHIRA, C. S. Weld microfissuring in Inconel 718 minimized by minor elements M-FS-18185	B68-10251	03
SHERIFF, D. D. Impact and puncture resistant material protects parts from damage MSC-747	B66-10375	05	SHLICHTA, P. Miniature oxygen-hydrogen cutting torch constructed from hypodermic needle JPL-545	B63-10517	05
SHERMA, J. Comparative chromatography of chloroplast					

- SHLICHTA, P. J.
Attachment converts microscope to point source
autocollimator
JPL-499 B64-10124 05
Micromanipulation tool is easily adapted to
many uses
JPL-129 B67-10004 05
- SHOGAN, R. P.
Polystyrene cryostat facilitates testing
tensile specimens under liquid nitrogen
NUC-10522 B67-10613 02
- SHORES, J. P.
Mass spectrophotograph analysis
MSC-13239 B69-10134 06
- SHORTLY, E. M.
Improved system measures output energy of
pyrotechnic devices
WOO-256 B66-10159 01
- SHRIVER, C. B.
Panelized high performance multilayer
insulation
M-FS-14023 B68-10031 03
A new method for fabrication of flexible
vacuum purge jackets
M-FS-12646 B69-10564 03
- SHUCK, A. B.
Remote balance weighs accurately amid high
radiation
ARG-10387 B69-10242 05
- SHULMAN, A. R.
Principles of optical-data processing
techniques
GSFC-10271 B68-10069 01
- SHUNAKER, R. E.
Boron trifluoride nuclear detector
preamplifier uses single-cable connection
LEWIS-178 B65-10255 01
- SHUMATE, H. S.
Method of directing a laser beam with very
high accuracy
NPO-11087 B69-10508 02
- SHURLEY, L. A.
Braze alloys used as temperature indicators
NU-0063 B66-10274 01
- SIEBOLD, J. R.
Practical new method of measuring
thermal-neutron fluence
NUC-10086 B67-10352 02
- SIEGEL, R.
A method for predicting interfacial
freezing of a liquid flowing over a cold
surface
LEWIS-10813 B69-10321 02
- SIEGFRIED, J.
Pipe joints reinforced in place with fitted
aluminum sleeves
MSC-11109 B67-10271 05
- SIEGMAN, A. E.
Absolute frequency stabilization of laser
oscillator against laser amplifier
M-FS-2559 B67-10255 01
- SIGNORELLI, R. A.
Tungsten fiber-reinforced copper composites
form high strength electrical
conductors
LEWIS-338 B66-10572 03
Tungsten fiber-reinforced nickel superalloy
LEWIS-10424 B68-10369 03
- SIKORA, P. F.
Apparatus facilitates high-temperature tensile
testing in vacuum
LEWIS-42 B63-10345 03
- SILK, J. K.
Laser-Doppler gas-velocity instrument
M-FS-20039 B68-10349 02
- SILL, H.
Plated nickel wire mesh makes superior
catalyst bed
MSC-216 B65-10321 03
- SILVER, R. H.
Miniature stress transducer has directional
capability
JPL-591 B65-10023 01
Simple circuit positions film frames in
projector
JPL-508 B65-10132 02
- SINKIN, D. J.
Predicting surface heating rates and
pressures resulting from hot exhaust gases
MSC-971 B66-10633 05
Effects of helium and nitrogen as
pressurants in nitrogen tetroxide transfer
MSC-924 B67-10083 03
- SIMMONS, J. R.
Abraded cadmium-plated cable connectors
repaired by conversion coating
M-FS-1424 B67-10014 03
- SIMMONS, W. H.
Indexing device ensures proper mating of
electrical connectors
MSC-155 B65-10263 01
- SIMON, I.
Thermal conductivity and dielectric constant
of silicate materials
M-FS-14856 B68-10351 03
- SIMON, W. E.
New technique for determination of
cross-power spectral density with damped
oscillators
M-FS-14022 B67-10602 02
- SIMPSON, R. R.
System enables dimensional inspection of
very large structures
M-FS-2477 B67-10214 05
- SIMPSON, R. S.
Analysis of flutter in tape transport
systems
M-FS-11970 B68-10027 01
- SIMPSON, W. G.
Gun facilitates adhesive bonding of studs
to surfaces
M-FS-20299 B69-10009 05
- SINCLAIR, W. K.
Review of physics, instrumentation and
dosimetry of radioactive isotopes
ARG-10037 B67-10640 02
Study of radiation effects on mammalian cells
in vitro
ARG-10191 B68-10294 02
- SINGER, R. M.
Study of convective magnetohydrodynamic
channel flow
ARG-10102 B68-10181 02
- SIVERTSON, W. E., JR.
Variable word length encoder reduces TV
bandwidth requirements
LANGLEY-87 B65-10345 01
- SIYITER, J. H., JR.
Rotating filters permit wide range of optical
pyrometry
LANGLEY-33 B65-10100 02
- SIX, L. D.
Resilient bearing supports are gas
controlled
LEWIS-10109 B67-10364 05
- SIZEMORE, K. O.
Circuit prevents overcharging of secondary
cell batteries
GSFC-454 B66-10492 01
- SKALKA, R. J.
Polystyrene cryostat facilitates testing
tensile specimens under liquid nitrogen
NUC-10522 B67-10613 02
Test system accurately determines tensile
properties of irradiated metals at cryogenic
temperatures
NUC-10521 B67-10617 02
Tensile testing grips are easily assembled
under liquid nitrogen
NUC-10524 B67-10628 05
- SKIPSTROM, W. W.
Standoff tool speeds placement of friction-fit
electrical terminals
WOO-029 B65-10348 05
- SKOFF, R. W.
Air bearing provides friction-free support
for shaker system slip table
NU-0086 B66-10708 05
- SKORRA, D. J.
Circuit provides overcurrent protection to
push-pull amplifier
MSC-12033 B67-10300 01
- SKOUSA, G. W.
Impurity diffusion process for silicon
semiconductors is fast and precise
GSFC-397 B65-10300 01
- SKYRUS, J.
Machine tests slow-speed sliding friction in

- high vacuum
M-PS-12341 B67-10379 05
- SLINEY, H. E.
Lead oxide ceramic makes excellent
high-temperature lubricant
LEWIS-144 B64-10116 03
Solid-film lubricant is effective at high
temperatures in vacuum
LEWIS-228 B66-10087 03
Composites of porous metal and solid
lubricants increase bearing life
LEWIS-307 B67-10007 03
Evaluation of lubricants for ball bearings
at high temperatures
LEWIS-10578 B69-10025 03
A new solid lubricant
LEWIS-10812 B69-10250 03
- SLINGERLAND, H. G.
Design concept for pressure switch
calibrator
HQ-36 B66-10598 01
- SLOPPER, D. K.
Circuitry selectively limits data
storage in general purpose computer
GSFC-10605 B69-10121 01
- SNETANA, J.
Liquid hydrogen densitometer utilizes
open-ended microwave cavity
LEWIS-390 B67-10115 01
- SNIRRA, J. R.
Plastic plus stainless-steel fibers make
resilient, impermeable material
WOO-246 B65-10374 03
- SMITH, C.
Computer circuit will fit on single silicon
chip
JPL-513 B63-10514 01
- SMITH, C. V.
Calculation of resonance neutron absorption
in two-region problems /the GAROL code/
NUC-10045 B67-10223 06
- SMITH, D. B. D.
Cardiotachometer with linear beat-to-beat
frequency response
ARC-10033 B67-10598 01
- SMITH, D. E.
Experimental study and evaluation of
radioprotective drugs
ARG-10196 B68-10320 04
- SMITH, G. D.
Inductor flyback characteristic gives voltage
regulator fast response
GSFC-361 B65-10257 01
- SMITH, G. P.
Monitor assures availability and quality of
communication channels
KSC-66-38 B67-10028 01
- SMITH, H. L.
JPLIF-JPL FORTRAN language with interval
pre-processor
NPO-10835 B69-10187 06
- SMITH, J. C.
Study made of pneumatic high pressure piping
materials /10,000 psi/
KSC-10133 B67-10437 03
- SMITH, J. O.
Vapor diffusion electrode improves fuel cell
operation
LEWIS-187 B66-10281 03
- SMITH, J. R., JR.
New low-level a-c amplifier provides
adjustable noise cancellation and automatic
temperature compensation
ARC-2 B63-10003 04
Respiratory transfer valve has fail-safe
feature
ARC-1 B65-10369 01
- SMITH, L. F.
Modified procedure speeds camera copy layout
for offset printing
GSFC-424 B65-10373 02
- SMITH, L. S.
Circuit switches latching relay in response to
signals of different polarity
WOO-055 B63-10508 01
- SMITH, M. B.
Improved adhesive for cryogenic applications
cures at room temperature
WOO-132 B66-10185 03
- SMITH, M. H.
Transducer measures embedment stresses in
electronic modules
M-PS-13486 B67-10367 01
- SMITH, N. J.
Inflatable bladder provides accurate
calibration of pressure switch
M-PS-367 B65-10279 01
- SMITH, P. L.
Fifth-wheel fork truck adapter
M-PS-1446C B69-10021 05
- SMITH, P. W., JR.
Study made of interaction between sound
fields and structural vibrations
HQ-26 B67-10068 02
- SMITH, R. J.
Rubber-coated bellows improves vibration
damping in vacuum lines
LEWIS-273 B66-10187 02
- SMITH, R. L.
A theoretical model for determining turbine
flowmeter sensitivity
M-PS-1172 B67-10179 01
- SMITH, S. V.
Traveling wire electrode increases
productivity of Electrical Discharge
Machining /EDM/ equipment
ARG-136 B67-10238 05
Standard surface grinder for precision
machining of thin-wall tubing
ARG-10014 B67-10400 05
- SMITH, W. E.
Energy-storage of a prescribed impedance
ARG-10428 B69-10431 02
Storage of electric and magnetic energy
in passive nonreciprocal networks
ARG-10360 B69-10630 01
- SMITH, W. R.
An economical method for the continuous
production of iodine-123
LEWIS-10518 B68-10433 03
- SMITH, W. W.
Computer program provides improved
longitudinal response analysis for
axisymmetric launch vehicles
LANGLEY-10093 B67-10531 06
- SMITHER, M. A.
Instrument calibrates low gas-rate flowmeters
MSC-134 B65-10137 01
- SMITHER, R. K.
Ge-diode detector combined with
crystal-diffraction spectrometer permits
high-resolution gamma ray spectroscopy
ARG-10190 B69-10005 02
- SNEESBY, G. V.
Abrasion and fracture testing in a
high-pressure hydrogen environment
M-PS-18480 B69-10457 03
- SNELL, H. H.
Trace levels of metallic corrosion in water
determined by emission spectrography
MSC-1193 B66-10701 03
- SNOW, W. B.
Variable light source with a million-to-one
intensity ratio
JPL-WOO-008 B63-10424 03
- SNOW, W. J.
The response of monoenergetic gamma rays
in finite media are investigated
ARG-10295 B69-10080 02
- SNYDER, J. A.
Electron beam selectively seals porous metal
filters
LEWIS-10162 B68-10331 05
- SOBEL, L. H.
Computer program analyzes Buckling Of
Shells Of Revolution with various wall
construction, BOSOR
LANGLEY-10290 B68-10226 06
Buckling Of Shells Of Revolution
/BOSOR/ with various wall constructions
LANGLEY-10441 B69-10300 06
- SODD, V. J.
An economical method for the continuous
production of iodine-123
LEWIS-10518 B68-10433 03
- SOFFEN, C. A.
Apparatus enables automatic microanalysis of
body fluids

JPL-962	B66-10515	04	field		
SOHL, G.			M-FS-258	B66-10145	05
Self-starting circuit for switching regulators			SPIKER, I. K.		
LEWIS-10686	B69-10128	05	Heat-shrinkable jacket holds fluid in contact with tensile test specimen		
SOLTESZ, R. G.			MSC-13195	B69-10495	05
Synthesis of calculational methods for design and analysis of radiation shields for nuclear rocket systems			SPILLO, D.		
M-FS-14447	B69-10158	06	Circuit measures hysteresis loop areas at 30 Hz		
SOMERLOCK, C. R.			M-FS-13069	B67-10519	01
Long time constant timer requires no recovery time			SPINKA, H.		
GSFC-10091	B67-10487	01	Improved liquid-level sensor for cryogenics		
SOO, P. P.			ARG-10162	B69-10210	02
Computer program performs frequency analysis of nonuniform turbine disk subjected to temperature gradients			SPIRO, L. W.		
NUC-10301	B68-10006	06	Argon purge gas cooled by chill box		
SOPPET, F. E.			M-FS-560	B66-10153	02
Mathematical relation predicts achievable densities of compacted particles			SPITZER, C. R.		
ARG-10082	B67-10592	03	Ceramic-coated boat is chemically inert, provides good heat transfer		
SORENSEN, H. C.			LANGLEY-9C	B65-10063	05
Hydrodynamics of a new concept of primary containment by energy absorption			Thin-film gage measures low heat-transfer rates		
ARG-10242	B69-10046	05	LANGLEY 205	B66-10180	01
SORKIN, A. B.			SPRAGUE, C. W.		
Effects of sterilization on the energy-dissipating properties of balsa wood			Proposed gas generation assembly would recover deeply submerged objects		
NPO-11207	B69-10592	03	SAN-10007	B68-10211	05
SOWDEN, H. E.			SPRAGUE, H. R.		
Computer program calculates the effective temperature for a crystalline solid /DETS/			Computer program conducts facilities utilization and occupancy survey		
NUC-10161	B69-10036	06	NPO-10326	B67-10476	06
SOWERS, D. A.			Computer program conducts facilities utilization and occupancy survey		
Computer program performs aerothermodynamic flight test data correlation			NPO-10438	B68-10137	06
MSC-10075	B67-10494	06	SPRECHER, R.		
SOWLS, R.			Improved torch increases weld quality in refractory metals		
Fluorescent photography of spray droplets using a laser light source			LEWIS-324	B68-10041	05
LEWIS-10777	B69-10122	02	SPRING, T. R.		
SPADY, A. A., JR.			Toroidal ring prevents gas ignition at vent stack outlet		
Technique simulates effect of reduced gravity			M-FS-2042	B67-10098	05
LANGLEY-44	B64-10146	04	SPROSS, F. R.		
SPAFFORD, M. L.			Biological isolation garment		
Simple BCD circuit accurately counts to 24			MSC-12206	B68-10500	04
GSFC-317	B65-10225	01	SPULGIS, I. S.		
SPAGNUOLO, A. C.			Automatic fluid separator supplies own driving power		
Thermal radiation shields for piping in vacuum environments			WOO-085	B66-10008	02
LEWIS-10899	B69-10262	03	SRANLEY, J. E.		
Technique for anchoring fasteners to honeycomb panels			Survey of fracture toughness test methods		
LEWIS-10888	B69-10265	03	LEWIS-10379	B68-10046	03
SPALD, G. H.			ST. CYR, M. C.		
Field Effect Transistor /FET/ circuit for variable gain amplifiers			Solvent permits solid curing agents to be used at room temperatures		
GSFC-10116	B69-10322	01	M-FS-13434	B67-10593	03
SPAKOWSKI, A. E.			ST. ONGE, R.		
Spherical model provides visual aid for cubic crystal study			Improved pulse shape discriminator for fast neutron-gamma ray detection system		
LEWIS-108	B65-10065	03	HQ-10151	B69-10481	01
SPALVINS, T.			STAFFORD, R. L.		
Complex surfaces plated by thin-film deposition in one operation			Bismuth alloy potting seals aluminum connector in cryogenic application		
LEWIS-292	B67-10006	05	WOO-260	B66-10138	03
Application of the solid lubricant molybdenum disulfide by sputtering			Single-source mechanical loading system produces biaxial stresses in cylinders		
LEWIS-10544	B68-10340	03	M-FS-12530	B67-10380	05
SPANGENBERG, E.			STAHLEY, S. D.		
Test and inspection for process control of monolithic circuits			Quick attach and release fluid coupling assembly is self-aligning, self-sealing		
M-FS-13084	B67-10507	01	KSC-66-8	B66-10627	05
SPEISMAN, C.			STALKUP, O. H.		
Segmented ball valve is easy to open and close			Machining heavy plastic sections		
WOO-248	B66-10195	05	M-FS-12720	B67-10381	03
SPENCE, T. M.			STALOFF, C.		
Inflatable holding fixture permits X-rays to be taken of inner weld areas			Unique frequency-shift-keyed demodulation system		
M-FS-856	B66-10327	03	GSFC-217	B67-10668	01
SPERRY, J. D.			STANFORD, H. B.		
Magnetic tape transport controlled by rotating transducer heads			Machine tests crease durability of sheet materials		
GSFC-483	B68-10079	01	JPL-604	B64-10178	05
SPIER, R. A.			STAPLETON, R. E.		
Portable power tool machines weld joints in			High-temperature /1100 degrees F/ capacitors operate without supplement cooling		
			LEWIS-10324	B67-10550	01
			STARK, E.		
			Use of photographs speeds inspection of printed-circuit boards		

MSC-72	B64-10118	01	STELZRIED, C. T.	Double-throw microwave device switches two lines quickly	JPL-410	B63-10258	01
STARK, K. W.				Cryogenic waveguide window is sealed with plastic foam	JPL-559	B63-10613	01
Quick-acting clutch disengages idle drive motor				Reflectometer for receiver input system	NPO-10843	B67-10657	01
GSFC-143	B64-10028	05		Mm-wave power meter mount	NPO-10348	B68-10152	01
STARKEY, A. W.				Multi-feed cone for Cassegrainian antenna	NPO-10539	B69-10269	01
Hydrostatic force used to handle outsized, heavy objects				A compact rotary vane attenuator	NPO-10562	B69-10427	01
HQ-90	B67-10167	05		Millimeter-wave atmospheric loss prediction method	NPO-11054	B69-10584	01
STARKEY, D. J.				STEMMLE, J. T.			
Torsional tubular disconnect				Electrochemical sintering process for producing electrodes from cadmium felt and a nickel or silver grid	GSFC-10764	B69-10227	05
NPO-10704	B69-10499	05		STENGER, F. J.			
STAUB, F. W.				Closed fluid system without moving parts controls temperature	LEWIS-222	B65-10331	02
Cryogenic fluid flow instabilities in heat exchangers				Magnetic field mapper	LEWIS-10782	B69-10476	01
M-FS-20438	B69-10541	02		STENLUND, S. J.			
STAUFFER, N. E.				Rotating mandrel speeds assembly of plastic inflatables	LANGLEY-155	B66-10137	05
Improved technique for digital simulation of bending and slosh phenomena				STEPPER, G.			
M-FS-14788	B68-10570	02		Electronic load for testing power generating devices	NPO-10350	B68-10203	01
STEBBINS, W. J.				STEPHANS, D. L.			
Temperature-stabilized, triggerable microelectronic astable multivibrator starts reliably				Closed circuit TV system automatically guides welding arc	M-FS-20084	B68-10357	01
MSC-1173	B67-10624	01		STEPHENS, C. W.			
STEED, C. N.				Regenerative fuel cell combines high efficiency with low cost	WOO-090	B65-10363	01
Tool enables proper mating of accelerometer and cable connector				STEPHENS, D. G.			
M-FS-611	B66-10208	05		Flexible ring baffles for damping liquid slosh	LANGLEY-90194	B68-10064	05
STEERLE, K. P.				Improved active vibration isolator	LANGLEY-10106	B68-10123	05
Device for diode tuning in a stripline varactor harmonic multiplier				STEPHENS, J. B.			
M-FS-20153	B69-10013	01		Helium tube separates nitrogen gas from liquid nitrogen	JPL-398	B63-10251	05
STEENKEN, J.				Crystal microbalance measures condensable molecular fluxes	JPL-845	B67-10012	03
Dual rate pressure relief valve				Quartz crystals detect gas contaminants during vacuum chamber evacuation	NPO-10144	B67-10205	01
MSC-11606	B68-10237	05		STEPHENS, J. R.			
STEFFEN, R. J.				Improved high-temperature silicide coatings	LEWIS-10817	B69-10266	03
Refractory coating protects intricate graphite elements from high-temperature hydrogen				STEPHENS, T. J.			
NU-0027	B66-10084	01		Pulse-code-modulation baseline correction for low signal-to-noise ratios	MSC-13268	B69-10750	01
STEFFENSEN, G. R.				STEPHENSON, L. D.			
Electronic circuitry used to automate paper chromatography				M-SAP and G-SAP neutron and gamma ray albedo model scatter shield analysis program	NUC-10126	B67-10536	06
JPL-840	B67-10201	01		STERN, J. A.			
STEIN, J. A.				Microbiological aspects of sterilization development laboratories	NPO-11197	B69-10593	04
Insert sleeve prevents tube soldering contamination				STERN, M.			
MSC-552	B66-10238	05		Electronic dummy for acoustical testing	MSC-206	B67-10298	01
High pressure tube coupling requires no threads or flares				STETHERS, R.			
MSC-600	B66-10285	05		Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels	ARG-232	B67-10032	03
STEIN, L.				STETSON, A. R.			
Radon gas, useful for medical purposes, safely fixed in quartz				Improved high-temperature silicide coatings	LEWIS-10817	B69-10266	03
ARG-2	B66-10468	04		STEUNEBERG, R. K.			
STEIN, R. J.				Magnesium-zinc reduction is effective in			
Development of detonation reaction engine							
M-FS-14020	B67-10652	01					
Continuous detonation reaction engine							
M-FS-14019	B68-10034	03					
STEINBERG, L. L.							
Performance analysis of electrical circuits							
/PANE/							
M-FS-15001	B68-10448	06					
Engineering thermal analyzer /BETA 2/							
M-FS-15055	B69-10760	06					
STEINBERT, L. L.							
CIRCUS--A digital computer program for transient analysis of electronic circuits							
M-FS-15002	B68-10416	06					
STEINDLER, M. J.							
Technological survey of tellurium and its compounds							
ARG-10119	B68-10201	03					
Study of fluoride corrosion of nickel alloys							
ARG-10224	B69-10048	03					
STEINER, R.							
Magnetically operated limit switch has improved reliability, minimizes arcing							
MSC-422	B66-10270	01					
STEINGRAGER, O. J.							
Hydrogen flash lamps studied							
ARG-10419	B69-10411	02					
STEKLY, Z. J. J.							
Evaluation of superconducting magnets, a study							
M-FS-14808	B68-10396	02					

- preparation of metals
ARG-10050 B67-10579 03
- STEUNENBERG, R. K.
Isotopically pure magnesium isotope-24 is prepared from magnesium-24 oxide
ARG-10154 B68-10293 02
- Preparation of thorium magnesium-zinc reduction
ARG-10245 B69-10079 03
- STEVENS, C. A.
Calculation of resonance neutron absorption in two-region problems /the GAROL code/
NUC-10045 B67-10223 06
- STEVENS, C. M.
Ion-retarding lens improves the abundance sensitivity of tandem mass spectrometers
ARG-10365 B69-10166 02
- STEVENS, G. H.
Dynamic calibration of turbine flowmeters
LEWIS-11014 B69-10764 01
- STEVENS, P. M.
Deep gamma ray penetration in thick shields
M-FS-14388 B68-10143 02
- STEWART, D. C.
Neutron irradiation of Am-241 effectively produces curium
ARG-10030 B67-10501 03
- Portable, high intensity isotopic neutron source provides increased experimental accuracy
ARG-90250 B68-10243 02
- Nitric acid-organic mixtures surveyed for use in separation by anion exchange methods
ARG-10065 B68-10425 03
- Daughter growth in freshly separated Ra-226, Ac-227 and U-232
ARG-10226 B69-10003 02
- STEWART, J. L.
Logarithmic amplifier uses field effect transistors
JPL-509 B65-10145 01
- STEWART, R. B.
Analytical drafting curves provide exact equations for plotted data
LANGLEY-285 B67-10601 02
- STIEFELD, B.
Nondestructive evaluation of printed wiring boards by microhm resistance measurements
SAN-10034 B69-10272 01
- STINETT, L. L.
Adapter assembly prevents damage to tubing during high pressure tests
MSC-563 B66-10330 02
- STIRN, R. J.
Evaporant feed device facilitates flash vapor deposition process in vacuum
NPO-10232 B67-10320 03
- STOBER, A. K.
An improved soft X-ray photoionization detector
GSFC-540 B67-10072 02
- STOCKWELL, R. D.
Study of high-speed angular-contact ball bearings under dynamic load
M-FS-20562 B69-10367 05
- STOLLER, P. W.
Low speed, long term tracking electric drive system has zero backlash
NPO-10173 B67-10220 01
- Simulated hailstone fabrication and use in testing weatherability of structures
NPO-10783 B68-10552 03
- Structural thermal-control coatings
NPO-10785 B68-10553 03
- STONE, C. C.
Thermoelectric metal comparator determines composition of alloys and metals
ARG-235 B67-10035 01
- STONE, F. A.
Electronic phase-locked-loop speed control system is stable
JPL-SC-084 B66-10232 01
- STONE, S. E.
Fluid sample collection and storage device
MSC-10962 B69-10816 05
- STONEBRAKER, J. C.
Technique for anchoring fasteners to honeycomb panels
LEWIS-10888 B69-10265 03
- STONEMETZ, R. E.
Studies reveal effects of pipe bends on fluid flow cavitation
M-FS-516 B66-10228 05
- STONER, D. R.
Tube-to-header joint for bimetallic construction
LEWIS-10282 B67-10464 05
- STOVER, C. M.
Method for making small pointed thermocouples
SAN-10014 B68-10389 01
- STRACK, D.
Standard surface grinder for precision machining of thin-wall tubing
ARG-10014 B67-10400 05
- STRAIN, H. H.
The preparation, identification and properties of chlorophyll derivatives
ARG-10205 B68-10409 03
- Comparative chromatography of chloroplast pigment
ARG-10415 B69-10425 03
- STRAND, L. D.
A comparison of two methods of measuring particle size of Al2O3 produced by a small rocket motor
NPO-11198 B69-10572 03
- STRASS, H. K.
Rotating filters permit wide range of optical pyrometry
LANGLEY-33 B65-10100 02
- Light-intensity modulator withstands high heat fluxes
MSC-246 B66-10532 02
- STRAUSS, B. P.
Evaluation of superconducting magnets, a study
M-FS-14808 B68-10396 02
- STRAUSS, M. G.
Modified univibrator compensates for output timing errors
ARG-85 B67-10130 01
- Versatile analog pulse height computer performs real-time arithmetic operations
ARG-10052 B67-10626 06
- High resolution Ge/Li/ spectrometer reduces rate-dependent distortions at high counting rates
ARG-10144 B68-10420 01
- Multichannel analyzers at high rates of input
ARG-10355 B69-10214 02
- Pulse-height defect due to electron interaction in dead layers of Ge/Li/ gamma-ray detectors
ARG-10362 B69-10767 02
- STREAD, E. R.
Design of multilayer insulation systems
ARC-10166 B69-10615 05
- STREIFF, M. A.
Programmed schedule holds for improving launch vehicle holds
M-FS-14502 B69-10602 03
- STREML, R. L.
Thin plastic sheet eliminates need for expensive plating
M-FS-1896 B66-10681 03
- STRENGLEIN, H. F.
Single-sideband modulator accurately reproduces phase information in 2-Mc signals
M-FS-664 B66-10437 01
- STRINGER, E. J.
Concept for a multifunctional oscilloscope probe
M-FS-16390 B69-10129 01
- STROM, T. N.
Spiral-grooved shaft seals substantially reduce leakage and wear
LEWIS-10397 B68-10270 05
- Hermetically sealed pump
LEWIS-10837 B69-10320 05
- STROMSTRA, R. R.
Bell nozzle kernel analysis program
M-FS-18456 B69-10146 06
- STRONG, I. J.
Multiple test tubes stirred mechanically
ARC-42 B65-10120 01

STRONG, J. P., III	KSC-67-98	B67-10104	01
Digital voltage-controlled oscillator			
GSFC-512	B67-10449	01	
STROUD, A. N.			
Microscopes and computers combined for analysis of chromosomes			
ARG-10256	B69-10088	04	
STROUP, K. E.			
Centrifugal device separates liquid from gas			
MSC-282	B65-10394	05	
STRUCKUS, A. A.			
Method prevents secondary radiation in radiographic inspection			
M-FS-13383	B67-10391	02	
STUART, J. L.			
Apparatus enables automatic microanalysis of body fluids			
JPL-962	B66-10515	04	
Automated microsyringe is highly accurate and reliable			
NFO-10142	B67-10203	01	
STUCKEY, D.			
Standard surface grinder for precision machining of thin-wall tubing			
ARG-10014	B67-10400	05	
STUCKEY, J. M.			
Insulation for cryogenic tanks has reduced thickness and weight			
M-FS-326	B66-10183	02	
Panelized high performance multilayer insulation			
M-FS-14023	B68-10031	03	
STUDER, P. A.			
Brushless dc motor uses electron beam switching tube as commutator			
GSFC-345	B65-10237	01	
Brushless dc motor has high efficiency, long life			
GSFC-181	B66-10355	01	
Helical recorder			
GSFC-10614	B69-10340	01	
STUDIER, H. H.			
Synthesis of perbromates			
ARG-10459	B69-10647	03	
STURTZER, O. M.			
Piezoelectric lock mechanism resists lockpicking			
SAN-10037	B69-10281	01	
STURGES, S. R.			
Welding, brazing, and soldering handbook			
M-FS-20504	B69-10264	05	
STURMAN, J. C.			
Dual-voltage power supply has increased efficiency			
LEWIS-107A	B66-10002	01	
Plastic preforms facilitate fabrication of welded cordwood electronic modules			
LEWIS-90339	B68-10063	01	
Amplifier improvement circuit			
LEWIS-10712	B68-10456	01	
SULLIVAN, R. M.			
Low-cost voltage-level detector			
LEWIS-10885	B69-10217	01	
SULLIVAN, R. M.			
Variable load automatically tests dc power supplies			
GSFC-291	B65-10105	01	
SULLIVAN, R. B.			
Exploding bridgwire detonator simulator			
M-FS-02191	B69-10782	01	
SULLIVAN, S. F.			
Electromechanical rotary actuator operates over wide temperature range			
M-FS-18402	B69-10100	05	
SULLIVAN, T. L.			
Crack growth measured on flat and curved surfaces at cryogenic temperatures			
LEWIS-389	B67-10384	01	
SUMMERS, R. A.			
Apparatus presents visual display of semiconductor surface characteristics			
JPL-665	B66-10200	01	
SUMMERS, R. L.			
Vacuum gage system for radiation environment			
LEWIS-10797	B69-10156	01	
SUNNY, R. H.			
Parametric up-converter increases flexibility of maser			
SUNSION, H. T.			
Coatings decrease metal fatigue failure			
ARC-10015	B69-10176	03	
SUNDAY, J.			
Radioactive method enables determination of surface areas rapidly and accurately			
NU-0088	B66-10710	03	
SUNDERLAND, G. E.			
Cable clamp bolt fixture facilitates assembly in close quarters			
KSC-67-80	B67-10244	05	
SUNDRY, J. L.			
Linear signal noise summer accurately determines and controls S/N ratio			
JPL-SC-152	B66-10433	01	
SUNGAILA, Z.			
Calibration of a resistance thermometer down to 0.04 degrees K			
ARG-10318	B69-10149	01	
SURREY, K.			
Study made of relationship between growth and metabolism			
ARG-10046	B67-10604	04	
SUSMAN, S.			
Zone purification of potassium chloride			
ARG-10377	B69-10241	03	
SUTTON, G.			
Unmanned seismometer levels self, corrects drift errors			
GSFC-100	B63-10551	01	
SVEC, W. A.			
The preparation, identification and properties of chlorophyll derivatives			
ARG-10205	B68-10409	03	
SVENSON, P. C.			

SWINDALL, P. M.			
Polychart contour plotter enables data extrapolation from multiple plotting charts			
M-PS-37	B64-10406	05	
Range recording technique enables four-way polarization measurements			
M-PS-12447	B67-10460	01	
SWINDELLS, F. E.			
Preparation of silver-activated zinc sulfide thin films			
GSFC-10687	B68-10271	03	
SYDNOR, R. L.			
Voltage controlled oscillator is easily aligned, has low phase noise			
JPL-510	B65-10223	01	
SYNER, W. F.			
Novel probe simplifies electronic component testing			
GSFC-342	B65-10243	01	
SZANISZLO, A. J.			
High-pressure gas facilitates calibration of turbine flowmeters for liquid hydrogen			
LEWIS-10402	B68-10145	01	
SZCZEPANIK, P. A.			
Study of behavior of sterols at interfaces			
ARG-10085	B68-10281	03	
SZEBERHELY, V.			
Trajectory optimization using regularized variables			
MSC-13370	B69-10810	02	
T			
TAFT, A. R.			
Mechanism facilitates coating of inner surfaces of metal cylinders			
GSFC-515	B66-10698	05	
TAFT, C.			
Experimental scaling study of fluid amplifier elements			
M-PS-1882	B67-10088	02	
TAHMISIAN, T. N.			
Precision trimmer aids in preparing biomedical specimen blocks for ultrathin sectioning			
ARG-242	B67-10541	05	
TALBOY, J. H.			
Steady-state differential calorimeter measures gamma heating in reactor			
ARG-10120	B68-10182	01	
TALMOR, E.			
Mixer conditions temperature of liquified gas streams			
M-PS-1784	B66-10565	02	
TANG, S. S.			
Shock and vibration response of multistage structure			
M-PS-14972	B68-10353	05	
TANZAR, G. F.			
Improved chlorate candle provides concentrated oxygen source			
MSC-1137	B67-10095	03	
TAPLEY, B. D.			
Trajectory optimization using regularized variables			
MSC-13370	B69-10810	02	
TARG, R.			
Laser system generates single-frequency light			
M-PS-2556	B67-10288	02	
TARLEY, R. C.			
Exploding bridgewire detonator simulator			
M-PS-02191	B69-10782	01	
TARPLEY, R. C.			
Exploding bridgewire detonator simulator			
M-PS-02191	B69-10782	01	
TARR, J.			
Portable lightweight cell provides controlled environment			
MSC-648	B66-10370	05	
TAUB, P. J.			
Lathe converted for grinding aspheric surfaces			
GSFC-115	B63-10556	05	
TAYLOR, J. W.			
Teleprinter uses thermal printing technique			
MSC-11327	B67-10572	01	
TAYLOR, L. H.			
Miniaturized high-resolution mass/charge spectrograph /design study/			
MSC-13279	B69-10554	02	
TAYLOR, M. F.			
Prediction of friction coefficients for gases			
LEWIS-10774	B69-10112	02	
TAYLOR, R. L.			
Adhesives for laminating polyimide insulated flat conductor cable			
M-PS-12066	B67-10429	03	
TAYLOR, W. A.			
Fuel cell life improved by metallic sinter activation after electrode assembly welding			
MSC-10965	B67-10436	03	
TCHERNEV, D. I.			
Development of Curie point switching for thin film, random access, memory device			
NPO-10402	B67-10633	02	
TE POEL, H. E.			
System converts slow-scan to standard fast-scan TV signals			
MSC-90534	B69-10748	01	
TEATS, F. G.			
Induction probe determines levels of liquid metals			
ARG-10348	B69-10256	03	
TEDRICK, R. N.			
Small foamed polystyrene shield protects low-frequency microphones from wind noise			
M-PS-123	B63-10579	01	
TERGEN, J. T.			
Miniature oxygen resuscitator			
KSC-10398	B69-10319	04	
TEICH, W. W.			
Titanium diaphragm makes excellent amplatron cathode support			
GSFC-394	B65-10298	01	
TELEHA, S.			
Inert gas spraying device aids in repair of hazardous systems			
LEWIS-8B	B65-10115	05	
TELTELEBAUM, S.			
Unique frequency-shift-keyed demodulation system			
GSFC-217	B67-10668	01	
TENPLE, A. G.			
Programmed schedule holds for improving launch vehicle holds			
M-PS-14502	B69-10602	03	
TENER, W. M.			
Level of super-cold liquids automatically maintained by levelometer			
JPL-397	B63-10250	01	
Frictional wedge shock mount is inexpensive, has good damping characteristics			
JPL-IT-1001	B63-10289	05	
TERRIL, A. E.			
Union would facilitate joining of tubing, minimize braze contamination			
MSC-777	B66-10311	05	
TERSELIC, R. A.			
Canilever springs maintain tension in thermally expanded wires			
LEWIS-136	B65-10149	05	
TEVEBAUGH, A. D.			
Technical report on galvanic cells with fused-salt electrolytes			
ARG-10297	B69-10155	01	
THALMAYER, C. E.			
Study of actinide chemistry in saturated potassium fluoride solution			
ARG-10204	B69-10004	03	
THARPE, H. M., JR.			
Digital system detects binary code patterns containing errors			
GSFC-541	B66-10516	01	
THEKAERARA, M. P.			
Oil-damped mercury pool makes precise optical alignment tool			
GSFC-353	B65-10253	02	
Modified sine bar device measures small angles with high accuracy			
GSFC-438	B68-10322	02	
THIEL, A. M.			
Adjustable cutting guide aligns and positions stacks of material			
MSC-321	B66-10210	05	

- THIELEKER, E. A.
Performance statistics of the FORTRAN 4
/H/ library for the IBM system/360
ARG-10299 B69-10157 06
- THOMAS, D. G.
Teleprinter uses thermal printing technique
MSC-11327 B67-10572 01
- THOMAS, E. F., JR.
Solid-state recoverable fuse functions as
circuit breaker
GSFC-560 B66-10691 01
Dc pin-to-pin testing of integrated
circuits
GSFC-10284 B68-10001 01
- THOMAS, G.
Nondestructive testing techniques used in
analysis of honeycomb structure bond
strength
M-FS-1214 B67-10574 01
- THOMAS, J. A.
Electronic device simulates respiration rate
and depth
MSC-89 B64-10255 01
- THOMAS, J. K.
Production of solvated electrons
ARG-10416 B69-10430 03
- THOMAS, W. J.
Transient Analysis Generator /TAG/
simulates behavior of large class of
electrical networks
NPO-10031 B67-10319 06
- THOME, R.
Evaluation of superconducting magnets, a
study
M-FS-14808 B68-10396 02
- THOMPSON, C.
Single wrench separates nuts from
free-floating bolts
NUC-10013 B67-10158 05
- THOMPSON, D. O.
Nondestructive determination of cohesive
strength of adhesive-bonded composites
M-FS-20397 B69-10464 03
- THOMPSON, E. G.
Hot-cracking studies of Inconel 718 weld-
heat-affected zones
M-FS-18211 B69-10052 05
Strain-age cracking in Rene 41 alloy
M-FS-18650 B69-10605 03
- THOMPSON, F. E.
Cutter and stripper reduces coaxial cable
connection time
ARC-40 B65-10094 05
- THOMPSON, L. J.
Fast method for obtaining scale dimensions
on tape-controlled milling machine
MSC-11609 B68-10047 05
- THOMPSON, R. E.
Masking of aluminum surface against
anodizing
M-FS-12964 B69-10335 05
- THOMPSON, W. E.
Safety restrainer prevents whipping of
ruptured high-pressure hose
LEWIS-99 B64-10348 05
- THOMSON, J. F.
Experimental study and evaluation of
radioprotective drugs
ARG-10196 B68-10320 04
- THORBJORNSEN, A. R.
General purpose computer programs for
numerically analyzing linear ac electrical
and electronic circuits for steady-state
conditions
M-FS-13094 B67-10331 06
- THORNWALL, J. C.
Analog-to-digital converter has increased
reliability and reduced power consumption
GSFC-246 B65-10194 01
Regulated dc-to-dc converter features low
power drain
GSFC-03429 B68-10017 01
- THORPE, M. L.
Plasma-heating by induction
LEWIS-10528 B69-10185 02
- THORPE, R. S.
New rapid-curing, stable polyimide
polymers with high-temperature strength
and thermal stability
LEWIS-10576 B69-10118 03
- THRALL, L. R.
Vibrator improves spark erosion cutting
process
NU-0071 B66-10333 01
- THUMIN, A. I.
PCM bit detection with correction for
intersymbol interference
GSFC-10155 B69-10153 01
- TIBBITTS, W. C.
Rocket engine nozzle photographic
system
NPO-10174 B68-10113 02
- TIEFERMAN, M.
Optics used to measure torque at high
rotational speeds
LEWIS-13 B63-10338 01
- TIETJEN, J.
Controlled substrate cooling improves
reproducibility of vapor deposited
semiconductor composites
ERC-10161 B69-10732 01
- TILLOTSON, R. N.
Drill bit design assures clean holes in
laminated materials
WOO-098 B65-10386 05
- TIMM, J. D.
Circuit counts pulses and indicates time of
occurrence of slow pulses
XNE-06234 B69-10313 01
- TIMME, R. W.
Self-supported aluminum thin films produced by
vacuum deposition process
ARC-58 B66-10387 03
- TINARI, D. F.
Harmonic distortion analyzer speeds setup of
magnetic tape recorders
GSFC-10198 B68-10254 01
- TINKHAM, J. P.
Ferromagnetic core valve gives rapid action
on minimum energy
LEWIS-10135 B67-10623 05
Eddy current disk valve
LEWIS-10123 B67-10638 05
- TOBIAS, K. R.
Two techniques enable sampling of filtered
and unfiltered molten metals
ARG-150 B67-10034 03
- TOBIAS, R. A.
Coaxial cable stripping device facilitates
RF cabling fabrication
NPO-10315 B67-10419 05
Electrothermal linear actuator
NPO-10637 B69-10296 05
- TODD, C. A.
Computer program for off-design
performance of radial inflow turbines
LEWIS-10764 B69-10267 06
- TODD, R. H.
Wire bundle formed into grids with minute
interstices
WOO-089 B65-10372 03
Process reduces pore diameters to produce
superior filters
WOO-093 B66-10037 03
Grain growth inhibitor for porous tungsten
materials
LEWIS-10535 B68-10527 03
Method for controlling density and
permeability of sintered powdered metals
LEWIS-10393 B68-10528 03
- TOKAR, J. V.
Thermophysical properties of sodium
ARG-10363 B69-10240 03
- TOKUDA, N.
Dynamics of moving bubbles in single and
binary component systems
M-FS-14845 B68-10339 02
- TOLSON, R. H.
The X square statistic and goodness of fit
test
GSFC-10547 B68-10136 02
- TOM, H. Y.
Ionene membrane battery separator
NPO-11091 B69-10501 03
- TOMLIN, D. D., JR.
One-dimensional Coulomb-damped wave motion

in prismatic bars M-FS-14815	B68-10548	02	
TOMLINSON, L. E. Pneumatic shutoff and time-delay valve operates at controlled rate M-FS-602	B66-10189	05	
TOMPKINS, F. S. Miniaturized King furnace permits absorption spectroscopy of small samples ARG-10177	B68-10418	02	
TOPFER, A. R. Process controls introduction of selected impurities into semiconductor wafers GSFC-523	B67-10303	01	
TOPITS, A. N., JR. High impact pressure regulator withstands impacts of over 15,000 g NPO-10175	B67-10274	01	
Shock-absorbent mountings for bearings NPO-10626	B69-10331	05	
TORICK, E. L. Electronic dummy for acoustical testing MSC-206	B67-10298	01	
TOTAH, R. S. Countersunk headscrew retainer M-FS-16481	B69-10282	05	
TOTH, L. R. Elastic guides reduce hysteresis effect in Belleville spring package JPL-910	B67-10011	05	
TOTTLE, C. R. Study of mechanical properties of uranium compounds ARG-10074	B68-10197	03	
TOULOUKIAN, Y. S. Recommended values of the thermophysical properties of eight alloys, their major constituents and oxides NU-0095	B67-10062	03	
TOWNES, C. H. Optical frequency waveguide and ion transmission system HQ-10541	B69-10746	01	
TOWNHILL, A. Precision metal molding M-FS-13305	B67-10423	05	
Aluminum and stainless steel tubes joined by simple ring and welding process M-FS-13120	B67-10472	05	
TOYE, C. R. Failure rates for accelerated acceptance testing of silicon transistors ERC-10198	B68-10541	01	
TRADER, A. G. Simulator effects partial gravity conditions MSC-152	B66-10339	05	
TREBES, D. M. Clamp provides efficient connection for high-density currents M-FS-2417	B67-10140	01	
Ultra-high-flux heat exchanger M-FS-18135	B69-10201	02	
TRESSEL, G. W. Aerial-image enables diagrams and animation to be inserted in motion pictures ARG-165	B67-10398	02	
TREUDE, R. C. Selective video blanking technique M-FS-20013	B68-10434	01	
TRISCHLER, F. D. Process produces chlorinated aromatic isocyanate in high yield M-FS-1658	B66-10646	03	
Synthesis of various highly halogenated monomers and polymers M-FS-2143	B67-10100	03	
Synthesis of polyethers of hexafluorobenzene and hexafluoropentanediol M-FS-14962	B69-10636	03	
TROMBKA, J. I. Numerical least-square method for resolving complex pulse height spectra GSFC-10142	B67-10480	06	
Nondispersive X-ray emission analysis for geochemical exploration GSFC-10568	B69-10011	02	
TROUTMAN, S. J. Rate of heat extraction controller for environmental control HQ-10318	B69-10516	01	
TRUBERT, M. R. P. Analysis of space vehicle structures using the transfer-function concept NPO-11162	B69-10337	06	
Electronic analog equalization for vibrational testing NPO-10544	B69-10472	01	
TRUELOVE, R. D. Parallel-to-serial biphasic-data converter MSC-11600	B68-10241	01	
TRUENBELS, P. Automatic planning concept - An analysis of optimum scheduling M-FS-14198	B68-10127	06	
TRYON, R. W. Radiographic threshold detection levels of aluminum weld defects M-FS-20487	B69-10418	01	
TSUTSUMI, K. Hydraulic device provides accurate displacements to microinches MSC-112	B65-10230	05	
TUBBS, H. E. Development of detonation reaction engine M-FS-1402C	B67-10652	01	
Continuous detonation reaction engine M-FS-1401S	B68-10034	03	
TUCKER, E. M. Concept to comfort-condition subjects wearing restrictive clothing MSC-10964	B68-10178	02	
TUCKER, P. E. Tool repairs tube components in situ MSC-15348	B69-10379	05	
TULISIAK, G. Electron beam selectively seals porous metal filters LEWIS-10162	B68-10331	05	
TUMS, E. O. Efficient dc to dc converter eliminates large stray magnetic fields GSFC-463	B66-10376	01	
TUPPER, W. E. Compressed gas system operates semitrailer brakes during winching operation JPL-0036	B64-10306	05	
TURBITT, B. Grit blasting nozzle fabricated from mild tool steel proves satisfactory M-FS-1420	B66-10597	05	
TURKEVICH, A. Instrument performs nondestructive chemical analysis, data can be telemetered JPL-SC-078	B65-10317	01	
TURNER, D. P. Modified algesimeter provides accurate depth measurements MSC-616	B66-10647	04	
TURNER, J. D. Effect of surface irregularities on bellows fatigue life M-FS-14480	B68-10229	05	
TURNER, K. S. Fluid-bed fluoride volatility process recovers uranium from spent uranium alloy fuels ARG-232	B67-10032	03	
TURNIPSEED, G. T. Two devices for analysis of nystagmus HQ-10273	B69-10224	01	
TURVY, R. R. Electronic circuit provides automatic level control for liquid nitrogen traps KSC-10127	B68-10061	01	
TUTT, G. E. Polynomial manipulator AP-168 MSC-1231	B67-10103	01	
TYLER, A. L. Helical recorder GSFC-10614	B69-10340	01	

U

UBER, P. W.
An improved magnetic tape recorder
GSFC-08259 B67-10646 01

ULRICH, D. R.
IR-transmission glasses formed from oxides of
bismuth and tellurium
M-FS-279 B65-10190 03
High dielectric thick films for screened
circuit capacitors
LANGLEY-10294 B68-10542 01

UMBREIT, W.
Automated microorganism Sample Collection
Module
HQ-10421 B69-10223 04

UNDERWOOD, J. H.
Glancing incidence telescope for far
ultraviolet and soft X-rays
GSFC-10052 B67-10508 02

UPHAUS, R. A.
Substitution of stable isotopes in
Chlorella
ARG-10258 B69-10197 04

UPSHAW, V.
Chromium oxide coatings improve thermal
emissivity of alumina
WOO-263 B66-10227 03

URIBE, J. R.
Simple test indicates degree of cure of
polyimide coatings
MSC-15487 B69-10330 03

URQUIDI, R.
Heat exchanger tubes supported in high
vibration environment
M-FS-1401 B66-10567 05

UTKU, S.
ELAS - A general purpose computer program
for the equilibrium problems of linear
structures
NPO-10598 B68-10187 06

V

VACCARO, M. J.
GREMEX-A new management training concept
GSFC-574 B67-10092 01

VAJDA, I. E.
Improved camera for better X-ray powder
photographs
HQ-10424 B69-10537 01

VALE, L. B.
Setting of angles on machine tools speeded by
magnetic protractor
ARC-5 B63-10006 01

VALENTIN, R. A.
Analysis of transient thermal stress in
heat-generating plates and hollow cylinders
caused by sudden environmental temperature
changes
ARG-10274 B69-10047 02

VAN SOMEREN, L.
Study shows effect of surface preparations
on improving thermionic emission
JPL-SC-140 B66-10493 01

VAN ARMAN, D. E.
Multidimensional Reaction Kinetic Ablation
Program /REKAP/
MSC-143 B66-10495 05

VAN DEVENTER, E. L.
Instrument quickly transposes ground reference
target to eye level
MSC-275 B66-10061 05

VAN LOON, J. A.
Plug-in connector socket accepts coaxial
cable end
ARG-9 B66-10478 01
Apparatus for fabrication of americium-
beryllium neutron sources prevents capsule
contamination
ARG-184 B67-10202 05

VAN LOON, L. S.
Flexible high-voltage supply for
experimental electron microscope
ARG-10482 B69-10603 01

VAN SANT, B. W.
Real-Time Operating System/360

MSC-12148 B69-10386 01

VAN WAGNER, B. R.
Pressure-control purge panel for automatic
butt welding
M-FS-18465 B69-10403 05

VAN WYK, R.
Variable-mesh method of solving
differential equations
NPO-10515 B69-10017 02

VANAHAN, J. E.
Flame sprayed dielectric coatings improve
heat dissipation in electronic packaging
M-FS-13569 B67-10534 01

VANASSE, M. A.
Miniature paint-spray gun for recessed
areas
MSC-13060 B68-10387 05

VANCE, J. H.
Determination of quadric equation
coefficients describing three-dimensional
surfaces, their constraint and skewed planes,
and view point areas
M-FS-15043 B69-10435 06

VANDERGRIFF, E. F.
Self-aligning rod prevents eccentric
loading of tensile specimens
NUC-10525 B67-10594 05
Test system accurately determines tensile
properties of irradiated metals at cryogenic
temperatures
NUC-10521 B67-10617 02
Environmental control system for cryogenic
testing of tensile specimens
NUC-10523 B67-10618 02
Tensile testing grips are easily assembled
under liquid nitrogen
NUC-10524 B67-10628 05

VANGO, S. P.
Metals plated on fluorocarbon polymers
JPL-544 B63-10612 03
Microorganisms detected by enzyme-catalyzed
reaction
JPL-782 B66-10117 04
Restricted-flow junction between liquids
NPO-10682 B69-10332 02

VANIER, J.
Hydrogen maser as a highly stable frequency
reference
M-FS-2437 B67-10146 01

VANO, A. E.
Quick-attach clamp
XFR-05421 B68-10250 05

VANZETTI, R.
Twin helix system produces fast scan in
infrared detector
M-FS-1598 B66-10638 02

VARGO, D.
Wire winding increases lifetime of oxide
coated cathodes
LEWIS-154 B65-10032 03

VARNEY, H. S.
Nondestructive testing techniques used in
analysis of honeycomb structure bond
strength
M-FS-1214 B67-10574 01

VARY, A.
Radiant heater for vacuum furnaces offers high
structural rigidity, low heat loss
LEWIS-39 B63-10342 01
Diaphragm valve for corrosive and high
temperature fluid flow control has unique
features
LEWIS-304 B66-10365 05
Rotating magnetic poles used to pump mercury
LEWIS-276 B66-10434 05
Flowmeter measures flow rates of high
temperature fluids
LEWIS-328 B66-10521 01

VAUGHAN, R. L.
Computer program analyzes generalized
environmental control and life support
systems
MSC-1157 B67-10415 06

VAUGHN, T. J.
Heat-load simulator for heat sink design
MSC-15170 B68-10510 02

VEEDER, L.
Nickel/tin coating protects threaded
fasteners in corrosive environment

MSC-253	B65-10398	03	VISSERS, D. R.	Technological survey of tellurium and its compounds	ARG-10119	B68-10201	03
VEEDER, L. N.			VISSING, G. S.	Computer program simplifies selection of structural steel columns	NU-0044	B66-10097	01
Improved pH buffering agent for sodium hypochlorite	B69-10084	03		Economical and maintenance-free gas system operates railroad switches	NU-0045	B66-10124	05
MSC-15443			VIZENOR, R.	Ronchi test applied to measurement of surface roughness	M-FS-12583	B67-10636	02
VEILLETTE, L. J.			VOGEL, C. E.	Refractory coating protects intricate graphite elements from high-temperature hydrogen	NU-0027	B66-10084	01
Bidirectional torque filter eliminates backlash	B65-10148	05	VOGEL, G. J.	Computer program developed for flowsheet calculations and process data reduction	ARG-10134	B69-10023	06
GSFC-335			VOGEL, R. C.	Tool pre-tensions covers prior to lacing	MSC-631	B66-10301	05
Magnetic-shift-register circuit controls step motor operation	B65-10226	01	VOHL, P.	Single-crystal semiconductor films grown on foreign substrates	WOO-076	B66-10225	01
GSFC-340			VOK, C. A.	Plume radiation program	M-FS-13202	B68-10447	06
Analysis of magnetically-controlled processes in pulse-modulation systems	B69-10070	01	VOLKOFF, J. J.	Electrooptical scanning of film	NPO-11106	B69-10568	01
GSFC-10241			VONDEROHE, R. H.	Laser measuring system accurately locates point coordinates on photograph	ARG-74	B66-10560	02
VEILLEUX, E. D.				Mossbauer-effect data-collection system	ARG-10282	B69-10027	01
Thermal resistances of solder-boss/potting compound combinations	B68-10157	01	VRABEL, J.	A new method for producing optical mirrors	HQ-10227	B69-10529	02
MSC-12074			VRANCIK, J.	Semiconductor ac static power switch	LEWIS-10344	B68-10224	01
VENDITTI, R. A.			VROLYK, J. J.	Identification of thermocouple material	M-FS-18540	B69-10356	01
Programmed schedule holds for improving launch vehicle holds	B69-10602	03	VUCKOVICH, M.	Tester automatically checks insulation of individual conductors in multiple-strand cables	NUC-10068	B67-10260	01
M-FS-14502				Automated tester permits precise calibration of pressure transducers from 0 to 1050 psi	NUC-10067	B67-10263	01
VENDL, C. J.							
Positive displacement cylinder measures corrosive liquid volume	B66-10589	05					
MSC-1038							
Synchronized circuit improves accuracy of fluid transfer measurements	B68-10057	05					
MSC-11167							
VERMILLION, C. H.							
Facsimile video enhancement device	B68-10207	01					
GSFC-10185							
VERNON, R. M.							
Study of cryogenic container thermodynamics during propellant transfer	B68-10108	02					
M-FS-14310							
VERRETTE, R. M.							
Static structural analysis of shell-type structures	B68-10066	03					
MSC-11555							
VESCO, D.							
Upsetting butt edge increases weld-joint strength	B64-10164	05					
M-FS-175							
VESSOT, R.							
Hydrogen maser as a highly stable frequency reference	B67-10146	01					
M-FS-2437							
Automatic tuning of hydrogen masers	B69-10452	01					
GSFC-10127							
VETRONE, R. H.							
Spherical electrode eliminates high-voltage breakdown	B65-10139	01					
LEWIS-155							
VETTER, D. L.							
Design of a strain-gage probe	B69-10343	05					
ARG-10338							
VICK, H. A.							
Inexpensive, stable circuit measures heart rate	B65-10010	01					
MSC-95							
Digital-output cardiometer measures rapid changes in heartbeat rate	B65-10143	01					
MSC-133							
Blood pressure reprogramming adapter assists signal recording	B67-10475	01					
MSC-265							
VILES, P. J.							
Health hazards of ultrafine metal and metal oxide powders	B69-10268	04					
LEWIS-10878							
VINAL, A. W.							
New sintering process adjusts magnetic value of ferrite cores	B63-10606	01					
GSFC-129							
VINCENT, E. R.							
Multiple port pressure scanner valve features greater accuracy, quicker data	B64-10031	05					
JPL-555							
VINSON, R. J.							
Investigation of the development of cracks in solder joints	B69-10807	01					
M-FS-20444							
VISSCHER, J.							
New passive telemetry system	B69-10312	01					
HQ-10214							

W

WADA, B. K.			Computer program performs stiffness matrix structural analysis	NPO-10502	B68-10096	06
WADDELL, H.			Miniature oxygen resuscitator	KSC-10398	B69-10319	04
WADDLETON, T. E.			Development of Electronic Data Processing /EDP/ augmented management system	M-FS-14715	B68-10287	06
WAGNER, D. A.			Design and testing of liquid hydrogen-cooled, ultrahigh-speed ball bearings	M-FS-18453	B69-10178	05
WAGNER, J. G.			Antechamber facilitates loading and unloading of vacuum furnace	LEWIS-10265	B68-10135	02
WAGNER, R. P.			Magnets position X-ray film for weld inspection	M-FS-253	B65-10110	05
WAGNER, W. R.			Heat transfer coefficients for liquid hydrogen turbopumps	M-FS-18345	B68-10517	02

WAGONER, C. B.	M-FS-503	B66-10224	01
Electropneumatic rheostat regulates high current			
ARC-44	B65-10299		01
WAHLGREN, M. A.			
Compilation of detection sensitivities in thermal-neutron activation			
ARG-10068	B67-10641		03
Portable, high intensity isotopic neutron source provides increased experimental accuracy			
ARG-90250	B68-10243		02
Detection sensitivities in 3-8 MeV neutron activation			
ARG-10210	B68-10298		02
WAHLQUIST, H.			
Shaped superconductor cylinder retains intense magnetic field			
JPL-381	B63-10238		01
WATTE, J.			
Application of cryptanalytic techniques to the analysis of NiCd space batteries			
GSFC-10569	B69-10731		01
WALCH, A. J.			
Micromachining produces optical apertures to micron dimensions			
GSFC-206	B64-10211		05
WALDRON, C. R.			
Development of biaxial test fixture includes cryogenic application			
M-FS-14185	B68-10070		01
WALEK, W. J.			
High-emittance coatings on metal substrates			
LEWIS-10325	B68-10381		03
WALKER, D. E.			
Thermoelectric metal comparator determines composition of alloys and metals			
ARG-235	B67-10035		01
WALKER, J.			
Improved combustion chamber optical probe			
MSC-10953	B69-10142		02
WALKER, J. D.			
Computer/PERT technique monitors actual versus allocated costs			
LEWIS-260	B67-10025		01
WALKER, L. A.			
New technique for determination of cross-power spectral density with damped oscillators			
M-FS-14022	B67-10602		02
WALKER, R. J.			
Abrasion and fracture testing in a high-pressure hydrogen environment			
M-FS-18480	B69-10457		03
WALKER, R. R.			
Spiral spring/strain gage combination accurately measures shock induced deflection			
MSC-789	B66-10488		01
Web belt load measuring instrument has excellent stability			
MSC-921	B67-10242		01
Miniature pressure transducer for stressed member application			
MSC-11869	B68-10246		01
WALL, D. B.			
Fluidic transducer gives pressure output as function of temperature			
ERC-10093	B68-10537		05
WALL, S. A., JR.			
Piarc angles measured with ball gage			
M-FS-14690	B68-10030		01
Automatic contour welder incorporates speed control system			
M-FS-14574	B68-10091		01
Closed circuit TV system automatically guides welding arc			
M-FS-20084	B68-10357		01
Welding skate with computerized controls			
M-FS-20224	B68-10566		01
WALLACE, E. D.			
Improved poppet valve provides positive damageproof seal			
M-FS-293	B65-10346		05
Weld preparation tool for pipes and tubing			
KSC-09955	B68-10551		05
WALLACE, H. L.			
FET comparator detects analog signal levels without loading analog device			
WALLAUCH, J. R.			
Simple test indicates degree of cure of polyimide coatings			
MSC-15487	B69-10330		03
WALSCHON, E. G.			
High-voltage pulse generator developed for wide-gap spark chambers			
ARG-10136	B68-10283		01
WALSH, F. D.			
Fatigue zones in metals identified by polarized light photography			
WOO-286	B67-10082		02
WALSH, G. D.			
Accumulator isolator prevents malfunctioning of faulty hydraulic system			
M-FS-1415	B67-10528		05
Conceptual apparatus for detecting leaks of nonconductive liquids			
M-FS-14713	B68-10303		01
WALSH, T. E.			
Electro-optic modulator for infrared laser using gallium arsenide crystal			
GSFC-10686	B68-10255		02
WALSH, T. J.			
Vapor condensation process produces slurry of magnesium particles in liquid hydrocarbons			
LEWIS-263	B66-10104		03
WALTER, L. S.			
Standards for electron probe microanalysis of silicates prepared by convenient method			
GSFC-469	B66-10234		03
WALTER, R. J.			
Purification train produces ultrapure hydrogen gas			
M-FS-1913	B67-10078		03
Effects of high-pressure hydrogen on storage vessel materials			
M-FS-18605	B69-10730		03
WALTERS, C. T.			
Study of high-speed angular-contact ball bearings under dynamic load			
M-FS-20562	B69-10367		05
WALTON, W. C., JR.			
Computer program provides improved longitudinal response analysis for axisymmetric launch vehicles			
LANGLEY-10093	B67-10531		06
WAMBEGANSS, M. W., JR.			
Identification and evaluation of linear damping models in beam vibrations			
ARG-10275	B69-10196		03
WANG, M. T.			
Detector measures power in 50 to 30,000 GHz radiation band			
ERC-26	B66-10581		01
WANIEK, R. W.			
Magnetic forming studies			
M-FS-14217	B68-10186		02
Magnetic forming of resistive materials			
M-FS-20417	B69-10397		03
WARD, D. P.			
Swing arm carrier protects flexible lines during test item rotation			
MSC-11464	B68-10037		05
WARD, J. B.			
Replacement of fluid-filter elements without interruption of flow			
MSC-15499	B69-10245		05
WARD, R. E.			
Acquisition of pseudonoise signals by sequential estimation			
M-FS-13898	B68-10258		01
WARECH, E. J.			
Computer optimization program finds values for several independent variables that minimize a dependent variable			
M-FS-13030	B67-10328		06
WARNAN, E. A.			
Practical new method of measuring thermal-neutron fluence			
NUC-10086	B67-10352		02
WARNING, K.			
Tool facilitates installation of Marmon clamps			
M-FS-2039	B67-10105		05
Power torque wrench concept for precision torque application			
M-FS-13546	B67-10547		05

- Connector shorting cap provides pin alignment, inspection, and stray voltage protection
M-FS-13111 B67-10635 01
- WATERS, W. J.
High strength nickel-base alloy with improved oxidation resistance up to 2200 degrees F
LEWIS-10115 B68-10094 03
Nickel-base superalloy*s excellent properties promote its service to 2200 degrees F
LEWIS-10355 B68-10380 03
High strength, superplastic superalloy
LEWIS-10805 B69-10293 03
Improved high-temperature-strength nickel-base superalloy
LEWIS-10874 B69-10352 03
- WATKINS, F. L.
Computer program generates averaged value data tapes
M-FS-12728 B67-10411 06
- WATKINS, H. E.
Analog voicing detector responds to pitch
GSFC-10085 B67-10571 01
- WATSON, J.
Electron bombardment improves vacuum chamber efficiency
LEWIS-160 B65-10280 02
- WATSON, J. D.
Apparatus alters position of objects to facilitate demagnetization
GSFC-234 B64-10277 05
- WATSON, P. C.
Variable reluctance switch avoids contact corrosion and contact bounce
MSC-1178 B67-10137 01
- WEAKLEY, J. F.
High-pressure, low temperature electrical connector makes no-leak seal
MSC-276 B66-10079 02
- WEBB, D. L.
Video synchronization processor overcomes poor signal-to-noise ratio
KSC-10002 B67-10515 01
- WEBB, P.
Rate of heat extraction controller for environmental control
HQ-10318 B69-10516 01
- WEBB, R. E.
Continuous microbial cultures maintained by electronically-controlled device
ARG-177 B67-10556 04
- WEBB, S. R.
Computer program determines exact two-sided tolerance limits for normal distributions
M-FS-18045 B68-10158 06
- WEBER, G. J.
Cam-operated limit switch features safe fuse replacement
MSC-218 B65-10322 01
Single connector provides safety fuses for multiple lines
MSC-199 B66-10050 01
- WEBER, H. S.
Differential pressure gauge has fast response
M-FS-358 B65-10285 05
- WEBSTER, J. A.
Development of improved potting and conformal coating compounds
M-FS-20219 B69-10559 03
- WEBSTER, R. E.
Adjustable, self-locking ladder includes optional work platform
M-FS-1922 B67-10067 05
- WEBSTER, W. R.
Study of thermal effects on nickel-cadmium batteries
GSFC-10003 B67-10614 01
Improved calorimeter provides accurate thermal measurements of space batteries
GSFC-10003A B67-10615 01
Electrochemical sintering process for producing electrodes from cadmium felt and a nickel or silver grid
GSFC-10764 B69-10227 05
- WECHSLER, A. E.
Experiments to investigate particulate materials in reduced gravity fields
M-FS-13308 B67-10394 02
Thermal conductivity and dielectric constant of silicate materials
M-FS-14856 B68-10351 03
- WEEGMANN, C. F.
Automatic testing device facilitates noise checks and electronic calibrations
LEWIS-10173 B67-10467 01
- WEETAL, H. H.
Reusable chelating resins concentrate metal ions from highly dilute solutions
JPL-758 B66-10451 03
- WEETALL, H. H.
Microorganisms detected by enzyme-catalyzed reaction
JPL-782 B66-10117 04
- WEETON, J. W.
Tungsten fiber-reinforced nickel superalloy
LEWIS-10424 B68-10369 03
- WEGNER, C. R.
Cryogenic liquid level measuring probe
ARG-10138 B68-10291 01
- WEICHRODT, B.
Damages in rolling element bearings may be detected early
HQ-10031 B67-10658 01
- WEILER, P. W.
Real-Time Operating System/360
MSC-12148 B69-10386 01
- WEINER, D.
Modified RF coaxial connector ends vacuum chamber wiring problem
GSFC-150 B64-10010 01
- WEISENBERG, L. A.
Weld microfissuring in Inconel 718 minimized by minor elements
M-FS-18185 B68-10251 03
- WEISS, P. F.
Improved electro-optical tracking system
M-FS-14791 B68-10311 01
- WEISS, V.
Materials data handbook, Inconel alloy 718
M-FS-2348 B67-10282 03
Materials data handbook, aluminum alloy 7075
M-FS-2349 B67-10301 03
Materials data handbook, aluminum alloy 6061
M-FS-20381 B69-10065 03
- WEITENBECK, R. G.
Vent and relief valve maintains low leakage rate over broad temperature range
M-FS-12807 B68-10014 05
- WELCHEL, C. J.
Adhesive for polyester films cures at room temperature, has high initial tack
M-FS-938 B66-10487 03
- WELDON, T. P.
Pneumatic pressure wave generator provides economical, simple testing of pressure transducers
NUC-10024 B67-10664 05
- WELIKY, N.
Microorganisms detected by enzyme-catalyzed reaction
JPL-782 B66-10117 04
Reusable chelating resins concentrate metal ions from highly dilute solutions
JPL-758 B66-10451 03
- WELLMAN, J. B.
Compact rotating cup anemometer
NPO-10563 B68-10436 01
- WELLS, F. E.
Flowmeter measures low gas-flow rates
M-FS-215 B66-10036 01
Determining gas leakage from bubble formations
M-FS-14841 B68-10393 05
- WELLS, G. H.
Cryogenic trap valve has no moving parts
M-FS-487 B66-10136 05
Shock-operated valve would automatically protect fluid systems
M-FS-801 B66-10335 03
Leak locator for vacuum jacketed pipelines eliminates need for removal of outer jacket
M-FS-888 B66-10412 01

WELLS, R. J.	Reidentifying hardware after loss of serial number				
	N-FS-18133	B69-10059	05		
WELLS, W. H.	Telescope mount with azimuth-only primary				
	NPO-10468	B67-10671	02		
WELTER, L. E.	Flexible high-voltage supply for experimental electron microscope				
	ARG-10482	B69-10603	01		
WELTER, N. E.	Communication system features dual mode range acquisition plus time delay measurement				
	M-FS-14323	B68-10306	01		
WELZ, E. A., JR.	Gas chromatographic column enables analysis of propellant hydrazines				
	MSC-1161	B66-10586	03		
	Trace hydrazines in aqueous solutions accurately determined by gas chromatography				
	MSC-11222	B67-10290	03		
	Gas chromatograph injection port protective device				
	M-FS-18585	B69-10788	03		
WENDT, A. J.	Rotating mandrel speeds assembly of plastic inflatables				
	LANGLEY-155	B66-10137	05		
WENGER, N. C.	Liquid hydrogen densitometer utilizes open-ended microwave cavity				
	LEWIS-390	B67-10115	01		
WENZEL, G. E.	Tester periodically registers dc amplifier characteristics				
	MSC-190	B66-10148	01		
WEBLE, D. K.	Solvent residue content measured by light scattering technique				
	M-FS-850	B66-10320	01		
WEINER, E. A.	Process sequence produces strong, lightweight reflectors of excellent quality				
	LEWIS-331	B67-10010	05		
WEINER, M. H.	Measuring coplanarity of surfaces				
	MSC-12044	B67-10371	02		
WESLEY, R. D.	Cold trap increases sensitivity of gas chromatography				
	M-FS-1617	B66-10517	03		
WESSON, J. R.	Numerical solutions of differential equations				
	M-FS-20537	B69-10779	02		
WEST, A. M.	Fuel transfer system permits rapid coupling				
	M-FS-91326	B68-10039	05		
WEST, R. L.	Astronaut's tool for withdrawing/replacing computer cards				
	M-FS-20453	B69-10183	05		
WESTBROOK, R. H.	Helmet system broadcasts electroencephalograms of wearer				
	ARC-70	B66-10536	01		
WESTERLUND, R. W.	Weldable aluminum alloy has improved mechanical properties				
	M-FS-295	B66-10445	03		
WESTERMAN, H. E.	Expandable takeup reel facilitates paper tape removal				
	WOO-271	B66-10399	05		
WESTPHAL, J. A.	Method of directing a laser beam with very high accuracy				
	NPO-11087	B69-10508	02		
WHEATLEY, C. E.	Continuous wave detector has wide frequency range				
	M-FS-1849	B67-10386	01		
WHEATLEY, D. G.	Hermetically sealed vibration damper				
	MSC-10959	B69-10634	05		
WHEELER, R. W.	Beam profiles measured with thermoluminescent dosimeters				
	ARG-10229	B69-10024	02		
WHEELER, S. B.	Self-sealing closure enables access to several fluid containers				
	NPO-10123	B67-10207	04		
WHIFFEN, E. E.	Welds chilled by liquid coolant manifold				
	M-FS-679	B66-10354	05		
WHIFFEN, E. L.	Special mandrel permits uniform welding of out-of-round tubing				
	M-FS-706	B66-10323	05		
WHITACRE, H. E.	Quick-release hook-and-loop fastener				
	MSC-10950	B69-10388	05		
WHITE, C. H.	Fixture facilitates soldering operations				
	M-FS-14456	B68-10573	05		
WHITE, D. R.	Precision bolometer bridge				
	MSC-11473	B68-10156	01		
WHITE, G. R.	A simplified PERT system				
	M-FS-2267	B67-10241	05		
WHITE, R. W.	Application of distorted models in developing scaled structural models				
	M-FS-2540	B67-10321	05		
WHITE, W. T.	High power dc/dc and dc/ac electrical power conversion techniques developed				
	M-FS-13227	B67-10390	01		
WHITFIELD, C. E.	Areas of irregular, discontinuous patterns rapidly and accurately measured				
	GSFC-10184	B67-10674	01		
WHITFIELD, W. J.	Vacuum probe sampler removes micron-sized particles from surfaces				
	SAW-10003	B68-10231	04		
WHITING, E. E.	A computer program for a line-by-line calculation of spectra from diatomic molecules and atoms assuming a Voigt line profile				
	ARC-10221	B69-10232	06		
WICKES, W. H.	Computer program samples digital data for CRT display				
	MSC-999	B67-10249	01		
WICKHAM, C. G.	Miniature pressure transducer for stressed member application				
	MSC-11869	B68-10246	01		
WIDNALL, W. S.	Design techniques - Stochastic controllers				
	MSC-11554	B68-10234	02		
WIEBE, E. R.	Automatic thermal switch accelerates cooling-down of cryogenic system				
	JPL-655	B65-10068	01		
	Spiraled channels improve heat transfer between fluids				
	JPL-694	B65-10291	02		
WIEGAND, D. E.	Concept for sleeve induction motor with 1-msec mechanical time constant				
	ARG-10124	B68-10185	01		
WIEGAND, D. E.	Quick-response servo amplifies small hydraulic pressure differences				
	ARG-99	B66-10498	05		
WILCOX, E. F.	Multi-purpose tool mitten				
	HQ-10047	B69-10483	05		
WILER, E. M.	RF inductor has high Q, is stable at higher temperatures				
	JPL-1019	B67-10106	01		
	Novel terminal strips for transformers				
	NPO-10842	B69-10246	01		
WILGUS, C. A.	Method reduces computer time for smoothing functions and derivatives through ninth order polynomials				
	NUC-10334	B69-10524	06		

- WILHELM, H. A.**
 Niobium-uranium alloys with voids of predetermined size and total volume
 ARG-10490 B69-10641 03
- WILHITE, W. F.**
 Subminiaturized gas chromatograph gives fast, efficient analysis
 JPL-735 B66-10182 01
- WILKERSON, T. D.**
 Multiaxial analyzer detects low-energy electrons
 GSFC-329 B65-10213 01
- WILKES, D. F.**
 Rolamite - A new mechanical design concept
 SAN-10001 B67-10611 05
- WILKINSON, C.**
 Machine tests slow-speed sliding friction in high vacuum
 M-FS-12341 B67-10379 05
- WILKINSON, J. E.**
 Buckle joins web straps quickly, adjusts easily
 LANGLEY-21 B64-10119 05
- WILKINSON, J. P. D.**
 Computer program for determination of natural frequencies of closed spherical sandwich shells
 MSC-1246 B67-10279 06
- WILKOWSKI, J. C.**
 Explosive-train initiated through solid bulkhead by pressure cartridge
 MSC-11395 B67-10589 03
- Blast deflector traps smoke and debris from explosive trains
 MSC-11241 B68-10105 03
- WILLEMS, R. H.**
 Submicron holes in thin films increase sampling range of mass spectrometers
 JPL-SC-097 B66-10380 03
- WILLIAMS, B. B.**
 Spiral-flow apparatus for measuring permeation of solids by gases
 M-FS-16517 B69-10357 03
- WILLIAMS, D.**
 FORTRAN program flow chart is automatically produced
 M-FS-369 B66-10062 01
- WILLIAMS, D. C.**
 Threading hook facilitates safe recovery of heavy loads
 MSC-46 B64-10185 05
- WILLIAMS, D. N.**
 Silver-base ternary alloy proves superior for slip ring lead wires
 M-FS-1540 B66-10540 03
- WILLIAMS, J. R.**
 Orbital tube flaring system produces tubing connectors with zero leakage
 M-FS-2016 B67-10019 05
- WILLIAMS, R. T.**
 Welding torch and wire feed manipulator
 M-FS-13102 B67-10385 05
- WILLIAMS, S.**
 Bidirectional torque filter eliminates backlash
 GSFC-335 B65-10148 05
- WILLING, R.**
 Film coating permits low-force scribing
 MSC-990 B66-10609 03
- WILLIS, G. A.**
 Jig protects transistors from heat while tinning leads
 MSC-515 B66-10240 05
- WILSON, A. J.**
 Fluorescent particles enable visualization of gas flow
 M-FS-14583 B68-10259 02
- Pneumatic flow comparator
 M-FS-18373 B69-10400 05
- WILSON, E. L.**
 Computer program calculates steady-state temperature distribution within plane or axisymmetric solids
 NUC-10049 B67-10224 06
- Finite element analysis of compressible solids with nonlinear material properties
 NUC-10342 B69-10238 06
- WILSON, E. R.**
 New rapid-curing, stable polyimide polymers with high-temperature strength and thermal stability
 LEWIS-10576 B69-10118 03
- WILSON, G. J.**
 Indium adhesion provides quantitative measure of surface cleanliness
 SAN-10024 B68-10342 01
- WILSON, J.**
 Logarithmic current simulator generates electrical currents accurately between 10 to the minus 11 ampere to 10 to the minus 3 ampere
 NU-0087 B66-10706 01
- WILSON, J. H.**
 Servo calorimeter measures material heating rate
 NU-0024 B65-10247 01
- WILSON, L. A.**
 FORTRAN optical lens design program
 NPO-10603 B68-10354 06
- WILSON, M.**
 Density trace made with computer printout
 GSFC-322 B65-10200 01
- WILSON, M. W.**
 Gimbaled-mirror scanning system capable of spiral pattern
 GSFC-10170 B67-10609 02
- WILSON, T. G.**
 Circuit controls transients in SCR inverters
 GSFC-120 B63-10600 01
- Full wave dc-to-dc converter using energy storage transformers
 LEWIS-10375 B69-10140 01
- WILSON, W. R. D.**
 Study of high-speed angular-contact ball bearings under dynamic load
 M-FS-20562 B69-10367 05
- WILTON, K. B.**
 Metal-bending brake facilitates lightweight, close-tolerance fabrication
 ARC-29 B64-10069 05
- WIMBER, R. T.**
 Improved high-temperature silicide coatings
 LEWIS-10817 B69-10266 03
- WINDETT, C. B.**
 Improved S/N meter
 MSC-11656 B68-10151 01
- WING, J.**
 Compilation of detection sensitivities in thermal-neutron activation
 ARG-10068 B67-10641 03
- Detection sensitivities in 3-8 MeV neutron activation
 ARG-10210 B68-10298 02
- WING, T.**
 Damping technique gives accelerometer flat frequency response
 M-FS-471 B66-10293 01
- WINIARSKI, F. J.**
 Unique gear design provides self-lubrication
 JPL-SC-079 B65-10366 03
- WINKELSTEIN, R. A.**
 Digital frequency counter permits readout without disturbing counting process
 JPL-906 B66-10658 01
- Digital-to-analog converter operates from low level inputs
 JPL-907 B67-10357 01
- WINNINGKOFF, K.**
 The compatible conversion system
 M-FS-15010 B69-10031 06
- WINSCH, I. O.**
 Two techniques enable sampling of filtered and unfiltered molten metals
 ARG-150 B67-10034 03
- WINSLETT, H. B.**
 Silicon surface barrier detectors used for liquid hydrogen density measurement
 M-FS-14115 B68-10166 01
- WINSLOW, D. J.**
 Coded photographic proof paper could serve as convenient densitometer
 M-FS-13374 B67-10443 02
- WIRTH, H. O.**
 Recent development in organic scintillators
 ARG-10344 B69-10198 03
- WISE, J. P.**
 Direct reading of electrocardiograms and

- respiration rates
KSC-10233 B69-10188 04
- WISE, T. E.
Polychart contour plotter enables data
extrapolation from multiple plotting charts
M-FS-37 B64-10406 05
- WISNER, J. P.
Refractory metals welded or brazed with
tungsten inert gas equipment
LEWIS-219 B65-10319 05
- Inert-gas welding and brazing enclosure
fabricated from sheet plastic
LEWIS-220 B65-10338 05
- WITSOE, D. A.
New electrical plethysmograph monitors
cardiac output
MSC-11447 B68-10220 01
- WITZELL, W. E.
Weld joint strength and mechanical properties
in 2219-T81 aluminum alloy
LEWIS-10479 B68-10561 03
- WITZKE, W. R.
Vapor condensation process produces slurry of
magnesium particles in liquid hydrocarbons
LEWIS-263 B66-10104 03
- Lower-cost tungsten-rhenium alloys
LEWIS-332 B66-10528 03
- High-strength tungsten alloy with improved
ductility
LEWIS-10257 B67-10340 03
- WOBIG, O. A.
Pneumatic power is transmitted through air
bearing
MSC-8 B64-10141 05
- Lathe attachment used to machine elliptical
cones
MSC-100 B65-10168 05
- Pipe joints reinforced in place with fitted
aluminum sleeves
MSC-11109 B67-10271 05
- WODE, H. G.
An infrared television system for hydrogen
flame detection
KSC-10368 B69-10354 01
- WOHL, D. P.
Computer program uses Monte Carlo
techniques for statistical system
performance analysis
M-FS-2234 B67-10306 06
- WOHL, J. G.
Phase plane displays detect incipient
failure in servo system testing
HQ-10018 B67-10662 01
- WOLFF, M.
Scanning photometer system automatically
determines atmospheric layer height
MSC-245 B66-10170 01
- WOLFRAM, E. A.
Line adapter provides quick disconnect under
moderate side loading
M-FS-2159 B67-10256 05
- WOLIN, S.
New method for critical failure prediction
of complex systems
M-FS-14133 B68-10252 02
- WOLPIN, E. G.
Optical output enhances flowmeter accuracy
M-FS-482 B65-10395 02
- WONG, R. Y.
Improved television signal processing system
NPO-10140 B67-10246 01
- Electronic visualization of gas bearing
behavior
LEWIS-10711 B69-10073 01
- WOO, K. E.
A sterilizable high-impact antenna
NPO-10231 B69-10697 01
- WOOD, A. D.
Gage measures total radiation, including
vacuum UV, from ionized high-temperature
gases
XNP-09802 B69-10028 02
- WOOD, C. H., JR.
Thread cutting with 3-axis N/C milling
machine
LANGLEY-10017 B68-10055 06
- WOOD, C. H.
Beryllium fastener technology
M-FS-20306 B69-10019 05
- WOOD, G. M.
Rapid helium-air analyzer can measure other
binary gas mixtures
LANGLEY-16 B63-10557 03
- WOOD, L. H.
New computer system simplifies programming of
mathematical equations
M-FS-441 B66-10361 01
- WOOD, B. C.
Air sampler collects and protects minute
particles
HQ-10037 B67-10661 01
- WOODBURY, R. C.
Automatic Gaussian random-noise limiter
NPO-10169 B69-10349 01
- WOODS, E. C.
Large volume continuous counterflow
dialyzer has high efficiency
HQ-10055 B67-10395 04
- WOODS, M. D.
Computer program TRACK performs transient
and/or steady state thermal analysis with
coupled fluid flow and heat conduction
NUC-10189 B68-10450 06
- WOODSUN, H. C.
Synthesis of calculational methods for design
and analysis of radiation shields for
nuclear rocket systems
M-FS-14447 B69-10158 06
- WOODWARD, F. A.
Computer program analyzes and designs
supersonic wing-body combinations
ARC-10141 B68-10335 06
- WOODWARD, O. M., JR.
Omnidirectional antennas transmit and
receive over large bandwidth
GSFC-436 B66-10133 01
- WOOLEY, B. C.
Tool samples subsurface soil free of
surface contaminants
MSC-10988 B67-10473 05
- WOOLFSON, M. G.
Pulse generator using transistors and silicon
controlled rectifiers produces high current
pulses with fast rise and fall times
MSC-405 B66-10456 01
- WOOSTER, C. W., JR.
Asbestos and Inconel combined to form hot-gas
seal
M-FS-14004 B68-10162 05
- WORD, J. C.
Improved process for epitaxial deposition
of silicon on prediffused substrates
M-FS-14910 B68-10390 03
- WORD, J. L.
Method for reducing snap in magnetic
amplifiers
LEWIS-10388 B68-10388 01
- WORDEN, S. W.
Effects of heat input rates on T-1 and
T-1A steel welds
M-FS-2475 B67-10163 03
- WRENCH, E. H.
Solenoid hammer valve developed for
quick-opening requirements
LEWIS-10134 B67-10639 05
- WROTH, R. S.
Effect of welding position on porosity
formation in aluminum alloy welds
M-FS-2318 B67-10177 05
- Welding of AM350 and AM355 steel
M-FS-2314 B67-10292 05
- WUENSCHER, H. F.
Conceptual hermetically sealed elbow
actuator
M-FS-14710 B68-10300 05
- WULFF, J.
One hundred angstrom niobium wire
LEWIS-10128 B68-10279 03
- WYSOCKI, J. J.
Simplified method introduces drift fields
into cells
GSFC-572 B67-10102 03
- YAGER, S. P.
Feed-thru flange is useful in vacuum

Y

applications to cryogenic temperatures			
JPL-846	B66-10615	02	
Combination double door high-vacuum valve			
provides access to vacuum chamber			
JPL-849	B66-10697	05	
Feed-thru conduit minimizes heat pickup			
JPL-847	B67-10619	05	
YANG, J. N.			
On the bound of first excursion probability			
NPO-11158	B69-10334	06	
Optimum structural design based on			
reliability and proof-load testing			
NPO-11228	B69-10723	31	
YANG, N. C.			
Xenon fluorides show potential as			
fluorinating agents			
ARG-113	B67-10185	03	
YANG, P.			
Fluid power-transmitting gas bearing			
ERC-10097	B68-10503	05	
YANG, P. B.			
Analysis of stability-critical orthotropic			
cylinders subjected to axial compression			
M-FS-12869	B67-10375	03	
YANG, W. J.			
Dynamics of moving bubbles in single and			
binary component systems			
M-FS-14845	B68-10339	02	
YAP, B. K.			
Wideband, high efficiency optical modulator			
requires less than 10 watts drive power			
M-FS-12733	B67-10289	01	
YARBOROUGH, J. M.			
Technique developed for measuring			
transmittance of optical birefringent			
networks			
M-FS-14267	B68-10260	02	
Synthesis of electro-optic modulators for			
amplitude modulation of light			
M-FS-14268	B68-10275	02	
YAROSHUK, N.			
Electronic skewing circuit monitors exact			
position of object underwater			
NUC-10146	B67-10629	01	
Deflection circuit monitors force on object			
under water			
NUC-10147	B68-10147	01	
YASUI, R. K.			
Solar cell submodule design facilitates			
assembly of lightweight arrays			
JPL-728	B66-10231	02	
Composite solar cell matrix is reliable,			
lightweight and flexible			
NFO-10821	B67-10503	01	
YATES, J. E.			
Aerodynamic forces of fluttering cylindrical			
and/or planar structures			
M-FS-20497	B69-10781	02	
YATSKO, G. O.			
Environmental control system for cryogenic			
testing of tensile specimens			
NUC-10523	B67-10618	02	
YEAGER, E.			
The compatible conversion system			
M-FS-15010	B69-10031	06	
YEAGER, J. R.			
Noise figure measurement concept for			
acoustic amplifiers			
GSFC-10066	B68-10272	01	
YEAGER, P. R.			
Rapid helium-air analyzer can measure other			
binary gas mixtures			
LANGLEY-16	B63-10557	03	
YEH, T. H.			
Electrically controlled optical latch and			
switch requires less current			
JPL-SC-111	B66-10414	01	
Improved method of fabricating planar gallium			
arsenide diodes			
XNP-04235	B69-10271	01	
YODER, S. K.			
Automatic transducer switching provides			
accurate wide range measurement of pressure			
differential			
NUC-10001	B67-10540	01	
YOUNG, A. L.			
Semitoroidal-diaphragm cavitating valve			
designed for bipropellant flow control			
XNP-09704	B69-10016	05	
YOUNG, F. L.			
Photomicrometrology			
M-FS-14556	B69-10736	01	
YOUNG, R. J.			
Vertical boring mill capacity is increased			
M-FS-16196	B68-10530	05	
Vibration dampener for Niles vertical			
boring mill ram			
MSC-15529	B69-10348	05	
YOUNG, R. M.			
An improved soft X-ray photoionization			
detector			
GSFC-540	B67-10072	02	
Laser-Doppler gas-velocity instrument			
M-FS-20039	B68-10349	02	
YOUNG, S.			
Special tool seals conductors with combination			
of plastic sleeves			
M-FS-579	B66-10209	05	
YOUNG, W. J.			
Phonocardiograph microphone is rugged and			
moistureproof			
MSC-212	B66-10314	04	
YOUNGBERG, C. L.			
Fresnel cup reflector directs maximum energy			
from light source			
JPL-424	B63-10263	03	
YOUNGDAHL, C. A.			
Zirconium alloys with small amounts of iron			
and copper or nickel show improved corrosion			
resistance in superheated steam			
ARG-226	B67-10050	03	
Oxide film on metal substrate reduced to			
form metal-oxide-metal layer structure			
ARG-48	B67-10187	03	
Instrumentation for potentiostatic corrosion			
studies with distilled water			
ARG-10409	B69-10413	03	
YU, Y.			
An unconventional magnetically-coupled			
multivibrator			
HQ-10226	B69-10480	01	

Z

ZACKAY, V. F.			
Retention of ductility in high-strength			
steels			
ARG-10497	B69-10616	03	
ZAPP, K.			
Occulting-filter method for obtaining			
flashing-light visibility data			
MSC-13097	B69-10107	02	
ZAREMBA, J. G.			
Gimbal angle sensor			
GSFC-10305	B68-10315	01	
ZARETSKY, E. V.			
Control of component differential hardness			
increases bearing life			
LEWIS-190	B65-10251	05	
Tester for study of rolling element			
bearings			
LEWIS-305	B67-10009	01	
High-temperature bearing-cage materials			
LEWIS-10403	B68-10176	05	
High-temperature bearing lubricants			
LEWIS-10408	B68-10249	05	
ZAVADA, E.			
Break-up of metal tube makes one-time shock			
absorber, bars rebound			
LANGLEY-1A	B63-10304	05	
ZAWADSKI, G. Z.			
Friction brake cushions acceleration and			
vibration loads			
MSC-715	B66-10608	05	
ZEGLER, S. T.			
Superconductivity in zirconium-rhodium			
alloys			
ARG-10223	B69-10010	03	
ZEHMPFENNIG, T.			
Imaging slitless spectrometer for X-ray			
astronomy			
M-FS-14309	B68-10546	02	
ZEINER, R. L.			
Effect of surface irregularities on bellows			
fatigue life			
M-FS-14480	B68-10229	05	
ZELDIN, S.			
Beam splitter used in dual filming technique			
M-FS-501	B66-10072	02	

ORIGINATOR/TECH BRIEF NUMBER INDEX

ZBLEZNIK, F. J.

PERSONAL AUTHOR INDEX

Author	Title	Report Number	Year	Page Count
ZELEZNIK, P. J.	Computer program determines chemical equilibria in complex systems	LEWIS-281	B66-10671	01
ZELLER, J. R.	Low-cost, fast-response drive circuit for electromagnetic torque motors	LEWIS-10143	B68-10386	01
ZELLNER, G. J.	Multipurpose instrumentation cable provides integral thermocouple circuit	NU-0108	B67-10046	01
	High temperature thermocouple design provides gas cooling without increasing overall size of unit	NUC-10515	B67-10497	01
	Vapor deposition process provides new method for fabricating high temperature thermocouples	NUC-10152	B67-10616	01
	Thoriated tungsten tube provides improved high temperature thermocouple sheath	NUC-10145	B67-10627	03
	Silicon solar cell monitors high temperature furnace operation	NUC-10163	B68-10148	01
ZEREN, T. Z.	Refractory oxide insulated thermocouple designed and analyzed for high temperature applications	ARG-10202	B69-10053	03
ZEYDEL, E. F. E.	Aerodynamic forces of fluttering cylindrical and/or planar structures	M-FS-20497	B69-10781	02
ZIBRITOSKY, G.	Friction loading device enables accurate testing of brittle materials	NU-0051	B66-10345	05
ZIEGELMEIER, P.	Cold machining of high density tungsten and other materials	ARG-10289	B69-10110	05
ZIMMERMAN, J. M.	Computer program simulates design, test, and analysis phases of sensitivity experiments	M-FS-1496	B67-10077	01
	Computer program reduces calculation time of normal response functions	M-FS-1517	B67-10108	01
ZIMMERMAN, J. S.	Computer program conducts facilities utilization and occupancy survey	NPO-10326	B67-10476	06
	Computer program conducts facilities utilization and occupancy survey	NPO-10438	B68-10137	06
ZIMMERMAN, P. A.	Rack mount device quickly inserts or extracts chassis units	MSC-244	B65-10385	05
ZIRIN, M. H.	Radon gas, useful for medical purposes, safely fixed in quartz	ARG-2	B66-10468	04
ZOIKE, H. M.	Surface irregularities detected by flare inspection instrument	M-FS-20157	B69-10152	01
ZOTTARELLI, L. J.	Current steering commutator offers versatility	JPL-812	B67-10410	01
	Computer memory access technique	NPO-10201	B67-10585	01
ZRUBEK, W. E.	Schmitt trigger multivibrator	MSC-10955	B69-10143	01
ZUCCARO, J. J.	Helmet system broadcasts			

ORIGINATOR/TECH BRIEF NUMBER INDEX

Cumulative Index to Tech Briefs

Issue 10

Originator/Tech Brief Number Index

The left hand column identifies the originator number; to the right of each originator number is the Tech Brief number, e.g., B69-10063, followed by a two-digit number, e.g., 01, which identifies the subject category containing the entire citation.

ARC-1	B65-10369	01
ARC-2	B63-10003	04
ARC-3	B63-10004	03
ARC-5	B63-10006	01
ARC-6	B63-10007	05
ARC-7	B63-10008	05
ARC-8	B63-10009	05
ARC-11	B63-10429	03
ARC-13	B63-10431	05
ARC-17	B63-10435	05
ARC-20	B63-10560	05
ARC-22	B63-10561	01
ARC-23	B63-10562	03
ARC-25	B63-10564	05
ARC-26	B64-10004	01
ARC-27	B65-10089	01
ARC-28	B64-10068	03
ARC-29	B64-10069	05
ARC-34	B65-10208	01
ARC-36	B64-10143	01
ARC-37	B65-10085	01
ARC-38	B65-10056	01
ARC-39	B64-10171	01
ARC-40	B65-10094	05
ARC-41	B65-10203	01
ARC-42	B65-10120	01
ARC-44	B65-10299	01
ARC-46	B65-10277	01
ARC-47	B65-10316	03
ARC-50	B67-10013	01
ARC-51	B66-10078	05
ARC-52	B66-10057	01
ARC-53	B65-10325	01
ARC-55	B66-10233	05
ARC-56	B66-10162	01
ARC-57	B66-10203	01
ARC-58	B66-10387	03
ARC-60	B66-10309	01
ARC-61	B66-10547	02
ARC-62	B66-10481	01
ARC-63	B67-10081	05
ARC-65	B66-10419	01
ARC-66	B67-10267	01
ARC-68	B66-10557	01
ARC-69	B66-10549	01
ARC-70	B66-10536	01
ARC-71	B66-10534	01
ARC-72	B66-10491	01
ARC-73	B66-10533	01
ARC-74	B66-10624	01

ARC-75	B67-10199	01
ARC-10002	B67-10135	01
ARC-10003	B67-10139	01
ARC-10009	B67-10482	01
ARC-10015	B69-10176	03
ARC-10033	B67-10598	01
ARC-10042	B68-10539	01
ARC-10052	B69-10295	05
ARC-10054	B67-10669	01
ARC-10060	B68-10175	01
ARC-10083	B68-10065	01
ARC-10098	B68-10358	03
ARC-10105	B69-10117	01
ARC-10130	B68-10164	06
ARC-10141	B68-10335	06
ARC-10146	B68-10210	01
ARC-10166	B69-10615	05
ARC-10168	B68-10453	06
ARC-10174	B68-10365	01
ARC-10191	B69-10130	01
ARC-10221	B69-10232	06
ARC-11225	B67-10483	05

ARG-2	B66-10468	04
ARG-4	B66-10467	03
ARG-5	B67-10016	03
ARG-9	B66-10478	01
ARG-13	B67-10293	05
ARG-17	B66-10472	05
ARG-22	B66-10527	03
ARG-29	B67-10189	03
ARG-42	B66-10562	05
ARG-43	B66-10571	05
ARG-44	B66-10523	05
ARG-48	B67-10187	03
ARG-49	B67-10401	05
ARG-54	B66-10471	05
ARG-61	B66-10500	01
ARG-66	B66-10473	05
ARG-74	B66-10560	02
ARG-81	B66-10522	05
ARG-82	B66-10509	01
ARG-83	B66-10497	01
ARG-85	B67-10130	01
ARG-90	B66-10559	01
ARG-96	B67-10134	02
ARG-97	B66-10474	02
ARG-99	B66-10498	05
ARG-100	B67-10188	04
ARG-104	B66-10543	01
ARG-107	B66-10600	01
ARG-109	B66-10499	02
ARG-113	B67-10185	03
ARG-115	B67-10184	03
ARG-116	B67-10186	03
ARG-117	B66-10512	01
ARG-119	B67-10036	02
ARG-120	B67-10296	02
ARG-124	B67-10316	02
ARG-125	B67-10052	05
ARG-128	B67-10317	01
ARG-130	B67-10237	05
ARG-136	B67-10238	05
ARG-147	B67-10294	01
ARG-149	B67-10191	03
ARG-150	B67-10034	03
ARG-151	B66-10601	05
ARG-152	B66-10601	05
ARG-158	B67-10312	03
ARG-163	B67-10311	01
ARG-165	B67-10398	02
ARG-170	B67-10053	01
ARG-177	B67-10556	04
ARG-178	B67-10590	04

ORIGINATOR/TECH BRIEF NUMBER INDEX

ARG-184	.....	B67-10202	05	ARG-10160	.....	B68-10359	05
ARG-189	.....	B67-10313	01	ARG-10161	.....	B68-10366	04
ARG-191	.....	B67-10131	02	ARG-10162	.....	B69-10210	02
ARG-199	.....	B66-10594	03	ARG-10168	.....	B69-10162	01
ARG-200	.....	B66-10594	03	ARG-10170	.....	B68-10454	03
ARG-203	.....	B67-10295	02	ARG-10173	.....	B68-10426	02
ARG-205	.....	B67-10304	04	ARG-10177	.....	B68-10418	02
ARG-207	.....	B67-10054	02	ARG-10181	.....	B68-10455	03
ARG-208	.....	B67-10129	04	ARG-10182	.....	B68-10407	05
ARG-209	.....	B67-10315	03	ARG-10183	.....	B68-10415	01
ARG-210	.....	B67-10236	03	ARG-10186	.....	B69-10002	02
ARG-211	.....	B67-10033	03	ARG-10187	.....	B69-10082	02
ARG-216	.....	B67-10477	02	ARG-10190	.....	B69-10005	02
ARG-217	.....	B67-10133	03	ARG-10191	.....	B68-10294	02
ARG-226	.....	B67-10050	03	ARG-10192	.....	B68-10427	04
ARG-230	.....	B67-10051	03	ARG-10195	.....	B68-10424	04
ARG-232	.....	B67-10032	03	ARG-10196	.....	B68-10320	04
ARG-235	.....	B67-10035	01	ARG-10200	.....	B68-10408	03
ARG-241	.....	B67-10596	03	ARG-10202	.....	B69-10053	03
ARG-242	.....	B67-10541	05	ARG-10204	.....	B69-10004	03
ARG-247	.....	B67-10037	02	ARG-10205	.....	B68-10409	03
ARG-251	.....	B67-10305	04	ARG-10208	.....	B68-10414	03
ARG-262	.....	B67-10421	03	ARG-10210	.....	B68-10298	02
ARG-276	.....	B67-10318	01	ARG-10215	.....	B69-10161	01
ARG-277	.....	B67-10324	03	ARG-10219	.....	B69-10044	05
ARG-295	.....	B67-10502	03	ARG-10220	.....	B69-10211	02
ARG-10008	.....	B67-10397	03	ARG-10221	.....	B69-10078	02
ARG-10009	.....	B67-10605	02	ARG-10222	.....	B69-10054	03
ARG-10010	.....	B67-10399	01	ARG-10223	.....	B69-10010	03
ARG-10013	.....	B67-10583	03	ARG-10224	.....	B69-10048	03
ARG-10014	.....	B67-10400	05	ARG-10226	.....	B69-10003	02
ARG-10025	.....	B67-10484	03	ARG-10228	.....	B69-10058	03
ARG-10027	.....	B68-10372	05	ARG-10229	.....	B69-10024	02
ARG-10030	.....	B67-10501	03	ARG-10232	.....	B69-10045	01
ARG-10032	.....	B67-10500	04	ARG-10234	.....	B69-10026	03
ARG-10035	.....	B68-10190	02	ARG-10235	.....	B69-10001	02
ARG-10037	.....	B67-10640	02	ARG-10237	.....	B69-10092	03
ARG-10039	.....	B67-10580	03	ARG-10240	.....	B69-10006	03
ARG-10045	.....	B67-10578	03	ARG-10242	.....	B69-10046	05
ARG-10046	.....	B67-10604	04	ARG-10244	.....	B69-10029	03
ARG-10048	.....	B67-10499	01	ARG-10245	.....	B69-10079	03
ARG-10049	.....	B68-10278	03	ARG-10246	.....	B69-10160	04
ARG-10050	.....	B67-10579	03	ARG-10247	.....	B69-10089	02
ARG-10051	.....	B68-10189	03	ARG-10250	.....	B69-10194	02
ARG-10052	.....	B67-10626	06	ARG-10252	.....	B69-10102	02
ARG-10055	.....	B67-10582	03	ARG-10256	.....	B69-10088	04
ARG-10056	.....	B67-10577	03	ARG-10257	.....	B69-10094	01
ARG-10057	.....	B68-10280	01	ARG-10258	.....	B69-10197	04
ARG-10059	.....	B68-10109	03	ARG-10260	.....	B69-10043	02
ARG-10062	.....	B68-10195	03	ARG-10261	.....	B69-10091	02
ARG-10064	.....	B68-10169	04	ARG-10264	.....	B69-10195	03
ARG-10065	.....	B68-10425	03	ARG-10266	.....	B69-10042	02
ARG-10067	.....	B68-10196	03	ARG-10269	.....	B69-10159	06
ARG-10068	.....	B67-10641	03	ARG-10273	.....	B69-10163	04
ARG-10071	.....	B67-10597	02	ARG-10274	.....	B69-10047	02
ARG-10074	.....	B68-10197	03	ARG-10275	.....	B69-10196	03
ARG-10075	.....	B68-10103	03	ARG-10276	.....	B69-10090	01
ARG-10082	.....	B67-10592	03	ARG-10282	.....	B69-10027	01
ARG-10085	.....	B68-10281	03	ARG-10288	.....	B69-10081	03
ARG-10086	.....	B68-10101	03	ARG-10289	.....	B69-10110	05
ARG-10087	.....	B68-10102	03	ARG-10290	.....	B69-10345	05
ARG-10092	.....	B68-10198	03	ARG-10295	.....	B69-10080	02
ARG-10094	.....	B68-10174	02	ARG-10297	.....	B69-10155	01
ARG-10099	.....	B68-10199	03	ARG-10299	.....	B69-10157	06
ARG-10100	.....	B68-10284	05	ARG-10303	.....	B69-10206	03
ARG-10101	.....	B68-10326	02	ARG-10306	.....	B69-10033	03
ARG-10102	.....	B68-10181	02	ARG-10308	.....	B69-10204	02
ARG-10108	.....	B68-10200	03	ARG-10309	.....	B69-10116	01
ARG-10109	.....	B68-10077	02	ARG-10310	.....	B69-10203	04
ARG-10110	.....	B68-10328	01	ARG-10312	.....	B69-10177	04
ARG-10114	.....	B68-10083	01	ARG-10314	.....	B69-10207	04
ARG-10115	.....	B68-10194	03	ARG-10315	.....	B69-10351	01
ARG-10119	.....	B68-10201	03	ARG-10316	.....	B69-10057	02
ARG-10120	.....	B68-10182	01	ARG-10318	.....	B69-10149	01
ARG-10124	.....	B68-10185	01	ARG-10322	.....	B69-10167	02
ARG-10128	.....	B69-10255	02	ARG-10324	.....	B69-10342	05
ARG-10130	.....	B69-10083	05	ARG-10326	.....	B69-10205	04
ARG-10134	.....	B69-10023	06	ARG-10328	.....	B69-10170	03
ARG-10136	.....	B68-10283	01	ARG-10331	.....	B69-10208	04
ARG-10138	.....	B68-10291	01	ARG-10333	.....	B69-10416	01
ARG-10141	.....	B68-10400	01	ARG-10335	.....	B69-10169	06
ARG-10144	.....	B68-10420	01	ARG-10338	.....	B69-10343	05
ARG-10145	.....	B69-10022	04	ARG-10339	.....	B69-10655	01
ARG-10146	.....	B68-10292	06	ARG-10341	.....	B69-10168	03
ARG-10147	.....	B69-10410	01	ARG-10342	.....	B69-10286	02
ARG-10148	.....	B68-10368	03	ARG-10344	.....	B69-10198	03
ARG-10154	.....	B68-10293	02	ARG-10345	.....	B69-10258	02
ARG-10158	.....	B69-10191	01	ARG-10346	.....	B69-10198	03

ORIGINATOR/TECH BRIEF NUMBER INDEX

ARG-10347	B69-10631	01	ERC-10150	B68-10562	01
ARG-10348	B69-10256	03	ERC-10151	B68-10347	02
ARG-10352	B69-10209	05	ERC-10152	B68-10559	01
ARG-10355	B69-10214	02	ERC-10161	B69-10732	01
ARG-10356	B69-10254	03	ERC-10178	B68-10564	02
ARG-10359	B69-10165	02	ERC-10198	B68-10541	01
ARG-10360	B69-10630	01	ERC-10206	B68-10435	06
ARG-10362	B69-10767	02	ERC-10209	B68-10457	06
ARG-10363	B69-10240	03	ERC-10229	B69-10690	01
ARG-10365	B69-10166	02	ERC-10250	B69-10691	01
ARG-10371	B69-10414	03	ERC-10254	B69-10689	01
ARG-10372	B69-10772	02	ERC-10322	B69-10687	01
ARG-10376	B69-10618	01			
ARG-10377	B69-10241	03	FRC-16	B63-10023	05
ARG-10387	B69-10242	05	FRC-17	B63-10024	01
ARG-10388	B69-10344	02	FRC-21	B65-10198	05
ARG-10403	B69-10257	03	FRC-28	B65-10301	01
ARG-10409	B69-10413	03	FRC-31	B65-10264	01
ARG-10415	B69-10425	03	FRC-36	B66-10649	04
ARG-10416	B69-10430	03	FRC-10012	B68-10188	01
ARG-10419	B69-10411	02	FRC-10015	B69-10720	06
ARG-10421	B69-10645	02	FRC-10016	B69-10720	06
ARG-10424	B69-10412	03	FRC-10017	B67-10549	06
ARG-10425	B69-10428	02	FRC-10022	B68-10188	01
ARG-10428	B69-10431	02	FRC-10031	B68-10233	01
ARG-10436	B69-10377	03	FRC-10032	B69-10040	06
ARG-10444	B69-10424	02			
ARG-10445	B69-10415	02	GSFC-34A	B65-10011	01
ARG-10448	B69-10432	06	GSFC-36	B63-10027	01
ARG-10452	B69-10613	01	GSFC-42	B63-10033	01
ARG-10453	B69-10627	03	GSFC-48	B64-10007	01
ARG-10459	B69-10647	03	GSFC-49	B65-10176	05
ARG-10461	B69-10620	02	GSFC-59	B64-10121	05
ARG-10462	B69-10611	03	GSFC-67	B63-10476	03
ARG-10463	B69-10656	06	GSFC-73	B64-10173	01
ARG-10469	B69-10423	03	GSFC-74	B66-10066	01
ARG-10475	B69-10608	06	GSFC-80	B63-10511	01
ARG-10478	B69-10612	01	GSFC-82	B63-10546	03
ARG-10479	B69-10445	01	GSFC-85	B63-10512	01
ARG-10480	B69-10429	01	GSFC-91	B63-10536	01
ARG-10481	B69-10622	02	GSFC-92	B63-10547	05
ARG-10482	B69-10603	01	GSFC-93	B63-10596	01
ARG-10483	B69-10614	01	GSFC-100	B63-10551	01
ARG-10490	B69-10641	03	GSFC-101	B64-10144	01
ARG-10494	B69-10654	02	GSFC-111	B63-10553	01
ARG-10497	B69-10616	03	GSFC-112	B63-10554	01
ARG-10500	B69-10771	02	GSFC-113	B63-10555	01
ARG-10503	B69-10640	01	GSFC-114	B63-10597	01
ARG-10506	B69-10642	03	GSFC-115	B63-10556	05
ARG-90088	B68-10098	02	GSFC-119	B63-10599	01
ARG-90142	B68-10236	01	GSFC-120	B63-10600	01
ARG-90143	B68-10193	06	GSFC-129	B63-10606	01
ARG-90164	B68-10173	01	GSFC-130	B65-10178	01
ARG-90175	B68-10191	03	GSFC-132	B63-10603	01
ARG-90193	B68-10202	01	GSFC-137	B63-10609	01
ARG-90237	B68-10088	01	GSFC-143	B64-10028	05
ARG-90239	B68-10076	04	GSFC-150	B64-10010	01
ARG-90250	B68-10243	02	GSFC-151	B64-10011	05
ARG-90259	B68-10172	03	GSFC-161	B64-10142	03
ARG-90260	B68-10087	01	GSFC-168	B64-10113	03
ARG-90261	B69-10621	01	GSFC-169	B64-10114	01
			GSFC-171	B65-10211	02
ERC-8	B66-10060	02	GSFC-181	B66-10355	01
ERC-9	B66-10108	02	GSFC-183	B65-10119	01
ERC-10	B66-10439	01	GSFC-187	B64-10150	01
ERC-11	B66-10114	02	GSFC-188	B64-10151	03
ERC-15	B66-10177	01	GSFC-190	B64-10200	01
ERC-19	B68-10056	01	GSFC-196	B65-10118	01
ERC-26	B66-10581	01	GSFC-197	B66-10625	01
ERC-33	B67-10231	01	GSFC-198	B65-10026	01
ERC-37	B67-10153	01	GSFC-200	B64-10209	01
ERC-48	B67-10176	01	GSFC-203	B65-10308	01
ERC-65	B67-10152	01	GSFC-206	B64-10211	05
ERC-10003	B68-10206	04	GSFC-213	B66-10469	01
ERC-10011	B67-10416	01	GSFC-214	B66-10351	01
ERC-10026	B67-10648	02	GSFC-217	B67-10668	01
ERC-10031	B68-10350	01	GSFC-227	B65-10001	01
ERC-10036	B69-10686	06	GSFC-228	B65-10028	01
ERC-10055	B68-10437	01	GSFC-231	B65-10171	02
ERC-10087	B68-10563	01	GSFC-234	B64-10277	05
ERC-10093	B68-10537	05	GSFC-236	B64-10281	01
ERC-10097	B68-10503	05	GSFC-237	B65-10017	05
ERC-10102	B68-10538	05	GSFC-238	B64-10305	01
ERC-10114	B69-10444	02	GSFC-239	B65-10282	01
ERC-10116	B68-10227	06	GSFC-240	B65-10076	01
ERC-10136	B68-10438	01	GSFC-241	B65-10002	01
ERC-10138	B69-10441	01	GSFC-243	B65-10012	01
ERC-10148	B69-10443	01	GSFC-246	B65-10194	01

ORIGINATOR/TECH BRIEF NUMBER INDEX

GSFC-249	.....	B65-10103	01	GSFC-441	.....	B65-10327	05
GSFC-251	.....	B64-10299	01	GSFC-442	.....	B65-10328	01
GSFC-252	.....	B65-10048	01	GSFC-443	.....	B65-10330	02
GSFC-253	.....	B64-10327	05	GSFC-444	.....	B65-10337	03
GSFC-257	.....	B65-10152	01	GSFC-445	.....	B66-10041	01
GSFC-261	.....	B65-10069	01	GSFC-446	.....	B65-10362	01
GSFC-262	.....	B65-10097	01	GSFC-447	.....	B66-10082	01
GSFC-265	.....	B65-10126	05	GSFC-451	.....	B66-10526	01
GSFC-267	.....	B65-10102	01	GSFC-453	.....	B66-10292	01
GSFC-268	.....	B65-10307	01	GSFC-454	.....	B66-10492	01
GSFC-272	.....	B65-10138	01	GSFC-455	.....	B66-10040	05
GSFC-274	.....	B65-10072	01	GSFC-456	.....	B66-10349	01
GSFC-280	.....	B65-10087	01	GSFC-457	.....	B66-10094	01
GSFC-281	.....	B65-10136	03	GSFC-462	.....	B66-10158	01
GSFC-284	.....	B65-10162	03	GSFC-463	.....	B66-10376	01
GSFC-285	.....	B65-10228	01	GSFC-467	.....	B66-10219	05
GSFC-286	.....	B65-10082	02	GSFC-469	.....	B66-10234	03
GSFC-287	.....	B65-10096	01	GSFC-473	.....	B67-10196	01
GSFC-288	.....	B65-10206	01	GSFC-474	.....	B66-10295	01
GSFC-289	.....	B65-10123	01	GSFC-476	.....	B66-10310	05
GSFC-291	.....	B65-10105	01	GSFC-478	.....	B66-10280	01
GSFC-292	.....	B65-10165	01	GSFC-480	.....	B66-10393	01
GSFC-293	.....	B65-10158	01	GSFC-483	.....	B68-10079	01
GSFC-294	.....	B65-10081	02	GSFC-484	.....	B66-10299	03
GSFC-295	.....	B65-10083	03	GSFC-485	.....	B66-10260	01
GSFC-299	.....	B65-10127	01	GSFC-486	.....	B66-10622	01
GSFC-306	.....	B65-10093	01	GSFC-490	.....	B66-10511	01
GSFC-308	.....	B65-10334	05	GSFC-493	.....	B66-10529	01
GSFC-310	.....	B65-10212	01	GSFC-495	.....	B66-10340	03
GSFC-314	.....	B65-10234	01	GSFC-499	.....	B66-10297	05
GSFC-315	.....	B65-10151	01	GSFC-501	.....	B66-10480	01
GSFC-317	.....	B65-10225	01	GSFC-502	.....	B67-10017	01
GSFC-319	.....	B65-10134	05	GSFC-507	.....	B66-10483	02
GSFC-320	.....	B65-10173	03	GSFC-509	.....	B66-10347	01
GSFC-322	.....	B65-10200	01	GSFC-512	.....	B67-10449	01
GSFC-324	.....	B66-10129	01	GSFC-513	.....	B66-10446	05
GSFC-329	.....	B65-10213	01	GSFC-515	.....	B66-10698	05
GSFC-335	.....	B65-10148	05	GSFC-519	.....	B67-10481	01
GSFC-337	.....	B65-10271	01	GSFC-522	.....	B66-10518	01
GSFC-339	.....	B65-10199	01	GSFC-523	.....	B67-10303	01
GSFC-340	.....	B65-10226	01	GSFC-527	.....	B66-10689	01
GSFC-342	.....	B65-10243	01	GSFC-532	.....	B67-10559	01
GSFC-345	.....	B65-10237	01	GSFC-533	.....	B66-10479	03
GSFC-346	.....	B65-10309	01	GSFC-540	.....	B67-10072	02
GSFC-347	.....	B65-10216	05	GSFC-541	.....	B66-10516	01
GSFC-350	.....	B65-10242	01	GSFC-545	.....	B66-10576	01
GSFC-351	.....	B65-10284	01	GSFC-546	.....	B67-10060	01
GSFC-352	.....	B65-10217	03	GSFC-547	.....	B66-10618	05
GSFC-353	.....	B65-10253	02	GSFC-551	.....	B67-10175	01
GSFC-354	.....	B65-10276	01	GSFC-555	.....	B66-10692	01
GSFC-356	.....	B65-10224	02	GSFC-556	.....	B68-10003	01
GSFC-357	.....	B65-10273	01	GSFC-559	.....	B66-10617	01
GSFC-360	.....	B65-10287	01	GSFC-560	.....	B66-10691	01
GSFC-361	.....	B65-10257	01	GSFC-561	.....	B67-10446	01
GSFC-363	.....	B65-10274	01	GSFC-566	.....	B67-10444	01
GSFC-366	.....	B65-10156	03	GSFC-570	.....	B67-10447	01
GSFC-370	.....	B65-10258	01	GSFC-572	.....	B67-10102	03
GSFC-375	.....	B65-10311	01	GSFC-574	.....	B67-10092	01
GSFC-377	.....	B65-10333	01	GSFC-03429	.....	B68-10017	01
GSFC-380	.....	B65-10305	01	GSFC-07971	.....	B68-10021	02
GSFC-382	.....	B65-10314	01	GSFC-08259	.....	B67-10646	01
GSFC-383	.....	B65-10310	01	GSFC-09561	.....	B68-10008	01
GSFC-385	.....	B65-10283	02	GSFC-10003A	.....	B67-10615	01
GSFC-386	.....	B65-10278	01	GSFC-10003	.....	B67-10614	01
GSFC-387	.....	B65-10259	01	GSFC-10004	.....	B67-10551	03
GSFC-388	.....	B65-10364	03	GSFC-10007	.....	B67-10599	03
GSFC-389	.....	B66-10091	01	GSFC-10021	.....	B67-10606	01
GSFC-391	.....	B65-10260	01	GSFC-10022	.....	B67-10569	01
GSFC-394	.....	B65-10298	01	GSFC-10052	.....	B67-10508	02
GSFC-395	.....	B65-10315	01	GSFC-10056	.....	B69-10213	01
GSFC-397	.....	B65-10300	01	GSFC-10066	.....	B68-10272	01
GSFC-398	.....	B65-10343	01	GSFC-10067	.....	B68-10327	01
GSFC-399	.....	B65-10355	01	GSFC-10085	.....	B67-10571	01
GSFC-409	.....	B65-10339	05	GSFC-10091	.....	B67-10487	01
GSFC-422	.....	B66-10051	01	GSFC-10108	.....	B68-10317	01
GSFC-423	.....	B66-10032	05	GSFC-10109	.....	B68-10519	02
GSFC-424	.....	B65-10373	02	GSFC-10116	.....	B69-10322	01
GSFC-425	.....	B66-10009	03	GSFC-10127	.....	B69-10452	01
GSFC-426	.....	B66-10308	01	GSFC-10142	.....	B67-10480	06
GSFC-428	.....	B66-10067	01	GSFC-10155	.....	B69-10153	01
GSFC-431	.....	B66-10106	01	GSFC-10170	.....	B67-10609	02
GSFC-432	.....	B67-10061	01	GSFC-10173	.....	B68-10557	03
GSFC-433	.....	B66-10179	01	GSFC-10183	.....	B68-10054	01
GSFC-435	.....	B66-10126	01	GSFC-10184	.....	B67-10674	01
GSFC-436	.....	B66-10133	01	GSFC-10185	.....	B68-10207	01
GSFC-438	.....	B68-10322	02	GSFC-10188	.....	B67-10644	02
GSFC-439	.....	B66-10016	02	GSFC-10198	.....	B68-10254	01
GSFC-440	.....	B65-10329	01	GSFC-10212	.....	B68-10089	01
				GSFC-10213	.....	B67-10643	01

ORIGINATOR/TECH BRIEF NUMBER INDEX

GSFC-10216	.....	B69-10114	01
GSFC-10221	.....	B67-10656	01
GSFC-10222	.....	B68-10321	01
GSFC-10231	.....	B67-10651	06
GSFC-10241	.....	B69-10070	01
GSFC-10271	.....	B68-10069	01
GSFC-10283	.....	B68-10035	05
GSFC-10284	.....	B68-10001	11
GSFC-10305	.....	B68-10315	01
GSFC-10343	.....	B68-10104	03
GSFC-10358	.....	B68-10325	01
GSFC-10360	.....	B67-10586	03
GSFC-10362	.....	B68-10009	06
GSFC-10369	.....	B69-10453	01
GSFC-10375	.....	B69-10064	01
GSFC-10387	.....	B69-10063	01
GSFC-10396	.....	B67-10587	01
GSFC-10413	.....	B68-10384	01
GSFC-10487	.....	B68-10431	01
GSFC-10521	.....	B67-10548	01
GSFC-10546	.....	B69-10220	01
GSFC-10547	.....	B68-10136	02
GSFC-10563	.....	B69-10294	04
GSFC-10565	.....	B69-10715	04
GSFC-10568	.....	B69-10011	02
GSFC-10569	.....	B69-10731	01
GSFC-10575	.....	B69-10171	06
GSFC-10576	.....	B68-10336	01
GSFC-10580	.....	B69-10077	02
GSFC-10581	.....	B69-10253	01
GSFC-10592	.....	B69-10234	02
GSFC-10593	.....	B69-10324	02
GSFC-10603	.....	B69-10734	01
GSFC-10605	.....	B69-10121	01
GSFC-10607	.....	B69-10704	05
GSFC-10614	.....	B69-10340	01
GSFC-10656	.....	B69-10578	01
GSFC-10658	.....	B69-10274	01
GSFC-10675	.....	B69-10037	01
GSFC-10682	.....	B69-10075	02
GSFC-10686	.....	B68-10255	02
GSFC-10687	.....	B68-10271	03
GSFC-10688	.....	B68-10273	01
GSFC-10690	.....	B69-10682	03
GSFC-10703	.....	B69-10511	03
GSFC-10706	.....	B69-10341	02
GSFC-10743	.....	B69-10405	02
GSFC-10746	.....	B69-10233	01
GSFC-10764	.....	B69-10227	05
GSFC-10769	.....	B69-10585	01
GSFC-10783	.....	B69-10127	05
GSFC-10830	.....	B69-10137	05
GSFC-10860	.....	B69-10591	02
GSFC-90536	.....	B68-10518	01
GSFC-90549	.....	B68-10002	01
GSFC-AE-21	.....	B65-10124	01
HQ-1	.....	B65-10313	01
HQ-5	.....	B65-10313	01
HQ-7	.....	B65-10306	01
HQ-9	.....	B66-10173	02
HQ-12	.....	B65-10286	01
HQ-18	.....	B65-10332	04
HQ-20	.....	B65-10235	05
HQ-23	.....	B66-10344	01
HQ-24	.....	B65-10261	03
HQ-25	.....	B66-10372	02
HQ-26	.....	B67-10068	02
HQ-27	.....	B67-10117	05
HQ-33	.....	B67-10663	04
HQ-36	.....	B66-10598	01
HQ-38	.....	B66-10317	05
HQ-44	.....	B66-10476	01
HQ-47	.....	B66-10406	04
HQ-49	.....	B66-10381	05
HQ-50	.....	B67-10070	03
HQ-55	.....	B67-10071	02
HQ-56	.....	B67-10055	01
HQ-57	.....	B66-10607	01
HQ-58	.....	B66-10577	01
HQ-60	.....	B66-10659	01
HQ-61	.....	B67-10166	01
HQ-62	.....	B66-10561	01
HQ-77	.....	B67-10154	05
HQ-90	.....	B67-10167	05
HQ-96	.....	B67-10270	01
HQ-10018	.....	B67-10662	01

HQ-10031	.....	B67-10658	01
HQ-10032	.....	B67-10659	03
HQ-10035	.....	B67-10660	03
HQ-10037	.....	B67-10661	01
HQ-10039	.....	B69-10147	03
HQ-10043	.....	B69-10465	01
HQ-10047	.....	B69-10483	05
HQ-10049	.....	B69-10483	05
HQ-10055	.....	B67-10395	04
HQ-10073	.....	B69-10247	01
HQ-10106	.....	B69-10248	02
HQ-10123	.....	B69-10385	01
HQ-10145	.....	B69-10309	03
HQ-10151	.....	B69-10481	01
HQ-10177	.....	B69-10493	04
HQ-10200	.....	B69-10528	02
HQ-10214	.....	B69-10312	01
HQ-10226	.....	B69-10480	01
HQ-10227	.....	B69-10529	02
HQ-10231	.....	B69-10461	01
HQ-10234	.....	B69-10193	02
HQ-10235	.....	B69-10744	03
HQ-10246	.....	B69-10793	02
HQ-10273	.....	B69-10224	01
HQ-10279	.....	B69-10287	03
HQ-10290	.....	B69-10308	01
HQ-10315	.....	B69-10661	05
HQ-10318	.....	B69-10516	01
HQ-10343	.....	B69-10135	01
HQ-10348	.....	B69-10663	02
HQ-10349	.....	B69-10662	02
HQ-10350	.....	B69-10700	02
HQ-10377	.....	B69-10172	02
HQ-10391	.....	B69-10368	06
HQ-10412	.....	B69-10673	01
HQ-10417	.....	B69-10460	01
HQ-10418	.....	B69-10510	02
HQ-10421	.....	B69-10223	04
HQ-10424	.....	B69-10537	01
HQ-10431	.....	B69-10665	01
HQ-10433	.....	B69-10314	01
HQ-10440	.....	B69-10466	02
HQ-10441	.....	B69-10550	01
HQ-10445	.....	B69-10470	01
HQ-10447	.....	B69-10462	02
HQ-10461	.....	B69-10536	01
HQ-10476	.....	B69-10666	01
HQ-10536	.....	B69-10536	03
HQ-10541	.....	B69-10746	01
HQN-10020	.....	B67-10258	01
JPL-2A	.....	B65-10222	05
JPL-0019	.....	B65-10207	05
JPL-0021	.....	B63-10280	01
JPL-28	.....	B66-10063	05
JPL-29	.....	B66-10063	05
JPL-0029	.....	B63-10284	01
JPL-0033	.....	B66-10223	01
JPL-0036	.....	B64-10306	05
JPL-63	.....	B63-10091	01
JPL-77	.....	B65-10187	01
JPL-82	.....	B65-10055	01
JPL-122	.....	B63-10118	01
JPL-129	.....	B67-10004	05
JPL-135	.....	B63-10123	05
JPL-155	.....	B65-10340	01
JPL-170	.....	B63-10139	05
JPL-179	.....	B63-10141	05
JPL-182	.....	B63-10143	05
JPL-195	.....	B66-10413	01
JPL-198	.....	B65-10130	05
JPL-226	.....	B65-10163	05
JPL-231	.....	B63-10170	05
JPL-236A	.....	B63-10174	01
JPL-264	.....	B65-10099	05
JPL-288	.....	B63-10193	01
JPL-303	.....	B63-10198	05
JPL-304	.....	B65-10036	02
JPL-305	.....	B63-10200	05
JPL-320	.....	B66-10085	01
JPL-321	.....	B63-10207	03
JPL-345	.....	B65-10147	05
JPL-354	.....	B63-10226	05
JPL-357	.....	B63-10227	01
JPL-358	.....	B64-10080	01
JPL-361	.....	B63-10228	05
JPL-362	.....	B63-10229	01

ORIGINATOR/TECH BRIEF NUMBER INDEX

JPL-371	.....	B65-10351	05	JPL-798	.....	B66-10465	01
JPL-373	.....	B63-10234	03	JPL-801	.....	B66-10664	01
JPL-374	.....	B63-10235	03	JPL-803	.....	B66-10621	01
JPL-375	.....	B63-10236	05	JPL-805	.....	B66-10386	01
JPL-376	.....	B63-10237	05	JPL-807	.....	B67-10557	01
JPL-381	.....	B63-10238	01	JPL-809	.....	B66-10564	01
JPL-384	.....	B63-10240	05	JPL-812	.....	B67-10410	01
JPL-385	.....	B63-10241	05	JPL-816	.....	B66-10462	01
JPL-392	.....	B63-10247	05	JPL-818	.....	B67-10157	01
JPL-397	.....	B63-10250	01	JPL-819	.....	B67-10560	01
JPL-398	.....	B63-10251	05	JPL-836	.....	B66-10673	03
JPL-406	.....	B63-10255	01	JPL-840	.....	B67-10201	01
JPL-410	.....	B63-10258	01	JPL-845	.....	B67-10012	03
JPL-413	.....	B65-10125	01	JPL-846	.....	B66-10615	02
JPL-418	.....	B63-10260	02	JPL-847	.....	B67-10619	05
JPL-421	.....	B63-10262	01	JPL-849	.....	B66-10697	05
JPL-424	.....	B63-10263	03	JPL-861	.....	B67-10058	03
JPL-425	.....	B63-10264	01	JPL-864	.....	B66-10695	05
JPL-442	.....	B65-10040	05	JPL-867	.....	B66-10696	01
JPL-447	.....	B64-10002	01	JPL-874	.....	B67-10041	01
JPL-463	.....	B65-10037	05	JPL-879	.....	B66-10699	01
JPL-466	.....	B64-10122	01	JPL-884	.....	B67-10029	01
JPL-472	.....	B64-10222	01	JPL-890	.....	B67-10021	02
JPL-478	.....	B64-10223	05	JPL-892	.....	B67-10168	03
JPL-480	.....	B65-10104	05	JPL-903	.....	B67-10020	01
JPL-484	.....	B64-10066	05	JPL-906	.....	B66-10658	01
JPL-486	.....	B64-10226	01	JPL-907	.....	B67-10357	01
JPL-499	.....	B64-10124	05	JPL-910	.....	B67-10011	05
JPL-500	.....	B65-10232	01	JPL-915	.....	B67-10118	01
JPL-504	.....	B64-10280	01	JPL-926	.....	B66-10682	02
JPL-508	.....	B65-10132	02	JPL-931	.....	B67-10165	01
JPL-509	.....	B65-10145	01	JPL-934	.....	B66-10685	01
JPL-510	.....	B65-10223	01	JPL-943	.....	B67-10505	01
JPL-513	.....	B63-10514	01	JPL-946	.....	B67-10174	05
JPL-521	.....	B66-10679	01	JPL-962	.....	B66-10515	04
JPL-544	.....	B63-10612	03	JPL-1019	.....	B67-10106	01
JPL-545	.....	B63-10517	05	JPL-IT-1001	.....	B63-10289	05
JPL-555	.....	B64-10031	05	JPL-IT-1003	.....	B63-10291	05
JPL-559	.....	B63-10613	01	JPL-IT-1004	.....	B63-10292	05
JPL-584	.....	B64-10084	05	JPL-SC-055	.....	B65-10046	02
JPL-585	.....	B64-10188	05	JPL-SC-060	.....	B65-10197	01
JPL-591	.....	B65-10023	01	JPL-SC-064	.....	B65-10020	05
JPL-596	.....	B64-10065	01	JPL-SC-065	.....	B64-10330	01
JPL-604	.....	B64-10178	05	JPL-SC-066	.....	B65-10007	05
JPL-611	.....	B64-10206	03	JPL-SC-068	.....	B65-10033	01
JPL-612	.....	B66-10271	01	JPL-SC-069	.....	B65-10025	01
JPL-616	.....	B65-10189	03	JPL-SC-071	.....	B65-10034	03
JPL-627	.....	B65-10297	02	JPL-SC-072	.....	B65-10066	01
JPL-628	.....	B64-10158	01	JPL-SC-073	.....	B65-10233	01
JPL-631	.....	B65-10113	05	JPL-SC-074	.....	B65-10267	01
JPL-638	.....	B65-10061	01	JPL-SC-078	.....	B65-10317	01
JPL-649	.....	B67-10561	01	JPL-SC-079	.....	B65-10366	03
JPL-655	.....	B65-10068	01	JPL-SC-083	.....	B65-10354	03
JPL-658	.....	B65-10205	05	JPL-SC-084	.....	B66-10232	01
JPL-661	.....	B65-10144	05	JPL-SC-090	.....	B66-10261	01
JPL-665	.....	B66-10200	01	JPL-SC-091	.....	B67-10251	01
JPL-673	.....	B66-10264	01	JPL-SC-097	.....	B66-10380	03
JPL-675	.....	B65-10128	01	JPL-SC-101	.....	B65-10324	01
JPL-684	.....	B66-10304	05	JPL-SC-107	.....	B66-10141	01
JPL-685	.....	B66-10146	05	JPL-SC-111	.....	B66-10414	01
JPL-686	.....	B65-10191	05	JPL-SC-112	.....	B66-10414	01
JPL-687	.....	B65-10236	05	JPL-SC-113	.....	B66-10442	01
JPL-689	.....	B67-10015	01	JPL-SC-115	.....	B66-10042	01
JPL-694	.....	B65-10291	02	JPL-SC-117	.....	B66-10366	05
JPL-698	.....	B65-10275	01	JPL-SC-119	.....	B66-10175	05
JPL-704	.....	B65-10292	02	JPL-SC-134	.....	B66-10672	05
JPL-720	.....	B65-10244	01	JPL-SC-135	.....	B65-10393	05
JPL-725	.....	B65-10295	02	JPL-SC-136	.....	B66-10303	05
JPL-727	.....	B67-10511	06	JPL-SC-140	.....	B66-10493	01
JPL-728	.....	B66-10231	02	JPL-SC-143	.....	B66-10563	01
JPL-731	.....	B67-10128	02	JPL-SC-145	.....	B66-10188	05
JPL-734	.....	B66-10639	03	JPL-SC-152	.....	B66-10433	01
JPL-735	.....	B66-10182	01	JPL-SC-163	.....	B66-10642	05
JPL-736	.....	B66-10182	01	JPL-SC-165	.....	B66-10075	02
JPL-737	.....	B66-10182	01	JPL-SC-166	.....	B66-10101	01
JPL-740	.....	B66-10182	01	JPL-SC-167	.....	B65-10359	01
JPL-745	.....	B66-10147	01	JPL-SC-174	.....	B66-10122	02
JPL-757	.....	B66-10486	01	JPL-SC-176	.....	B66-10440	01
JPL-758	.....	B66-10451	03	JPL-SC-177	.....	B66-10444	01
JPL-762	.....	B67-10234	01	JPL-SC-191	.....	B66-10436	01
JPL-771	.....	B65-10293	01	JPL-WOO-008	.....	B63-10424	03
JPL-778	.....	B66-10502	01	JPL-WOO-010	.....	B65-10112	01
JPL-782	.....	B66-10117	04	JPL-WOO-021	.....	B65-10175	03
JPL-785	.....	B66-10396	01	JPL-WOO-029	.....	B63-10537	01
JPL-786	.....	B66-10265	05	JPL-WOO-031	.....	B65-10109	05
JPL-789	.....	B66-10130	01				
JPL-792	.....	B67-10005	04				
JPL-793	.....	B66-10453	03				

ORIGINATOR/TECH BRIEF NUMBER INDEX

JPL-W00-039	B65-10121	05	LANGLEY-89	B68-10124	01
KSC-66-8	B66-10627	05	LANGLEY-90	B65-10063	05
KSC-66-10	B66-10294	05	LANGLEY-92	B65-10071	02
KSC-66-12	B66-10634	05	LANGLEY-93	B65-10084	02
KSC-66-13	B67-10031	01	LANGLEY-95	B65-10356	02
KSC-66-14	B66-10628	05	LANGLEY-96	B65-10090	05
KSC-66-18	B66-10494	01	LANGLEY-99	B65-10392	01
KSC-66-19	B66-10537	05	LANGLEY-100	B66-10043	03
KSC-66-20	B66-10626	05	LANGLEY-104	B65-10159	01
KSC-66-22	B66-10391	01	LANGLEY-113	B66-10353	01
KSC-66-38	B67-10028	01	LANGLEY-115	B65-10164	03
KSC-66-39	B66-10548	01	LANGLEY-116	B65-10220	03
KSC-66-44	B66-10575	05	LANGLEY-121	B65-10167	03
KSC-67-15	B69-10315	01	LANGLEY-123	B65-10204	01
KSC-67-16	B67-10230	01	LANGLEY-129	B65-10193	01
KSC-67-80	B67-10244	05	LANGLEY-130	B65-10183	01
KSC-67-94	B67-10239	01	LANGLEY-133	B65-10272	02
KSC-67-98	B67-10104	01	LANGLEY-134	B65-10122	02
KSC-67-111	B67-10485	02	LANGLEY-137	B67-10516	02
KSC-67-120	B68-10019	01	LANGLEY-145	B65-10383	05
KSC-06786	B69-10275	02	LANGLEY-155	B66-10137	05
KSC-09348	B69-10251	01	LANGLEY-166	B65-10252	02
KSC-09955	B68-10551	05	LANGLEY-173	B66-10058	02
KSC-09957	B68-10560	02	LANGLEY-174	B66-10637	01
KSC-10002	B67-10515	01	LANGLEY-180	B65-10388	05
KSC-10009	B67-10610	02	LANGLEY-182	B66-10623	01
KSC-10056	B67-10283	05	LANGLEY-187	B66-10111	03
KSC-10058	B67-10361	01	LANGLEY-189	B66-10017	02
KSC-10060	B69-10215	01	LANGLEY-190	B66-10602	02
KSC-10073	B67-10240	06	LANGLEY-195	B66-10077	05
KSC-10075	B67-10445	05	LANGLEY-202	B66-10127	01
KSC-10092	B67-10382	01	LANGLEY-203	B66-10379	01
KSC-10127	B68-10061	01	LANGLEY-204	B66-10524	01
KSC-10133	B67-10437	03	LANGLEY-205	B66-10180	01
KSC-10151	B69-10359	01	LANGLEY-207	B66-10186	02
KSC-10167	B68-10444	05	LANGLEY-208	B66-10230	03
KSC-10186	B68-10290	01	LANGLEY-209	B66-10315	01
KSC-10196	B68-10168	05	LANGLEY-210	B67-10517	01
KSC-10209	B69-10392	01	LANGLEY-212	B66-10388	02
KSC-10233	B69-10188	04	LANGLEY-214	B66-10272	01
KSC-10237	B68-10378	03	LANGLEY-217	B67-10637	01
KSC-10262	B69-10199	05	LANGLEY-218	B66-10369	05
KSC-10267	B69-10520	02	LANGLEY-219	B66-10410	05
KSC-10335	B69-10173	01	LANGLEY-229	B66-10580	01
KSC-10356	B69-10229	05	LANGLEY-267	B66-10441	01
KSC-10358	B69-10527	05	LANGLEY-268	B66-10441	01
KSC-10361	B69-10231	05	LANGLEY-285	B67-10601	02
KSC-10368	B69-10354	01	LANGLEY-287	B66-10592	01
KSC-10380	B69-10556	02	LANGLEY-288	B66-10660	02
KSC-10381	B69-10316	01	LANGLEY-289	B66-10632	01
KSC-10388	B69-10716	02	LANGLEY-319	B67-10198	05
KSC-10393	B69-10323	01	LANGLEY-10017	B68-10055	06
KSC-10398	B69-10319	04	LANGLEY-10027	B67-10302	03
LANGLEY-1A	B63-10304	05	LANGLEY-10033	B68-10132	05
LANGLEY-4	B63-10311	03	LANGLEY-10037	B69-10148	06
LANGLEY-6A	B63-10318	03	LANGLEY-10042	B67-10491	03
LANGLEY-10	B63-10321	01	LANGLEY-10051	B68-10092	03
LANGLEY-16	B63-10557	03	LANGLEY-10077	B67-10322	03
LANGLEY-20	B63-10558	05	LANGLEY-10079	B67-10530	06
LANGLEY-21	B64-10119	05	LANGLEY-10090	B67-10509	06
LANGLEY-23	B63-10526	05	LANGLEY-10091	B68-10379	01
LANGLEY-25	B63-10528	03	LANGLEY-10092	B68-10235	05
LANGLEY-26	B63-10529	01	LANGLEY-10093	B67-10531	06
LANGLEY-27	B64-10130	05	LANGLEY-10096	B67-10489	06
LANGLEY-28	B63-10530	05	LANGLEY-10106	B68-10123	05
LANGLEY-31	B64-10237	01	LANGLEY-10117	B67-10490	06
LANGLEY-32	B65-10074	05	LANGLEY-10176	B68-10141	01
LANGLEY-33	B65-10100	02	LANGLEY-10191	B67-10666	06
LANGLEY-34	B65-10195	01	LANGLEY-10193	B68-10042	05
LANGLEY-36	B65-10114	05	LANGLEY-10200	B69-10737	03
LANGLEY-37	B65-10288	03	LANGLEY-10222	B69-10479	01
LANGLEY-38	B65-10231	05	LANGLEY-10228	B69-10436	01
LANGLEY-39	B65-10042	05	LANGLEY-10263	B69-10407	01
LANGLEY-40	B64-10145	05	LANGLEY-10281	B68-10352	05
LANGLEY-44	B64-10146	04	LANGLEY-10289	B68-10341	01
LANGLEY-45	B64-10272	05	LANGLEY-10290	B68-10226	06
LANGLEY-46	B65-10073	01	LANGLEY-10294	B68-10542	01
LANGLEY-47	B65-10043	03	LANGLEY-10375	B68-10452	06
LANGLEY-48	B65-10062	01	LANGLEY-10376	B68-10446	06
LANGLEY-49	B65-10067	01	LANGLEY-10407	B68-10554	04
LANGLEY-54	B65-10075	05	LANGLEY-10441	B69-10300	06
LANGLEY-55	B65-10086	01	LANGLEY-10442	B69-10226	02
LANGLEY-62	B65-10045	01	LANGLEY-10480	B69-10391	06
LANGLEY-68	B67-10603	01	LANGLEY-10495	B69-10236	04
LANGLEY-80	B65-10361	01	LANGLEY-10496	B69-10212	01
LANGLEY-87	B65-10345	01	LANGLEY-11007	B69-10477	01
LANGLEY-88	B65-10070	05	LANGLEY-90194	B68-10064	05

ORIGINATOR/TECH BRIEF NUMBER INDEX

LEWIS-8B	B65-10115	05	LEWIS-269	B66-10021	01
LEWIS-12	B63-10337	03	LEWIS-273	B66-10187	02
LEWIS-13	B63-10338	01	LEWIS-274	B66-10157	02
LEWIS-15	B63-10340	05	LEWIS-275	B66-10216	05
LEWIS-17	B66-10435	02	LEWIS-276	B66-10434	05
LEWIS-25A	B66-10047	05	LEWIS-278	B67-10044	03
LEWIS-28	B65-10027	05	LEWIS-281	B66-10671	01
LEWIS-37	B64-10042	01	LEWIS-283	B66-10538	03
LEWIS-38	B63-10341	05	LEWIS-284	B66-10606	01
LEWIS-39	B63-10342	01	LEWIS-288	B66-10450	05
LEWIS-41	B63-10344	02	LEWIS-290	B66-10290	02
LEWIS-42	B63-10345	03	LEWIS-291	B66-10470	05
LEWIS-43	B63-10346	02	LEWIS-292	B67-10006	05
LEWIS-47	B63-10351	03	LEWIS-294	B66-10593	05
LEWIS-50	B63-10354	05	LEWIS-302	B66-10599	01
LEWIS-64	B63-10365	03	LEWIS-303	B66-10640	01
LEWIS-66	B63-10367	05	LEWIS-304	B66-10365	05
LEWIS-67	B63-10368	05	LEWIS-305	B67-10009	01
LEWIS-73	B63-10440	01	LEWIS-307	B67-10007	03
LEWIS-75	B63-10442	05	LEWIS-309	B67-10080	01
LEWIS-76	B63-10443	01	LEWIS-310	B66-10394	01
LEWIS-92	B66-10302	05	LEWIS-311	B67-10269	01
LEWIS-93	B66-10302	05	LEWIS-313	B66-10508	02
LEWIS-99	B64-10348	05	LEWIS-320	B66-10373	03
LEWIS-106	B63-10489	05	LEWIS-321	B66-10630	02
LEWIS-107A	B66-10002	01	LEWIS-322	B66-10392	01
LEWIS-108	B65-10065	03	LEWIS-324	B68-10041	05
LEWIS-123	B67-10232	03	LEWIS-325	B67-10042	01
LEWIS-125	B65-10202	01	LEWIS-328	B66-10521	01
LEWIS-126	B65-10335	03	LEWIS-331	B67-10010	05
LEWIS-131	B65-10262	05	LEWIS-332	B66-10528	03
LEWIS-136	B65-10149	05	LEWIS-333	B66-10535	03
LEWIS-144	B64-10116	03	LEWIS-336	B66-10551	03
LEWIS-152	B64-10014	05	LEWIS-337	B66-10519	03
LEWIS-153	B66-10055	05	LEWIS-338	B66-10572	03
LEWIS-154	B65-10032	03	LEWIS-340	B67-10063	05
LEWIS-155	B65-10139	01	LEWIS-341	B66-10676	05
LEWIS-158	B65-10021	05	LEWIS-343	B67-10038	01
LEWIS-159	B64-10170	05	LEWIS-348	B67-10268	01
LEWIS-160	B65-10280	02	LEWIS-349	B66-10520	01
LEWIS-163	B65-10312	05	LEWIS-350	B66-10558	03
LEWIS-170	B65-10154	05	LEWIS-357	B66-10666	03
LEWIS-171	B65-10157	02	LEWIS-359	B66-10678	05
LEWIS-174	B65-10131	05	LEWIS-363	B67-10026	03
LEWIS-176	B66-10291	01	LEWIS-370	B66-10677	05
LEWIS-178	B65-10255	01	LEWIS-375	B67-10043	05
LEWIS-182	B65-10009	05	LEWIS-381	B67-10148	03
LEWIS-184	B66-10490	01	LEWIS-382	B67-10147	03
LEWIS-185	B65-10101	05	LEWIS-388	B67-10192	01
LEWIS-187	B66-10281	03	LEWIS-389	B67-10384	01
LEWIS-188	B66-10221	03	LEWIS-390	B67-10115	01
LEWIS-190	B65-10251	05	LEWIS-391	B67-10404	01
LEWIS-192	B65-10150	05	LEWIS-393	B67-10259	01
LEWIS-193	B65-10344	03	LEWIS-10018	B67-10383	03
LEWIS-195	B66-10482	01	LEWIS-10101	B67-10358	05
LEWIS-202	B65-10188	02	LEWIS-10104	B67-10286	03
LEWIS-206	B66-10181	02	LEWIS-10106	B68-10215	03
LEWIS-208	B65-10192	05	LEWIS-10108	B67-10197	03
LEWIS-211	B65-10117	03	LEWIS-10109	B67-10364	05
LEWIS-212	B65-10370	05	LEWIS-10111	B67-10216	02
LEWIS-217	B65-10302	03	LEWIS-10115	B68-10094	03
LEWIS-218	B66-10161	01	LEWIS-10117	B68-10107	05
LEWIS-219	B65-10319	05	LEWIS-10122	B67-10453	05
LEWIS-220	B65-10338	05	LEWIS-10123	B67-10638	05
LEWIS-222	B65-10331	02	LEWIS-10127	B67-10362	01
LEWIS-225	B65-10270	03	LEWIS-10128	B68-10279	03
LEWIS-226	B66-10222	03	LEWIS-10129	B68-10118	01
LEWIS-228	B66-10087	03	LEWIS-10131	B68-10062	03
LEWIS-229	B66-10005	03	LEWIS-10133	B67-10470	01
LEWIS-232	B65-10296	02	LEWIS-10134	B67-10639	05
LEWIS-236	B66-10496	01	LEWIS-10135	B67-10623	05
LEWIS-239	B66-10098	02	LEWIS-10137	B67-10506	01
LEWIS-240	B66-10426	01	LEWIS-10143	B68-10386	01
LEWIS-241	B65-10304	01	LEWIS-10144	B67-10458	01
LEWIS-245	B66-10165	03	LEWIS-10149	B67-10461	01
LEWIS-246	B66-10011	05	LEWIS-10162	B68-10331	05
LEWIS-247	B66-10115	05	LEWIS-10173	B67-10467	01
LEWIS-251	B66-10073	05	LEWIS-10201	B67-10359	01
LEWIS-253	B66-10160	01	LEWIS-10205	B67-10360	05
LEWIS-256	B66-10296	03	LEWIS-10231	B69-10123	03
LEWIS-259	B66-10103	01	LEWIS-10252	B68-10097	06
LEWIS-260	B67-10025	01	LEWIS-10254	B68-10025	06
LEWIS-263	B66-10104	03	LEWIS-10255	B68-10451	06
LEWIS-266	B66-10178	02	LEWIS-10257	B67-10340	03
LEWIS-267	B66-10377	01	LEWIS-10264	B69-10074	03
LEWIS-268	B66-10031	01	LEWIS-10265	B68-10135	02
			LEWIS-10267	B68-10248	05
			LEWIS-10277	B67-10591	05

ORIGINATOR/TECH BRIEF NUMBER INDEX

LEWIS-10278	.....	B68-10214	03	LEWIS-10812	.....	B69-10250	03
LEWIS-10280	.....	B67-10555	05	LEWIS-10813	.....	B69-10321	02
LEWIS-10281	.....	B68-10558	01	LEWIS-10817	.....	B69-10266	03
LEWIS-10282	.....	B67-10464	05	LEWIS-10819	.....	B69-10669	06
LEWIS-10283	.....	B68-10344	03	LEWIS-10820	.....	B69-10222	06
LEWIS-10296	.....	B68-10441	05	LEWIS-10828	.....	B69-10138	03
LEWIS-10297	.....	B68-10337	01	LEWIS-10829	.....	B69-10252	03
LEWIS-10298	.....	B69-10684	05	LEWIS-10837	.....	B69-10320	05
LEWIS-10309	.....	B69-10154	03	LEWIS-10871	.....	B69-10318	01
LEWIS-10316	.....	B67-10584	03	LEWIS-10873	.....	B69-10307	01
LEWIS-10324	.....	B67-10550	01	LEWIS-10874	.....	B69-10352	03
LEWIS-10325	.....	B68-10381	03	LEWIS-10878	.....	B69-10268	04
LEWIS-10326	.....	B67-10546	01	LEWIS-10880	.....	B69-10249	02
LEWIS-10328	.....	B67-10554	01	LEWIS-10885	.....	B69-10217	01
LEWIS-10329	.....	B68-10040	05	LEWIS-10888	.....	B69-10265	03
LEWIS-10343	.....	B69-10306	01	LEWIS-10899	.....	B69-10262	03
LEWIS-10344	.....	B68-10224	01	LEWIS-10900	.....	B69-10263	05
LEWIS-10345	.....	B69-10276	02	LEWIS-10916	.....	B69-10446	02
LEWIS-10352	.....	B68-10405	06	LEWIS-10918	.....	B69-10329	01
LEWIS-10353	.....	B68-10543	01	LEWIS-10920	.....	B69-10699	01
LEWIS-10355	.....	B68-10380	03	LEWIS-11014	.....	B69-10764	01
LEWIS-10362	.....	B68-10007	01	LEWIS-11030	.....	B69-10711	03
LEWIS-10366	.....	B68-10367	01	LEWIS-11031	.....	B69-10712	02
LEWIS-10373	.....	B68-10513	01	LEWIS-11032	.....	B69-10713	01
LEWIS-10375	.....	B69-10140	01	LEWIS-11044	.....	B69-10714	02
LEWIS-10376	.....	B68-10085	03	LEWIS-90252	.....	B69-10049	03
LEWIS-10377	.....	B68-10253	03	LEWIS-90254	.....	B68-10138	01
LEWIS-10378	.....	B68-10095	03	LEWIS-90271	.....	B69-10376	01
LEWIS-10379	.....	B68-10046	03	LEWIS-90297	.....	B69-10015	01
LEWIS-10380	.....	B68-10032	03	LEWIS-90298	.....	B69-10050	01
LEWIS-10382	.....	B68-10343	05	LEWIS-90335	.....	B67-10355	05
LEWIS-10388	.....	B68-10388	01	LEWIS-90339	.....	B68-10063	01
LEWIS-10393	.....	B68-10528	03				
LEWIS-10394	.....	B68-10144	01	M-FS-1	.....	B63-10376	05
LEWIS-10395	.....	B68-10216	06	M-FS-3	.....	B63-10378	03
LEWIS-10396	.....	B68-10134	05	M-FS-12	.....	B63-10384	05
LEWIS-10397	.....	B68-10270	05	M-FS-13	.....	B63-10385	05
LEWIS-10399	.....	B68-10356	06	M-FS-14	.....	B65-10088	03
LEWIS-10401	.....	B68-10370	01	M-FS-15	.....	B63-10387	05
LEWIS-10402	.....	B68-10145	01	M-FS-17	.....	B63-10389	03
LEWIS-10403	.....	B68-10176	05	M-FS-25	.....	B65-10057	01
LEWIS-10408	.....	B68-10249	05	M-FS-32	.....	B64-10309	01
LEWIS-10409	.....	B68-10423	06	M-FS-37	.....	B64-10406	05
LEWIS-10424	.....	B68-10369	03	M-FS-48	.....	B65-10044	03
LEWIS-10432	.....	B68-10165	05	M-FS-54	.....	B63-10453	03
LEWIS-10437	.....	B68-10382	01	M-FS-61	.....	B63-10567	01
LEWIS-10443	.....	B68-10556	02	M-FS-64	.....	B63-10479	03
LEWIS-10444	.....	B68-10526	03	M-FS-67	.....	B63-10481	03
LEWIS-10446	.....	B68-10319	01	M-FS-69	.....	B63-10568	05
LEWIS-10458	.....	B68-10361	06	M-FS-81	.....	B65-10029	05
LEWIS-10471	.....	B69-10111	06	M-FS-84	.....	B63-10571	05
LEWIS-10479	.....	B68-10561	03	M-FS-86	.....	B63-10572	01
LEWIS-10483	.....	B68-10295	05	M-FS-91	.....	B63-10497	05
LEWIS-10487	.....	B68-10323	01	M-FS-98	.....	B63-10502	05
LEWIS-10518	.....	B68-10433	03	M-FS-105	.....	B65-10218	01
LEWIS-10528	.....	B69-10185	02	M-FS-122	.....	B63-10590	05
LEWIS-10535	.....	B68-10527	03	M-FS-123	.....	B63-10579	01
LEWIS-10543	.....	B68-10411	01	M-FS-145	.....	B64-10050	05
LEWIS-10544	.....	B68-10340	03	M-FS-150	.....	B65-10357	03
LEWIS-10551	.....	B68-10520	03	M-FS-154	.....	B65-10174	05
LEWIS-10574	.....	B68-10440	05	M-FS-160	.....	B64-10099	03
LEWIS-10576	.....	B69-10118	03	M-FS-166	.....	B65-10005	01
LEWIS-10578	.....	B69-10025	03	M-FS-171	.....	B65-10035	05
LEWIS-10686	.....	B69-10128	05	M-FS-174	.....	B64-10163	01
LEWIS-10695	.....	B68-10533	02	M-FS-175	.....	B64-10164	05
LEWIS-10705	.....	B69-10076	05	M-FS-190	.....	B64-10249	05
LEWIS-10711	.....	B69-10073	01	M-FS-192	.....	B65-10006	01
LEWIS-10712	.....	B68-10456	01	M-FS-193	.....	B65-10221	01
LEWIS-10715	.....	B69-10151	01	M-FS-194	.....	B65-10180	05
LEWIS-10718	.....	B69-10468	03	M-FS-197	.....	B64-10283	01
LEWIS-10720	.....	B68-10567	05	M-FS-202	.....	B65-10106	03
LEWIS-10724	.....	B69-10131	01	M-FS-207	.....	B65-10059	01
LEWIS-10733	.....	B69-10072	03	M-FS-210	.....	B65-10014	05
LEWIS-10734	.....	B69-10175	06	M-FS-214	.....	B65-10210	05
LEWIS-10737	.....	B69-10451	03	M-FS-215	.....	B66-10036	01
LEWIS-10743	.....	B69-10219	06	M-FS-216	.....	B65-10078	05
LEWIS-10760	.....	B69-10228	01	M-FS-219	.....	B64-10320	01
LEWIS-10763	.....	B69-10113	01	M-FS-224	.....	B65-10039	05
LEWIS-10764	.....	B69-10267	06	M-FS-227	.....	B65-10004	03
LEWIS-10765	.....	B69-10174	06	M-FS-228	.....	B65-10019	05
LEWIS-10774	.....	B69-10112	02	M-FS-230	.....	B65-10141	05
LEWIS-10777	.....	B69-10122	02	M-FS-234	.....	B65-10047	01
LEWIS-10782	.....	B69-10476	01	M-FS-235	.....	B65-10172	03
LEWIS-10789	.....	B69-10132	06	M-FS-236	.....	B65-10107	03
LEWIS-10793	.....	B69-10200	03	M-FS-238	.....	B65-10184	01
LEWIS-10794	.....	B69-10136	03	M-FS-240	.....	B65-10133	02
LEWIS-10797	.....	B69-10156	01	M-FS-245	.....	B65-10209	01
LEWIS-10805	.....	B69-10293	03	M-FS-247	.....	B65-10080	01

ORIGINATOR/TECH BRIEF NUMBER INDEX

M-FS-249	.....	B65-10146	01	M-FS-525	.....	B66-10570	05
M-FS-250	.....	B65-10169	01	M-FS-527	.....	B66-10074	05
M-FS-253	.....	B65-10110	05	M-FS-528	.....	B66-10027	03
M-FS-257	.....	B65-10129	02	M-FS-529	.....	B66-10044	03
M-FS-258	.....	B66-10145	05	M-FS-531	.....	B66-10052	05
M-FS-267	.....	B65-10092	03	M-FS-532	.....	B66-10013	01
M-FS-272	.....	B65-10140	03	M-FS-533	.....	B66-10202	05
M-FS-273	.....	B66-10086	02	M-FS-536	.....	B66-10201	05
M-FS-274	.....	B65-10079	01	M-FS-539	.....	B66-10289	02
M-FS-276	.....	B65-10290	01	M-FS-540	.....	B66-10298	03
M-FS-279	.....	B65-10190	03	M-FS-541	.....	B66-10319	05
M-FS-280	.....	B65-10098	05	M-FS-546	.....	B66-10116	05
M-FS-284	.....	B66-10220	01	M-FS-547	.....	B66-10093	05
M-FS-287	.....	B65-10342	05	M-FS-548	.....	B66-10069	05
M-FS-289	.....	B65-10170	05	M-FS-549	.....	B66-10168	05
M-FS-293	.....	B65-10346	05	M-FS-550	.....	B66-10045	02
M-FS-295	.....	B66-10445	03	M-FS-553	.....	B66-10149	05
M-FS-297	.....	B65-10353	01	M-FS-555	.....	B66-10150	05
M-FS-303	.....	B65-10177	05	M-FS-558	.....	B66-10155	05
M-FS-304	.....	B66-10207	03	M-FS-559	.....	B66-10169	05
M-FS-307	.....	B66-10029	03	M-FS-560	.....	B66-10153	02
M-FS-308	.....	B65-10181	05	M-FS-561	.....	B66-10018	05
M-FS-315	.....	B65-10215	01	M-FS-562	.....	B66-10033	03
M-FS-316	.....	B66-10014	05	M-FS-564	.....	B66-10151	05
M-FS-317	.....	B66-10100	05	M-FS-565	.....	B66-10249	05
M-FS-320	.....	B65-10326	05	M-FS-568	.....	B67-10069	03
M-FS-321	.....	B66-10076	05	M-FS-569	.....	B66-10215	05
M-FS-323	.....	B65-10377	01	M-FS-573	.....	B66-10226	05
M-FS-326	.....	B66-10183	02	M-FS-575	.....	B66-10197	05
M-FS-331	.....	B65-10281	01	M-FS-579	.....	B66-10209	05
M-FS-340	.....	B65-10219	05	M-FS-580	.....	B66-10218	05
M-FS-348	.....	B65-10336	03	M-FS-581	.....	B66-10191	05
M-FS-358	.....	B65-10285	05	M-FS-586	.....	B66-10171	05
M-FS-359	.....	B66-10401	01	M-FS-588	.....	B66-10269	05
M-FS-361	.....	B66-10402	05	M-FS-592	.....	B66-10174	05
M-FS-362	.....	B65-10265	01	M-FS-593	.....	B66-10176	05
M-FS-363	.....	B65-10269	01	M-FS-594	.....	B66-10192	01
M-FS-365	.....	B65-10294	03	M-FS-597	.....	B67-10432	03
M-FS-367	.....	B65-10279	01	M-FS-598	.....	B66-10204	05
M-FS-369	.....	B66-10062	01	M-FS-599	.....	B66-10610	05
M-FS-371	.....	B65-10347	01	M-FS-602	.....	B66-10189	05
M-FS-376	.....	B65-10349	01	M-FS-603	.....	B66-10278	05
M-FS-379	.....	B66-10081	03	M-FS-611	.....	B66-10208	05
M-FS-380	.....	B65-10318	01	M-FS-628	.....	B66-10256	03
M-FS-384	.....	B66-10382	01	M-FS-637	.....	B66-10250	05
M-FS-394	.....	B65-10391	05	M-FS-640	.....	B66-10247	05
M-FS-401	.....	B66-10262	05	M-FS-643	.....	B66-10368	01
M-FS-403	.....	B66-10405	05	M-FS-644	.....	B66-10257	02
M-FS-407	.....	B66-10128	01	M-FS-654	.....	B66-10363	01
M-FS-415	.....	B65-10368	02	M-FS-656	.....	B66-10423	01
M-FS-417	.....	B65-10382	01	M-FS-659	.....	B66-10360	05
M-FS-420	.....	B67-10438	01	M-FS-664	.....	B66-10437	01
M-FS-421	.....	B66-10404	01	M-FS-665	.....	B66-10374	01
M-FS-434	.....	B66-10193	01	M-FS-679	.....	B66-10354	05
M-FS-435	.....	B66-10083	03	M-FS-680	.....	B66-10354	05
M-FS-441	.....	B66-10361	01	M-FS-683	.....	B66-10283	05
M-FS-443	.....	B66-10300	01	M-FS-685	.....	B66-10277	05
M-FS-455	.....	B66-10395	03	M-FS-688	.....	B66-10212	05
M-FS-457	.....	B66-10206	05	M-FS-692	.....	B66-10254	05
M-FS-466	.....	B66-10194	03	M-FS-702	.....	B67-10049	03
M-FS-468	.....	B66-10113	01	M-FS-703	.....	B66-10258	05
M-FS-469	.....	B66-10259	03	M-FS-706	.....	B66-10323	05
M-FS-470	.....	B66-10039	01	M-FS-707	.....	B66-10371	05
M-FS-471	.....	B66-10293	01	M-FS-709	.....	B67-10257	01
M-FS-472	.....	B66-10112	01	M-FS-714	.....	B66-10358	03
M-FS-474	.....	B66-10048	01	M-FS-716	.....	B66-10334	01
M-FS-475	.....	B66-10131	03	M-FS-720	.....	B66-10248	05
M-FS-476	.....	B65-10402	05	M-FS-722	.....	B66-10346	05
M-FS-477	.....	B66-10024	03	M-FS-723	.....	B66-10525	01
M-FS-478	.....	B66-10099	01	M-FS-725	.....	B66-10246	05
M-FS-481	.....	B66-10020	05	M-FS-726	.....	B66-10283	05
M-FS-482	.....	B65-10395	02	M-FS-735	.....	B66-10288	03
M-FS-485	.....	B65-10384	03	M-FS-737	.....	B66-10613	05
M-FS-486	.....	B66-10211	05	M-FS-743	.....	B66-10359	01
M-FS-487	.....	B66-10136	05	M-FS-752	.....	B66-10255	05
M-FS-494	.....	B66-10096	02	M-FS-753	.....	B66-10383	05
M-FS-497	.....	B66-10053	03	M-FS-761	.....	B66-10421	03
M-FS-498	.....	B66-10046	01	M-FS-762	.....	B66-10273	03
M-FS-499	.....	B66-10095	02	M-FS-772	.....	B66-10588	05
M-FS-501	.....	B66-10072	02	M-FS-783	.....	B66-10321	05
M-FS-503	.....	B66-10224	01	M-FS-788	.....	B66-10362	01
M-FS-512	.....	B66-10090	03	M-FS-799	.....	B66-10341	01
M-FS-513	.....	B66-10213	05	M-FS-800	.....	B66-10325	02
M-FS-516	.....	B66-10228	05	M-FS-801	.....	B66-10335	03
M-FS-517	.....	B66-10284	05	M-FS-803	.....	B66-10352	05
M-FS-520	.....	B67-10181	01	M-FS-806	.....	B66-10356	01
M-FS-521	.....	B66-10307	02	M-FS-807	.....	B66-10665	05
M-FS-522	.....	B66-10068	01	M-FS-811	.....	B66-10573	05

ORIGINATOR/TECH BRIEF NUMBER INDEX

M-FS-823	.....	B66-10326	05	M-FS-1543	.....	B66-10616	03
M-FS-827	.....	B66-10364	05	M-FS-1546	.....	B66-10552	01
M-FS-830	.....	B66-10466	01	M-FS-1550	.....	B66-10596	02
M-FS-846	.....	B66-10356	01	M-FS-1556	.....	B66-10686	05
M-FS-848	.....	B66-10397	01	M-FS-1563	.....	B66-10554	02
M-FS-850	.....	B66-10320	01	M-FS-1573	.....	B66-10546	05
M-FS-856	.....	B66-10327	03	M-FS-1585	.....	B66-10427	01
M-FS-860	.....	B66-10603	01	M-FS-1597	.....	B67-10040	01
M-FS-862	.....	B66-10367	05	M-FS-1598	.....	B66-10638	02
M-FS-867	.....	B66-10449	01	M-FS-1605	.....	B66-10584	01
M-FS-869	.....	B66-10700	02	M-FS-1606	.....	B66-10629	01
M-FS-871	.....	B66-10553	01	M-FS-1607	.....	B67-10045	05
M-FS-882	.....	B66-10332	04	M-FS-1608	.....	B66-10541	01
M-FS-883	.....	B66-10662	05	M-FS-1617	.....	B66-10517	03
M-FS-888	.....	B66-10412	01	M-FS-1639	.....	B66-10545	05
M-FS-893	.....	B66-10408	05	M-FS-1658	.....	B66-10646	03
M-FS-900	.....	B66-10322	03	M-FS-1659	.....	B66-10661	01
M-FS-902	.....	B66-10684	03	M-FS-1664	.....	B66-10555	01
M-FS-906	.....	B67-10097	01	M-FS-1685	.....	B66-10620	05
M-FS-908	.....	B66-10510	01	M-FS-1696	.....	B66-10513	05
M-FS-909	.....	B66-10438	01	M-FS-1697	.....	B68-10038	05
M-FS-915	.....	B66-10342	05	M-FS-1707	.....	B67-10229	01
M-FS-916	.....	B67-10334	01	M-FS-1730	.....	B66-10674	05
M-FS-923	.....	B66-10415	05	M-FS-1733	.....	B67-10065	01
M-FS-937	.....	B67-10091	01	M-FS-1738	.....	B66-10694	05
M-FS-938	.....	B66-10487	03	M-FS-1741	.....	B67-10405	06
M-FS-965	.....	B66-10645	01	M-FS-1747	.....	B66-10693	02
M-FS-975	.....	B66-10378	05	M-FS-1752	.....	B66-10690	01
M-FS-982	.....	B66-10343	05	M-FS-1753	.....	B67-10335	01
M-FS-985	.....	B67-10308	05	M-FS-1754	.....	B66-10650	01
M-FS-1021	.....	B66-10389	01	M-FS-1756	.....	B67-10056	04
M-FS-1051	.....	B66-10424	05	M-FS-1763	.....	B67-10039	05
M-FS-1064	.....	B66-10422	05	M-FS-1769	.....	B66-10636	01
M-FS-1069	.....	B66-10416	05	M-FS-1771	.....	B66-10683	05
M-FS-1077	.....	B66-10569	01	M-FS-1774	.....	B67-10048	05
M-FS-1084	.....	B66-10411	05	M-FS-1784	.....	B66-10565	02
M-FS-1111	.....	B66-10463	05	M-FS-1785	.....	B66-10477	05
M-FS-1117	.....	B66-10464	05	M-FS-1796	.....	B66-10688	05
M-FS-1126	.....	B66-10357	05	M-FS-1811	.....	B67-10075	02
M-FS-1133	.....	B66-10539	01	M-FS-1812	.....	B67-10079	03
M-FS-1134	.....	B66-10539	01	M-FS-1814	.....	B67-10090	01
M-FS-1135	.....	B66-10506	01	M-FS-1817	.....	B67-10023	05
M-FS-1136	.....	B66-10504	01	M-FS-1818	.....	B66-10657	02
M-FS-1137	.....	B66-10503	01	M-FS-1819	.....	B66-10644	01
M-FS-1144	.....	B66-10667	05	M-FS-1822	.....	B66-10656	05
M-FS-1163	.....	B66-10447	01	M-FS-1829	.....	B66-10568	01
M-FS-1172	.....	B67-10179	01	M-FS-1830	.....	B66-10643	03
M-FS-1180	.....	B66-10542	01	M-FS-1831	.....	B66-10635	05
M-FS-1181	.....	B66-10556	01	M-FS-1840	.....	B66-10595	05
M-FS-1206	.....	B66-10669	01	M-FS-1845	.....	B66-10631	03
M-FS-1213	.....	B66-10448	03	M-FS-1849	.....	B67-10386	01
M-FS-1214	.....	B67-10574	01	M-FS-1852	.....	B67-10064	05
M-FS-1221	.....	B67-10574	01	M-FS-1854	.....	B67-10285	05
M-FS-1258	.....	B66-10505	01	M-FS-1862	.....	B66-10651	03
M-FS-1263	.....	B66-10590	01	M-FS-1865	.....	B66-10651	03
M-FS-1264	.....	B66-10582	05	M-FS-1867	.....	B67-10161	01
M-FS-1265	.....	B66-10614	01	M-FS-1871	.....	B67-10150	01
M-FS-1268	.....	B67-10030	01	M-FS-1875	.....	B67-10276	01
M-FS-1269	.....	B66-10687	01	M-FS-1879	.....	B67-10314	01
M-FS-1299	.....	B66-10484	05	M-FS-1880	.....	B67-10227	03
M-FS-1300	.....	B66-10425	05	M-FS-1882	.....	B67-10088	02
M-FS-1312	.....	B66-10663	05	M-FS-1887	.....	B67-10434	01
M-FS-1313	.....	B66-10579	01	M-FS-1895	.....	B67-10022	01
M-FS-1321	.....	B67-10518	05	M-FS-1896	.....	B66-10681	03
M-FS-1344	.....	B66-10417	05	M-FS-1910	.....	B67-10329	06
M-FS-1366	.....	B66-10400	03	M-FS-1913	.....	B67-10078	03
M-FS-1374	.....	B66-10409	01	M-FS-1916	.....	B66-10652	02
M-FS-1397	.....	B66-10485	05	M-FS-1922	.....	B67-10067	05
M-FS-1401	.....	B66-10567	05	M-FS-1923	.....	B67-10107	05
M-FS-1415	.....	B67-10528	05	M-FS-1925	.....	B66-10655	05
M-FS-1420	.....	B66-10597	05	M-FS-1927	.....	B66-10654	02
M-FS-1422	.....	B68-10049	03	M-FS-1937	.....	B67-10277	01
M-FS-1424	.....	B67-10014	03	M-FS-1941	.....	B66-10675	01
M-FS-1426	.....	B66-10574	01	M-FS-1944	.....	B67-10057	02
M-FS-1475	.....	B67-10309	06	M-FS-1946	.....	B66-10653	01
M-FS-1476	.....	B66-10583	02	M-FS-1959	.....	B67-10089	03
M-FS-1480	.....	B66-10452	01	M-FS-1960	.....	B67-10089	03
M-FS-1484	.....	B66-10578	03	M-FS-1961	.....	B67-10089	03
M-FS-1485	.....	B66-10641	05	M-FS-1962	.....	B67-10089	03
M-FS-1496	.....	B67-10077	01	M-FS-1972	.....	B67-10209	03
M-FS-1506	.....	B67-10625	06	M-FS-1975	.....	B67-10124	03
M-FS-1516	.....	B67-10136	01	M-FS-2003	.....	B67-10212	05
M-FS-1517	.....	B67-10108	01	M-FS-2009	.....	B67-10066	05
M-FS-1529	.....	B66-10514	05	M-FS-2016	.....	B67-10019	05
M-FS-1536	.....	B66-10668	01	M-FS-2021	.....	B67-10182	03
M-FS-1538	.....	B66-10418	05	M-FS-2032	.....	B67-10121	03
M-FS-1540	.....	B66-10540	03	M-FS-2039	.....	B67-10105	05
M-FS-1541	.....	B67-10365	03	M-FS-2042	.....	B67-10098	05

ORIGINATOR/TECH BRIEF NUMBER INDEX

M-FS-2049	.....	B67-10096	05	M-FS-12561	.....	B67-10353	05
M-FS-2054	.....	B67-10208	03	M-FS-12580	.....	B67-10402	01
M-FS-2061	.....	B67-10087	01	M-FS-12583	.....	B67-10636	02
M-FS-2063	.....	B67-10099	01	M-FS-12590	.....	B68-10301	01
M-FS-2142	.....	B67-10126	02	M-FS-12623	.....	B69-10007	06
M-FS-2143	.....	B67-10100	03	M-FS-12646	.....	B69-10564	03
M-FS-2147	.....	B67-10123	05	M-FS-12681	.....	B67-10424	01
M-FS-2159	.....	B67-10256	05	M-FS-12684	.....	B67-10448	01
M-FS-2166	.....	B67-10213	01	M-FS-12686	.....	B67-10406	06
M-FS-2167	.....	B67-10178	05	M-FS-12704	.....	B67-10389	01
M-FS-02191	.....	B69-10782	01	M-FS-12705	.....	B67-10647	03
M-FS-2194	.....	B67-10376	01	M-FS-12717	.....	B67-10448	01
M-FS-2221	.....	B67-10076	01	M-FS-12720	.....	B67-10381	03
M-FS-2234	.....	B67-10306	06	M-FS-12728	.....	B67-10411	06
M-FS-2238	.....	B67-10273	05	M-FS-12731	.....	B67-10297	02
M-FS-2243	.....	B67-10125	01	M-FS-12733	.....	B67-10289	01
M-FS-2254	.....	B67-10138	03	M-FS-12744	.....	B67-10388	02
M-FS-2259	.....	B67-10280	06	M-FS-12763	.....	B67-10272	05
M-FS-2267	.....	B67-10241	05	M-FS-12777	.....	B67-10325	05
M-FS-2277	.....	B67-10145	01	M-FS-12795	.....	B67-10333	01
M-FS-2297	.....	B67-10180	05	M-FS-12799	.....	B69-10677	01
M-FS-2298	.....	B67-10278	06	M-FS-12807	.....	B68-10014	05
M-FS-2308	.....	B67-10378	01	M-FS-12817	.....	B67-10521	06
M-FS-2309	.....	B67-10113	03	M-FS-12821	.....	B67-10287	06
M-FS-2314	.....	B67-10292	05	M-FS-12849	.....	B67-10563	05
M-FS-2318	.....	B67-10177	05	M-FS-12867	.....	B67-10564	02
M-FS-2343	.....	B67-10142	01	M-FS-12868	.....	B67-10564	02
M-FS-2348	.....	B67-10282	03	M-FS-12869	.....	B67-10375	03
M-FS-2349	.....	B67-10301	03	M-FS-12882	.....	B67-10403	05
M-FS-2390	.....	B67-10228	03	M-FS-12916	.....	B67-10307	06
M-FS-2394	.....	B67-10144	01	M-FS-12938	.....	B67-10545	01
M-FS-2397	.....	B67-10159	03	M-FS-12955	.....	B67-10595	01
M-FS-2399	.....	B67-10183	05	M-FS-12964	.....	B69-10335	05
M-FS-2417	.....	B67-10140	01	M-FS-12968	.....	B67-10670	05
M-FS-2427	.....	B67-10250	01	M-FS-12976	.....	B67-10310	06
M-FS-2434	.....	B67-10151	01	M-FS-12986	.....	B67-10673	05
M-FS-2437	.....	B67-10146	01	M-FS-12987	.....	B67-10526	05
M-FS-2442	.....	B67-10226	01	M-FS-12988	.....	B67-10600	03
M-FS-2443	.....	B67-10210	05	M-FS-13006	.....	B67-10393	05
M-FS-2446	.....	B67-10149	03	M-FS-13007	.....	B68-10219	05
M-FS-2448	.....	B67-10143	01	M-FS-13010	.....	B67-10520	06
M-FS-2455	.....	B67-10141	03	M-FS-13012	.....	B67-10522	06
M-FS-2475	.....	B67-10163	03	M-FS-13015	.....	B67-10529	05
M-FS-2477	.....	B67-10214	05	M-FS-13016	.....	B67-10407	06
M-FS-2478	.....	B67-10122	03	M-FS-13024	.....	B67-10327	06
M-FS-2494	.....	B67-10101	01	M-FS-13030	.....	B67-10328	06
M-FS-2519	.....	B67-10211	05	M-FS-13031	.....	B67-10622	05
M-FS-2540	.....	B67-10321	05	M-FS-13058	.....	B67-10631	06
M-FS-2556	.....	B67-10288	02	M-FS-13063	.....	B67-10363	01
M-FS-2557	.....	B67-10215	01	M-FS-13065	.....	B67-10564	02
M-FS-2559	.....	B67-10255	01	M-FS-13068	.....	B67-10413	02
M-FS-2573	.....	B67-10284	01	M-FS-13069	.....	B67-10519	01
M-FS-2576	.....	B67-10373	05	M-FS-13075	.....	B67-10356	01
M-FS-11816	.....	B67-10299	03	M-FS-13083	.....	B67-10513	01
M-FS-11955	.....	B67-10431	02	M-FS-13084	.....	B67-10507	01
M-FS-11967	.....	B67-10469	01	M-FS-13085	.....	B68-10160	02
M-FS-11968	.....	B67-10441	03	M-FS-13086	.....	B67-10459	01
M-FS-11970	.....	B68-10027	01	M-FS-13087	.....	B67-10330	06
M-FS-11974	.....	B67-10339	01	M-FS-13094	.....	B67-10331	06
M-FS-11980	.....	B67-10336	01	M-FS-13096	.....	B67-10396	01
M-FS-12019	.....	B67-10466	05	M-FS-13102	.....	B67-10385	05
M-FS-12023	.....	B67-10512	05	M-FS-13111	.....	B67-10635	01
M-FS-12060	.....	B67-10427	05	M-FS-13120	.....	B67-10472	05
M-FS-12064	.....	B67-10451	03	M-FS-13127	.....	B67-10377	05
M-FS-12066	.....	B67-10429	03	M-FS-13131	.....	B68-10043	03
M-FS-12084	.....	B67-10524	06	M-FS-13132	.....	B68-10043	03
M-FS-12134	.....	B69-10545	05	M-FS-13152	.....	B68-10302	03
M-FS-12141	.....	B67-10341	05	M-FS-13153	.....	B67-10342	02
M-FS-12144	.....	B67-10326	02	M-FS-13155	.....	B68-10050	06
M-FS-12218	.....	B68-10225	05	M-FS-13172	.....	B67-10374	03
M-FS-12219	.....	B67-10412	01	M-FS-13202	.....	B68-10447	06
M-FS-12226	.....	B68-10159	06	M-FS-13227	.....	B67-10390	01
M-FS-12331	.....	B67-10478	06	M-FS-13262	.....	B67-10493	06
M-FS-12341	.....	B67-10379	05	M-FS-13290	.....	B68-10078	05
M-FS-12381	.....	B67-10439	03	M-FS-13303	.....	B67-10607	05
M-FS-12396	.....	B68-10051	01	M-FS-13304	.....	B67-10655	05
M-FS-12410	.....	B68-10029	03	M-FS-13305	.....	B67-10423	05
M-FS-12422	.....	B67-10452	02	M-FS-13308	.....	B67-10394	02
M-FS-12428	.....	B68-10028	01	M-FS-13362	.....	B68-10099	05
M-FS-12447	.....	B67-10460	01	M-FS-13370	.....	B67-10471	01
M-FS-12449	.....	B67-10428	02	M-FS-13371	.....	B67-10471	01
M-FS-12500	.....	B67-10463	03	M-FS-13372	.....	B67-10430	02
M-FS-12506	.....	B67-10354	03	M-FS-13373	.....	B67-10422	01
M-FS-12518	.....	B67-10565	01	M-FS-13374	.....	B67-10443	02
M-FS-12524	.....	B67-10392	03	M-FS-13383	.....	B67-10391	02
M-FS-12530	.....	B67-10380	05	M-FS-13399	.....	B68-10072	05
M-FS-12534	.....	B67-10465	02	M-FS-13434	.....	B67-10593	03
M-FS-12547	.....	B68-10048	03	M-FS-13462	.....	B67-10440	03

ORIGINATOR/TECH BRIEF NUMBER INDEX

M-FS-13481	B67-10544	01	M-FS-14324	B68-10306	01
M-FS-13486	B67-10367	01	M-FS-14328	B68-10179	02
M-FS-13544	B67-10621	02	M-FS-14342	B68-10080	05
M-FS-13546	B67-10547	05	M-FS-14357	B68-10081	02
M-FS-13569	B67-10534	01	M-FS-14388	B68-10143	02
M-FS-13570	B69-10607	01	M-FS-14421	B69-10606	03
M-FS-13580	B67-10425	01	M-FS-14447	B69-10158	06
M-FS-13582	B67-10462	02	M-FS-14456	B68-10573	05
M-FS-13590	B67-10620	01	M-FS-14460	B69-10021	05
M-FS-13594	B67-10527	03	M-FS-14468	B68-10232	06
M-FS-13598	B67-10558	01	M-FS-14480	B68-10229	05
M-FS-13599	B68-10093	01	M-FS-14496	B68-10125	05
M-FS-13620	B67-10366	03	M-FS-14500	B69-10543	03
M-FS-13621	B68-10073	01	M-FS-14502	B69-10602	03
M-FS-13638	B68-10004	05	M-FS-14511	B68-10511	01
M-FS-13649	B68-10192	03	M-FS-14522	B68-10363	02
M-FS-13663	B67-10426	01	M-FS-14524	B69-10401	01
M-FS-13664	B67-10535	01	M-FS-14530	B68-10257	05
M-FS-13737	B68-10544	01	M-FS-14531	B68-10310	01
M-FS-13740	B68-10544	01	M-FS-14538	B69-10141	05
M-FS-13749	B68-10544	01	M-FS-14541	B68-10312	01
M-FS-13757	B67-10455	03	M-FS-14542	B68-10268	01
M-FS-13772	B67-10525	05	M-FS-14545	B68-10149	01
M-FS-13775	B69-10560	02	M-FS-14552	B68-10131	01
M-FS-13776	B67-10581	05	M-FS-14556	B69-10736	01
M-FS-13789	B67-10612	06	M-FS-14574	B68-10091	01
M-FS-13801	B68-10129	01	M-FS-14575	B68-10146	03
M-FS-13815	B67-10564	02	M-FS-14579	B68-10247	05
M-FS-13821	B69-10670	01	M-FS-14581	B68-10307	01
M-FS-13866	B67-10492	06	M-FS-14582	B68-10239	05
M-FS-13892	B67-10454	03	M-FS-14583	B68-10259	02
M-FS-13898	B68-10258	01	M-FS-14600	B69-10144	05
M-FS-13901	B68-10067	01	M-FS-14608	B68-10112	01
M-FS-13906	B67-10533	03	M-FS-14634	B68-10171	01
M-FS-13948	B68-10130	01	M-FS-14652	B68-10261	05
M-FS-13950	B68-10130	01	M-FS-14654	B68-10217	06
M-FS-13952	B67-10532	03	M-FS-14656	B68-10263	01
M-FS-13954	B68-10016	01	M-FS-14661	B68-10218	01
M-FS-13969	B68-10576	06	M-FS-14672	B68-10264	01
M-FS-13971	B67-10479	06	M-FS-14673	B69-10012	01
M-FS-13991	B67-10608	03	M-FS-14679	B68-10228	02
M-FS-13999	B67-10523	06	M-FS-14685	B69-10448	05
M-FS-14004	B68-10162	05	M-FS-14690	B68-10030	01
M-FS-14010	B69-10278	05	M-FS-14691	B68-10309	01
M-FS-14019	B68-10034	03	M-FS-14695	B68-10296	06
M-FS-14020	B67-10652	01	M-FS-14696	B68-10240	02
M-FS-14022	B67-10602	02	M-FS-14698	B68-10572	01
M-FS-14023	B68-10031	03	M-FS-14703	B68-10262	01
M-FS-14026	B67-10588	05	M-FS-14710	B68-10300	05
M-FS-14034	B68-10308	01	M-FS-14713	B68-10303	01
M-FS-14041	B67-10653	02	M-FS-14715	B68-10287	06
M-FS-14042	B68-10074	01	M-FS-14716	B69-10394	06
M-FS-14059	B67-10645	03	M-FS-14720	B68-10334	03
M-FS-14062	B69-10588	05	M-FS-14722	B69-10438	01
M-FS-14063	B69-10785	05	M-FS-14737	B69-10539	01
M-FS-14076	B68-10119	02	M-FS-14743	B68-10161	05
M-FS-14079	B67-10667	05	M-FS-14747	B69-10633	02
M-FS-14088	B68-10013	02	M-FS-14754	B69-10590	05
M-FS-14096	B68-10026	05	M-FS-14764	B68-10256	03
M-FS-14101	B69-10783	02	M-FS-14772	B68-10549	05
M-FS-14105	B68-10222	05	M-FS-14785	B68-10525	01
M-FS-14107	B67-10649	01	M-FS-14787	B68-10569	02
M-FS-14108	B67-10650	01	M-FS-14788	B68-10570	02
M-FS-14115	B68-10166	01	M-FS-14789	B68-10505	01
M-FS-14132	B68-10222	05	M-FS-14790	B68-10183	01
M-FS-14133	B68-10252	02	M-FS-14791	B68-10311	01
M-FS-14134	B68-10075	05	M-FS-14802	B68-10276	02
M-FS-14137	B68-10222	05	M-FS-14803	B68-10313	01
M-FS-14146	B69-10008	05	M-FS-14805	B69-10497	01
M-FS-14151	B68-10221	03	M-FS-14806	B68-10360	03
M-FS-14185	B68-10070	01	M-FS-14808	B68-10396	02
M-FS-14189	B68-10070	01	M-FS-14815	B68-10548	02
M-FS-14198	B68-10127	06	M-FS-14816	B69-10562	02
M-FS-14217	B68-10186	02	M-FS-14817	B68-10184	03
M-FS-14221	B68-10075	05	M-FS-14821	B68-10180	05
M-FS-14248	B68-10126	02	M-FS-14836	B69-10051	05
M-FS-14254	B69-10062	05	M-FS-14837	B68-10509	05
M-FS-14265	B68-10015	01	M-FS-14841	B68-10393	05
M-FS-14267	B68-10260	02	M-FS-14845	B68-10339	02
M-FS-14268	B68-10275	02	M-FS-14851	B68-10504	02
M-FS-14270	B68-10288	05	M-FS-14854	B69-10060	02
M-FS-14272	B69-10069	05	M-FS-14856	B68-10351	03
M-FS-14283	B68-10153	03	M-FS-14874	B68-10401	05
M-FS-14296	B68-10033	06	M-FS-14886	B69-10674	02
M-FS-14309	B68-10546	02	M-FS-14909	B69-10601	01
M-FS-14310	B68-10108	02	M-FS-14910	B68-10390	03
M-FS-14314	B68-10044	06	M-FS-14914	B68-10429	01
M-FS-14323	B68-10306	01	M-FS-14915	B68-10348	02

ORIGINATOR/TECH BRIEF NUMBER INDEX

M-FS-14929	.....	B68-10346	02	M-FS-18416	.....	B68-10417	05
M-FS-14937	.....	B68-10404	01	M-FS-18441	.....	B69-10373	05
M-FS-14959	.....	B69-10417	03	M-FS-18453	.....	B69-10178	05
M-FS-14962	.....	B69-10636	03	M-FS-18456	.....	B69-10146	06
M-FS-14964	.....	B69-10636	03	M-FS-18465	.....	B69-10403	05
M-FS-14971	.....	B69-10408	05	M-FS-18480	.....	B69-10457	03
M-FS-14972	.....	B68-10353	05	M-FS-18488	.....	B69-10457	03
M-FS-14976	.....	B69-10014	01	M-FS-18526	.....	B69-10098	03
M-FS-14979	.....	B68-10532	03	M-FS-18540	.....	B69-10356	01
M-FS-14980	.....	B68-10515	05	M-FS-18547	.....	B69-10184	05
M-FS-14988	.....	B69-10099	02	M-FS-18548	.....	B69-10649	05
M-FS-14991	.....	B68-10274	03	M-FS-18581	.....	B69-10398	05
M-FS-14993	.....	B68-10443	01	M-FS-18585	.....	B69-10788	03
M-FS-14996	.....	B68-10333	01	M-FS-18604	.....	B69-10463	05
M-FS-15001	.....	B68-10448	06	M-FS-18605	.....	B69-10730	03
M-FS-15002	.....	B68-10416	06	M-FS-18650	.....	B69-10605	03
M-FS-15010	.....	B69-10031	06	M-FS-20002	.....	B69-10467	02
M-FS-15016	.....	B68-10529	01	M-FS-20013	.....	B68-10434	01
M-FS-15018	.....	B68-10565	01	M-FS-20014	.....	B69-10125	01
M-FS-15020	.....	B68-10422	06	M-FS-20019	.....	B69-10471	05
M-FS-15028	.....	B69-10041	06	M-FS-20031	.....	B69-10604	02
M-FS-15033	.....	B69-10577	02	M-FS-20037	.....	B69-10609	05
M-FS-15043	.....	B69-10435	06	M-FS-20039	.....	B68-10349	02
M-FS-15051	.....	B69-10038	06	M-FS-20049	.....	B68-10432	01
M-FS-15054	.....	B69-10574	06	M-FS-20058	.....	B68-10406	02
M-FS-15055	.....	B69-10760	06	M-FS-20063	.....	B69-10096	01
M-FS-15059	.....	B69-10109	05	M-FS-20064	.....	B69-10101	01
M-FS-15062	.....	B69-10434	06	M-FS-20083	.....	B68-10534	05
M-FS-15075	.....	B69-10297	01	M-FS-20084	.....	B68-10357	01
M-FS-16113	.....	B69-10599	03	M-FS-20088	.....	B68-10571	02
M-FS-16166	.....	B68-10575	05	M-FS-20091	.....	B68-10430	01
M-FS-16179	.....	B69-10692	03	M-FS-20126	.....	B68-10550	05
M-FS-16196	.....	B68-10530	05	M-FS-20127	.....	B68-10412	01
M-FS-16293	.....	B69-10305	05	M-FS-20140	.....	B68-10371	05
M-FS-16327	.....	B69-10533	01	M-FS-20143	.....	B68-10345	02
M-FS-16390	.....	B69-10129	01	M-FS-20152	.....	B68-10545	01
M-FS-16410	.....	B69-10566	06	M-FS-20153	.....	B69-10013	01
M-FS-16411	.....	B69-10393	05	M-FS-20157	.....	B69-10152	01
M-FS-16413	.....	B69-10145	05	M-FS-20160	.....	B69-10447	02
M-FS-16476	.....	B69-10458	05	M-FS-20169	.....	B69-10097	01
M-FS-16480	.....	B69-10288	05	M-FS-20172	.....	B69-10421	02
M-FS-16481	.....	B69-10282	05	M-FS-20175	.....	B68-10536	03
M-FS-16496	.....	B69-10202	05	M-FS-20176	.....	B68-10395	05
M-FS-16508	.....	B69-10180	05	M-FS-20177	.....	B69-10126	01
M-FS-16517	.....	B69-10357	03	M-FS-20185	.....	B68-10392	03
M-FS-16549	.....	B69-10514	05	M-FS-20187	.....	B68-10391	03
M-FS-16551	.....	B69-10409	06	M-FS-20188	.....	B68-10508	02
M-FS-16556	.....	B69-10823	02	M-FS-20202	.....	B68-10397	01
M-FS-16600	.....	B69-10450	05	M-FS-20208	.....	B69-10652	01
M-FS-18003	.....	B68-10154	02	M-FS-20209	.....	B68-10568	03
M-FS-18037	.....	B68-10332	05	M-FS-20219	.....	B69-10559	03
M-FS-18045	.....	B68-10158	06	M-FS-20223	.....	B69-10559	03
M-FS-18052	.....	B69-10399	05	M-FS-20224	.....	B68-10566	01
M-FS-18062	.....	B68-10282	02	M-FS-20229	.....	B69-10189	02
M-FS-18076	.....	B68-10265	02	M-FS-20239	.....	B69-10653	01
M-FS-18133	.....	B69-10059	05	M-FS-20240	.....	B69-10301	02
M-FS-18135	.....	B69-10201	02	M-FS-20246	.....	B68-10413	01
M-FS-18141	.....	B69-10106	06	M-FS-20250	.....	B69-10580	03
M-FS-18144	.....	B69-10402	01	M-FS-20254	.....	B69-10067	03
M-FS-18146	.....	B68-10531	05	M-FS-20290	.....	B69-10454	06
M-FS-18150	.....	B68-10355	03	M-FS-20292	.....	B68-10574	02
M-FS-18151	.....	B68-10522	03	M-FS-20293	.....	B69-10310	05
M-FS-18174	.....	B68-10285	03	M-FS-20294	.....	B69-10066	03
M-FS-18179	.....	B68-10286	05	M-FS-20299	.....	B69-10009	05
M-FS-18185	.....	B68-10251	03	M-FS-20306	.....	B69-10019	05
M-FS-18189	.....	B68-10523	03	M-FS-20307	.....	B69-10086	05
M-FS-18191	.....	B68-10394	03	M-FS-20317	.....	B69-10459	05
M-FS-18192	.....	B69-10068	03	M-FS-20339	.....	B69-10404	05
M-FS-18194	.....	B68-10299	05	M-FS-20348	.....	B69-10085	05
M-FS-18204	.....	B69-10087	04	M-FS-20353	.....	B69-10302	05
M-FS-18205	.....	B69-10087	04	M-FS-20361	.....	B69-10150	05
M-FS-18206	.....	B69-10087	04	M-FS-20364	.....	B69-10372	03
M-FS-18207	.....	B69-10087	04	M-FS-20381	.....	B69-10065	03
M-FS-18208	.....	B69-10087	04	M-FS-20397	.....	B69-10464	03
M-FS-18209	.....	B69-10087	04	M-FS-20403	.....	B69-10355	05
M-FS-18210	.....	B69-10087	04	M-FS-20405	.....	B69-10366	03
M-FS-18211	.....	B69-10052	05	M-FS-20409	.....	B69-10108	03
M-FS-18269	.....	B69-10513	01	M-FS-20414	.....	B69-10371	02
M-FS-18298	.....	B68-10439	05	M-FS-20417	.....	B69-10397	03
M-FS-18327	.....	B68-10385	03	M-FS-20419	.....	B69-10259	01
M-FS-18331	.....	B69-10179	03	M-FS-20423	.....	B69-10182	05
M-FS-18335	.....	B69-10055	03	M-FS-20426	.....	B69-10456	05
M-FS-18337	.....	B68-10383	05	M-FS-20427	.....	B69-10284	05
M-FS-18345	.....	B68-10517	02	M-FS-20429	.....	B69-10190	05
M-FS-18373	.....	B69-10400	05	M-FS-20435	.....	B69-10390	01
M-FS-18383	.....	B69-10071	05	M-FS-20437	.....	B69-10277	04
M-FS-18402	.....	B69-10100	05	M-FS-20438	.....	B69-10541	02
M-FS-18404	.....	B69-10396	05	M-FS-20439	.....	B69-10378	01

ORIGINATOR/TECH BRIEF NUMBER INDEX

M-FS-20444	B69-10807	01	MSC-166	B66-10089	01
M-FS-20448	B69-10339	03	MSC-168	B65-10241	05
M-FS-20453	B69-10183	05	MSC-173	B65-10396	01
M-FS-20454	B69-10283	03	MSC-179	B65-10268	01
M-FS-20456	B69-10192	03	MSC-184	B66-10199	02
M-FS-20458	B69-10181	06	MSC-185	B66-10154	04
M-FS-20471	B69-10387	02	MSC-186	B66-10205	01
M-FS-20474	B69-10437	05	MSC-187	B66-10390	05
M-FS-20481	B69-10422	05	MSC-188	B65-10350	01
M-FS-20482	B69-10237	03	MSC-189	B65-10352	01
M-FS-20484	B69-10303	05	MSC-190	B66-10148	01
M-FS-20487	B69-10418	01	MSC-192	B66-10431	01
M-FS-20497	B69-10781	02	MSC-193	B66-10420	01
M-FS-20499	B69-10678	01	MSC-194	B66-10144	01
M-FS-20502	B69-10279	05	MSC-199	B66-10050	01
M-FS-20504	B69-10264	05	MSC-200	B66-10143	02
M-FS-20529	B69-10776	01	MSC-205	B66-10142	01
M-FS-20532	B69-10676	01	MSC-206	B67-10298	01
M-FS-20537	B69-10779	02	MSC-207	B66-10012	01
M-FS-20545	B69-10756	01	MSC-210	B65-10390	03
M-FS-20562	B69-10367	05	MSC-212	B66-10314	04
M-FS-20566	B69-10780	03	MSC-214	B65-10389	01
M-FS-20657	B69-10804	05	MSC-215	B66-10070	03
M-FS-90591	B69-10540	03	MSC-216	B65-10321	03
M-FS-91326	B68-10039	05	MSC-217	B66-10107	05
M-FS-92155	B69-10544	05	MSC-218	B65-10322	01
MSC-4A	B64-10001	05	MSC-219	B66-10026	01
MSC-5A	B66-10184	04	MSC-221	B66-10054	05
MSC-8	B64-10141	05	MSC-222	B66-10125	05
MSC-14	B64-10024	01	MSC-226	B66-10080	05
MSC-17	B64-10025	04	MSC-227	B66-10167	05
MSC-20	B63-10493	01	MSC-228	B67-10164	02
MSC-24	B63-10519	05	MSC-230	B66-10338	05
MSC-30	B65-10022	05	MSC-231	B65-10381	01
MSC-36	B66-10102	05	MSC-236	B65-10358	05
MSC-42	B64-10058	05	MSC-237	B65-10360	05
MSC-46	B64-10185	05	MSC-238	B65-10375	05
MSC-50	B64-10108	04	MSC-241	B65-10400	01
MSC-51	B64-10109	01	MSC-242	B65-10399	01
MSC-53	B64-10015	05	MSC-243	B65-10401	05
MSC-56	B65-10016	03	MSC-244	B65-10385	05
MSC-57	B64-10016	01	MSC-245	B66-10170	01
MSC-58	B64-10017	01	MSC-246	B66-10532	02
MSC-63A	B64-10138	03	MSC-250	B66-10105	01
MSC-64	B64-10064	01	MSC-253	B65-10398	03
MSC-72	B64-10118	01	MSC-254	B66-10034	01
MSC-80	B65-10185	05	MSC-255	B66-10038	01
MSC-81A	B66-10245	01	MSC-256	B66-10007	05
MSC-85	B64-10166	03	MSC-259	B66-10398	03
MSC-89	B64-10255	01	MSC-261	B65-10376	01
MSC-92	B64-10259	01	MSC-262	B66-10004	02
MSC-93	B64-10258	01	MSC-263	B66-10003	05
MSC-94	B65-10091	01	MSC-265	B67-10475	01
MSC-95	B65-10010	01	MSC-267A	B66-10324	01
MSC-100	B65-10168	05	MSC-269	B66-10139	03
MSC-102	B65-10060	05	MSC-270	B66-10110	03
MSC-103	B65-10018	01	MSC-271	B66-10286	01
MSC-106	B65-10142	01	MSC-274	B66-10006	01
MSC-107	B65-10015	03	MSC-275	B66-10061	05
MSC-108	B65-10003	05	MSC-276	B66-10079	02
MSC-112	B65-10230	05	MSC-279	B66-10056	05
MSC-118	B64-10319	03	MSC-280	B66-10065	05
MSC-121	B65-10238	01	MSC-282	B65-10394	05
MSC-122	B65-10054	01	MSC-285	B66-10166	03
MSC-125	B65-10030	01	MSC-289	B66-10092	05
MSC-127	B65-10153	05	MSC-297	B66-10071	05
MSC-130	B65-10229	05	MSC-298	B66-10059	05
MSC-131	B66-10019	05	MSC-299	B66-10118	04
MSC-133	B65-10143	01	MSC-301	B66-10132	05
MSC-134	B65-10137	01	MSC-312	B66-10585	05
MSC-135	B65-10214	03	MSC-313	B66-10035	05
MSC-137	B65-10166	05	MSC-320	B66-10252	04
MSC-139	B65-10108	01	MSC-321	B66-10210	05
MSC-140	B65-10116	05	MSC-346	B66-10123	05
MSC-142	B65-10186	02	MSC-349	B66-10135	05
MSC-143	B66-10495	05	MSC-356	B66-10163	01
MSC-144	B65-10095	03	MSC-358	B66-10329	01
MSC-146	B66-10049	04	MSC-381	B66-10152	05
MSC-149	B65-10135	05	MSC-382	B66-10156	02
MSC-151	B65-10161	01	MSC-400	B66-10531	01
MSC-152	B66-10339	05	MSC-405	B66-10456	01
MSC-153	B66-10088	01	MSC-407	B67-10110	02
MSC-154	B65-10201	05	MSC-416	B66-10236	05
MSC-155	B65-10263	01	MSC-419	B66-10235	05
MSC-158	B65-10320	01	MSC-420	B66-10461	01
MSC-161	B65-10240	02	MSC-422	B66-10270	01
MSC-163	B66-10403	05	MSC-425	B66-10328	01
MSC-164	B65-10196	01	MSC-443	B66-10251	01

ORIGINATOR/TECH BRIEF NUMBER INDEX

MSC-448	.....	B66-10241	05	MSC-1173	.....	B67-10624	01
MSC-475	.....	B66-10237	05	MSC-1176	.....	B67-10111	01
MSC-486	.....	B66-10244	05	MSC-1178	.....	B67-10137	01
MSC-494	.....	B66-10316	02	MSC-1189	.....	B67-10337	02
MSC-496	.....	B66-10316	02	MSC-1193	.....	B66-10701	03
MSC-497	.....	B66-10253	05	MSC-1210	.....	B67-10233	06
MSC-501	.....	B66-10316	02	MSC-1227	.....	B66-10680	01
MSC-504	.....	B66-10239	05	MSC-1231	.....	B67-10103	01
MSC-505	.....	B66-10316	02	MSC-1240	.....	B67-10156	01
MSC-506	.....	B66-10243	05	MSC-1246	.....	B67-10279	06
MSC-515	.....	B66-10240	05	MSC-1263	.....	B67-10155	01
MSC-516	.....	B66-10337	03	MSC-10013	.....	B67-10675	01
MSC-521	.....	B66-10190	05	MSC-10033	.....	B67-10338	01
MSC-523	.....	B66-10242	05	MSC-10043	.....	B67-10387	01
MSC-524	.....	B66-10428	05	MSC-10064	.....	B67-10414	06
MSC-525	.....	B66-10305	03	MSC-10075	.....	B67-10494	06
MSC-533	.....	B68-10036	05	MSC-10079	.....	B67-10495	06
MSC-537	.....	B66-10454	03	MSC-10285	.....	B68-10277	05
MSC-543	.....	B66-10604	05	MSC-10947	.....	B69-10740	03
MSC-549	.....	B66-10312	03	MSC-10950	.....	B69-10388	05
MSC-552	.....	B66-10238	05	MSC-10951	.....	B69-10280	05
MSC-563	.....	B66-10330	02	MSC-10953	.....	B69-10142	02
MSC-599	.....	B67-10332	04	MSC-10955	.....	B69-10143	01
MSC-600	.....	B66-10285	05	MSC-10956	.....	B69-10523	01
MSC-603	.....	B67-10001	01	MSC-10959	.....	B69-10634	05
MSC-604	.....	B67-10002	01	MSC-10962	.....	B69-10816	05
MSC-616	.....	B66-10647	04	MSC-10964	.....	B68-10178	02
MSC-618	.....	B66-10348	02	MSC-10965	.....	B67-10436	03
MSC-623	.....	B66-10336	03	MSC-10966	.....	B68-10521	02
MSC-626	.....	B66-10605	01	MSC-10983	.....	B67-10370	01
MSC-627	.....	B66-10587	05	MSC-10984	.....	B67-10369	01
MSC-628	.....	B66-10306	01	MSC-10987	.....	B67-10254	01
MSC-631	.....	B66-10301	05	MSC-10988	.....	B67-10473	05
MSC-647	.....	B67-10120	02	MSC-11002	.....	B67-10162	01
MSC-648	.....	B66-10370	05	MSC-11004	.....	B67-10435	01
MSC-654	.....	B66-10384	05	MSC-11007	.....	B67-10253	01
MSC-673	.....	B66-10501	01	MSC-11010	.....	B67-10291	05
MSC-714	.....	B66-10313	03	MSC-11017	.....	B67-10408	04
MSC-715	.....	B66-10608	05	MSC-11018	.....	B67-10252	04
MSC-716	.....	B68-10128	02	MSC-11022	.....	B67-10372	02
MSC-720	.....	B67-10119	01	MSC-11023	.....	B67-10468	01
MSC-722	.....	B67-10119	01	MSC-11026	.....	B68-10010	02
MSC-726	.....	B67-10114	04	MSC-11032	.....	B67-10243	03
MSC-740	.....	B66-10385	05	MSC-11043	.....	B67-10368	01
MSC-747	.....	B66-10375	05	MSC-11085	.....	B69-10291	02
MSC-752	.....	B66-10460	05	MSC-11108	.....	B68-10115	05
MSC-753	.....	B66-10457	05	MSC-11109	.....	B67-10271	05
MSC-777	.....	B66-10311	05	MSC-11147	.....	B67-10562	01
MSC-781	.....	B66-10429	01	MSC-11148	.....	B68-10133	01
MSC-789	.....	B66-10488	01	MSC-11167	.....	B68-10057	05
MSC-798	.....	B66-10455	05	MSC-11194	.....	B67-10409	03
MSC-800	.....	B66-10458	03	MSC-11196	.....	B69-10494	01
MSC-806	.....	B66-10443	05	MSC-11222	.....	B67-10290	03
MSC-831	.....	B67-10085	01	MSC-11231	.....	B68-10163	01
MSC-832	.....	B67-10086	01	MSC-11232	.....	B67-10474	02
MSC-834	.....	B67-10086	01	MSC-11235	.....	B68-10133	01
MSC-859	.....	B66-10544	01	MSC-11241	.....	B68-10105	03
MSC-871	.....	B66-10507	02	MSC-11242	.....	B67-10488	05
MSC-921	.....	B67-10242	01	MSC-11323	.....	B68-10120	05
MSC-924	.....	B67-10083	03	MSC-11327	.....	B67-10572	01
MSC-925	.....	B67-10083	03	MSC-11342	.....	B67-10570	03
MSC-949	.....	B66-10459	05	MSC-11353	.....	B68-10329	02
MSC-960	.....	B67-10008	02	MSC-11354	.....	B68-10060	02
MSC-971	.....	B66-10633	05	MSC-11363	.....	B67-10433	01
MSC-989	.....	B66-10619	01	MSC-11365	.....	B67-10442	03
MSC-990	.....	B66-10609	03	MSC-11369	.....	B68-10106	01
MSC-999	.....	B67-10249	01	MSC-11377	.....	B68-10117	05
MSC-1038	.....	B66-10589	05	MSC-11388	.....	B68-10140	01
MSC-1045	.....	B67-10248	01	MSC-11395	.....	B67-10589	03
MSC-1046	.....	B66-10648	05	MSC-11402	.....	B69-10496	05
MSC-1049	.....	B67-10003	03	MSC-11447	.....	B68-10220	01
MSC-1063	.....	B67-10190	01	MSC-11464	.....	B68-10037	05
MSC-1078	.....	B67-10074	01	MSC-11473	.....	B68-10156	01
MSC-1080	.....	B67-10084	01	MSC-11486	.....	B69-10485	05
MSC-1093	.....	B67-10073	05	MSC-11494	.....	B68-10022	05
MSC-1103	.....	B67-10116	01	MSC-11496	.....	B67-10573	03
MSC-1119	.....	B66-10670	01	MSC-11524	.....	B67-10510	06
MSC-1120	.....	B66-10566	01	MSC-11554	.....	B68-10234	02
MSC-1133	.....	B67-10112	03	MSC-11555	.....	B68-10066	03
MSC-1135	.....	B67-10109	02	MSC-11560	.....	B68-10170	02
MSC-1137	.....	B67-10095	03	MSC-11562	.....	B68-10011	05
MSC-1144	.....	B67-10170	01	MSC-11584	.....	B68-10304	02
MSC-1157	.....	B67-10415	06	MSC-11585	.....	B69-10597	01
MSC-1161	.....	B66-10586	03	MSC-11587	.....	B68-10205	01
MSC-1164	.....	B67-10298	01	MSC-11594	.....	B68-10155	01
MSC-1165	.....	B67-10298	01	MSC-11595	.....	B67-10576	01
MSC-1166	.....	B67-10298	01	MSC-11597	.....	B68-10116	01
MSC-1168	.....	B67-10164	02	MSC-11599	.....	B68-10213	01

ORIGINATOR/TECH BRIEF NUMBER INDEX

MSC-11600	.....	B68-10241	01	MSC-15363	.....	B69-10379	05
MSC-11604	.....	B68-10177	03	MSC-15372	.....	B69-10519	05
MSC-11606	.....	B68-10237	05	MSC-15373	.....	B69-10519	05
MSC-11609	.....	B68-10047	05	MSC-15375	.....	B69-10519	05
MSC-11645	.....	B68-10167	03	MSC-15443	.....	B69-10084	03
MSC-11646	.....	B68-10167	03	MSC-15470	.....	B69-10375	05
MSC-11647	.....	B68-10167	03	MSC-15487	.....	B69-10330	03
MSC-11656	.....	B68-10151	01	MSC-15499	.....	B69-10245	05
MSC-11666	.....	B68-10230	01	MSC-15529	.....	B69-10348	05
MSC-11688	.....	B68-10245	02	MSC-15531	.....	B69-10350	05
MSC-11697	.....	B68-10324	04	MSC-15537	.....	B69-10346	05
MSC-11698	.....	B68-10324	04	MSC-15555	.....	B69-10629	03
MSC-11699	.....	B68-10324	04	MSC-15556	.....	B69-10484	01
MSC-11774	.....	B68-10374	06	MSC-15592	.....	B69-10530	03
MSC-11777	.....	B68-10375	06	MSC-15611	.....	B69-10552	03
MSC-11780	.....	B68-10376	06	MSC-15633	.....	B69-10509	05
MSC-11781	.....	B68-10377	06	MSC-15660	.....	B69-10742	01
MSC-11824	.....	B68-10305	01	MSC-15662	.....	B69-10526	01
MSC-11825	.....	B68-10289	01	MSC-90180	.....	B68-10501	01
MSC-11827	.....	B68-10555	01	MSC-90534	.....	B69-10748	01
MSC-11836	.....	B69-10747	01	MSC-90645	.....	B68-10052	05
MSC-11839	.....	B68-10398	05	MSC-91215	.....	B69-10164	05
MSC-11869	.....	B68-10246	01				
MSC-12001	.....	B68-10330	01	NEO-8	.....	B66-10530	05
MSC-12033	.....	B67-10300	01	NEO-13	.....	B65-10239	02
MSC-12044	.....	B67-10371	02				
MSC-12052	.....	B67-10677	05	NPO-09828	.....	B67-10642	01
MSC-12055	.....	B68-10071	02	NPO-09831	.....	B67-10514	01
MSC-12059	.....	B68-10114	01	NPO-09975	.....	B68-10059	01
MSC-12060	.....	B68-10086	01	NPO-10001	.....	B67-10275	01
MSC-12068	.....	B68-10242	01	NPO-10007	.....	B68-10297	05
MSC-12071	.....	B68-10111	05	NPO-10008	.....	B67-10575	01
MSC-12072	.....	B68-10110	05	NPO-10011	.....	B67-10417	03
MSC-12074	.....	B68-10157	01	NPO-10019	.....	B67-10193	06
MSC-12078	.....	B68-10018	01	NPO-10031	.....	B67-10319	06
MSC-12101	.....	B68-10238	01	NPO-10036	.....	B67-10218	02
MSC-12123	.....	B68-10121	01	NPO-10039	.....	B67-10219	05
MSC-12135	.....	B69-10490	01	NPO-10042	.....	B67-10630	06
MSC-12148	.....	B69-10386	01	NPO-10062	.....	B67-10132	03
MSC-12178	.....	B69-10548	01	NPO-10068	.....	B67-10204	01
MSC-12206	.....	B68-10500	04	NPO-10070	.....	B68-10524	03
MSC-12230	.....	B69-10749	03	NPO-10112	.....	B69-10503	01
MSC-12238	.....	B69-10243	06	NPO-10118	.....	B68-10058	01
MSC-12247	.....	B69-10487	01	NPO-10123	.....	B67-10207	04
MSC-12250	.....	B69-10124	04	NPO-10124	.....	B67-10169	06
MSC-12259	.....	B69-10225	01	NPO-10125	.....	B67-10172	06
MSC-13060	.....	B68-10387	05	NPO-10126	.....	B67-10160	01
MSC-13061	.....	B68-10512	05	NPO-10127	.....	B67-10323	06
MSC-13072	.....	B69-10741	01	NPO-10129	.....	B67-10217	06
MSC-13086	.....	B68-10314	01	NPO-10130	.....	B67-10171	01
MSC-13097	.....	B69-10107	02	NPO-10131	.....	B67-10173	06
MSC-13098	.....	B69-10216	01	NPO-10140	.....	B67-10246	01
MSC-13099	.....	B69-10115	01	NPO-10142	.....	B67-10203	01
MSC-13110	.....	B69-10230	01	NPO-10144	.....	B67-10205	01
MSC-13114	.....	B69-10221	01	NPO-10149	.....	B67-10245	04
MSC-13146	.....	B69-10594	02	NPO-10150	.....	B68-10045	06
MSC-13179	.....	B69-10370	06	NPO-10164	.....	B67-10206	01
MSC-13194	.....	B69-10469	02	NPO-10166	.....	B67-10676	01
MSC-13195	.....	B69-10495	05	NPO-10169	.....	B69-10349	01
MSC-13199	.....	B69-10244	01	NPO-10173	.....	B67-10220	01
MSC-13200	.....	B69-10244	01	NPO-10174	.....	B68-10113	02
MSC-13217	.....	B69-10360	03	NPO-10175	.....	B67-10274	01
MSC-13239	.....	B69-10134	06	NPO-10180	.....	B67-10247	02
MSC-13242	.....	B69-10235	03	NPO-10185	.....	B68-10402	01
MSC-13249	.....	B69-10598	04	NPO-10186	.....	B67-10225	05
MSC-13250	.....	B69-10273	04	NPO-10201	.....	B67-10585	01
MSC-13261	.....	B69-10522	03	NPO-10214	.....	B69-10538	01
MSC-13268	.....	B69-10750	01	NPO-10220	.....	B67-10654	06
MSC-13276	.....	B69-10507	01	NPO-10228	.....	B68-10082	05
MSC-13279	.....	B69-10554	02	NPO-10230	.....	B68-10547	01
MSC-13335	.....	B69-10635	03	NPO-10231	.....	B69-10697	01
MSC-13365	.....	B69-10671	01	NPO-10232	.....	B67-10320	03
MSC-13370	.....	B69-10810	02	NPO-10233	.....	B68-10316	01
MSC-13389	.....	B69-10553	01	NPO-10238	.....	B68-10502	01
MSC-15002	.....	B68-10403	06	NPO-10243	.....	B68-10507	05
MSC-15022	.....	B68-10540	05	NPO-10265	.....	B67-10632	06
MSC-15040	.....	B69-10581	03	NPO-10298	.....	B68-10142	03
MSC-15046	.....	B69-10261	05	NPO-10301	.....	B69-10382	01
MSC-15108	.....	B68-10362	01	NPO-10302	.....	B69-10381	01
MSC-15170	.....	B68-10510	02	NPO-10303	.....	B69-10380	01
MSC-15174	.....	B69-10018	05	NPO-10311	.....	B69-10358	05
MSC-15185	.....	B69-10061	03	NPO-10315	.....	B67-10419	05
MSC-15193	.....	B69-10563	02	NPO-10316	.....	B67-10418	05
MSC-15194	.....	B69-10595	03	NPO-10322	.....	B67-10420	02
MSC-15223	.....	B69-10347	01	NPO-10326	.....	B67-10476	06
MSC-15225	.....	B69-10531	03	NPO-10337	.....	B68-10090	02
MSC-15348	.....	B69-10379	05	NPO-10338	.....	B67-10553	01
				NPO-10348	.....	B68-10152	01

ORIGINATOR/TECH BRIEF NUMBER INDEX

NPO-10350	.....	B68-10203	01	NPO-11177	.....	B69-10573	05
NPO-10359	.....	B67-10504	06	NPO-11180	.....	B69-10725	01
NPO-10373	.....	B67-10634	03	NPO-11193	.....	B69-10506	05
NPO-10402	.....	B67-10633	02	NPO-11196	.....	B69-10488	03
NPO-10404	.....	B67-10672	01	NPO-11197	.....	B69-10593	04
NPO-10429	.....	B68-10005	06	NPO-11198	.....	B69-10572	03
NPO-10438	.....	B68-10137	06	NPO-11200	.....	B69-10504	02
NPO-10467	.....	B68-10506	02	NPO-11206	.....	B69-10571	04
NPO-10468	.....	B67-10671	02	NPO-11207	.....	B69-10592	03
NPO-10501	.....	B68-10139	06	NPO-11220	.....	B69-10733	02
NPO-10502	.....	B68-10096	06	NPO-11228	.....	B69-10723	31
NPO-10510	.....	B69-10475	04	NPO-11229	.....	B69-10660	03
NPO-10515	.....	B69-10017	02				
NPO-10539	.....	B69-10269	01	NU-0001	.....	B65-10024	03
NPO-10544	.....	B69-10472	01	NU-0003	.....	B65-10038	05
NPO-10547	.....	B68-10338	05	NU-0005	.....	B65-10053	05
NPO-10548	.....	B68-10244	01	NU-0008	.....	B65-10245	05
NPO-10560	.....	B68-10514	01	NU-0009	.....	B65-10049	05
NPO-10562	.....	B69-10427	01	NU-0010	.....	B65-10050	01
NPO-10563	.....	B68-10436	01	NU-0011	.....	B65-10051	01
NPO-10584	.....	B68-10516	01	NU-0013	.....	B65-10077	05
NPO-10588	.....	B68-10421	06	NU-0015	.....	B65-10052	01
NPO-10589	.....	B68-10208	06	NU-0016	.....	B65-10160	05
NPO-10598	.....	B68-10187	06	NU-0018	.....	B66-10350	01
NPO-10603	.....	B68-10354	06	NU-0019	.....	B66-10028	01
NPO-10604	.....	B69-10336	02	NU-0020	.....	B65-10254	05
NPO-10626	.....	B69-10331	05	NU-0021	.....	B66-10164	01
NPO-10637	.....	B69-10296	05	NU-0022	.....	B65-10246	05
NPO-10648	.....	B69-10502	01	NU-0023	.....	B65-10256	05
NPO-10669	.....	B69-10289	01	NU-0024	.....	B65-10247	01
NPO-10679	.....	B69-10696	05	NU-0025	.....	B65-10248	05
NPO-10682	.....	B69-10332	02	NU-0027	.....	B66-10084	01
NPO-10688	.....	B69-10695	01	NU-0028	.....	B66-10121	02
NPO-10694	.....	B69-10327	01	NU-0029	.....	B65-10249	01
NPO-10695	.....	B69-10406	03	NU-0030	.....	B65-10250	03
NPO-10696	.....	B69-10406	03	NU-0041	.....	B66-10140	03
NPO-10704	.....	B69-10499	05	NU-0042	.....	B66-10120	03
NPO-10706	.....	B69-10722	01	NU-0043	.....	B66-10119	03
NPO-10713	.....	B69-10440	01	NU-0044	.....	B66-10097	01
NPO-10715	.....	B69-10317	04	NU-0045	.....	B66-10124	05
NPO-10735	.....	B69-10105	06	NU-0046	.....	B66-10134	01
NPO-10752	.....	B68-10410	06	NU-0047	.....	B66-10268	02
NPO-10754	.....	B68-10514	01	NU-0048	.....	B66-10229	05
NPO-10756	.....	B68-10449	06	NU-0049	.....	B66-10489	05
NPO-10770	.....	B69-10139	06	NU-0051	.....	B66-10345	05
NPO-10783	.....	B68-10552	03	NU-0057	.....	B66-10279	05
NPO-10785	.....	B68-10553	03	NU-0062	.....	B66-10276	05
NPO-10804	.....	B69-10104	06	NU-0063	.....	B66-10274	01
NPO-10805	.....	B69-10039	06	NU-0067	.....	B66-10266	05
NPO-10821	.....	B67-10503	01	NU-0069	.....	B66-10282	01
NPO-10834	.....	B69-10299	03	NU-0070	.....	B66-10267	05
NPO-10835	.....	B69-10187	06	NU-0071	.....	B66-10333	01
NPO-10836	.....	B69-10103	06	NU-0074	.....	B66-10275	05
NPO-10839	.....	B69-10093	01	NU-0077	.....	B66-10702	05
NPO-10842	.....	B69-10246	01	NU-0082	.....	B66-10709	01
NPO-10843	.....	B67-10657	01	NU-0083	.....	B66-10704	05
NPO-10853	.....	B69-10364	01	NU-0084	.....	B66-10705	03
NPO-10854	.....	B69-10498	01	NU-0085	.....	B66-10707	05
NPO-11000	.....	B69-10095	01	NU-0086	.....	B66-10708	05
NPO-11001	.....	B69-10325	01	NU-0087	.....	B66-10706	01
NPO-11002	.....	B69-10311	02	NU-0088	.....	B66-10710	03
NPO-11003	.....	B69-10639	01	NU-0089	.....	B66-10591	01
NPO-11004	.....	B69-10133	01	NU-0090	.....	B66-10703	05
NPO-11009	.....	B69-10365	02	NU-0091	.....	B67-10059	05
NPO-11015	.....	B69-10596	03	NU-0092	.....	B66-10711	05
NPO-11031	.....	B69-10290	01	NU-0093	.....	B66-10712	05
NPO-11033	.....	B69-10384	01	NU-0094	.....	B66-10713	05
NPO-11054	.....	B69-10584	01	NU-0095	.....	B67-10062	03
NPO-11057	.....	B69-10270	01	NU-0096	.....	B67-10027	01
NPO-11059	.....	B69-10298	05	NU-0098	.....	B67-10024	02
NPO-11064	.....	B69-10569	01	NU-0108	.....	B67-10046	01
NPO-11073	.....	B69-10326	01	NU-0114	.....	B67-10093	01
NPO-11087	.....	B69-10508	02	NU-0115	.....	B67-10094	05
NPO-11088	.....	B69-10338	01				
NPO-11091	.....	B69-10501	03	NUC-10001	.....	B67-10540	01
NPO-11095	.....	B69-10547	05	NUC-10007	.....	B67-10538	01
NPO-11106	.....	B69-10568	01	NUC-10008	.....	B67-10539	05
NPO-11118	.....	B69-10328	05	NUC-10009	.....	B67-10127	01
NPO-11130	.....	B69-10439	01	NUC-10010	.....	B67-10542	02
NPO-11133	.....	B69-10383	01	NUC-10011	.....	B67-10568	06
NPO-11134	.....	B69-10570	01	NUC-10013	.....	B67-10158	05
NPO-11140	.....	B69-10474	01	NUC-10018	.....	B67-10346	03
NPO-11155	.....	B69-10218	01	NUC-10024	.....	B67-10664	05
NPO-11158	.....	B69-10334	06	NUC-10034	.....	B67-10567	05
NPO-11162	.....	B69-10337	06	NUC-10042	.....	B67-10456	06
NPO-11163	.....	B69-10333	01	NUC-10043	.....	B67-10457	06
NPO-11170	.....	B69-10362	01	NUC-10044	.....	B67-10222	06
NPO-11171	.....	B69-10304	04	NUC-10045	.....	B67-10223	06

ORIGINATOR/TECH BRIEF NUMBER INDEX

NUC-10046	B67-10235	06	W00-048	B64-10284	05
NUC-10047	B67-10194	03	W00-054	B64-10349	01
NUC-10048	B67-10195	05	W00-055	B63-10508	01
NUC-10049	B67-10224	06	W00-062	B64-10019	01
NUC-10050	B67-10200	05	W00-065	B64-10021	05
NUC-10051	B67-10344	06	W00-070	B65-10303	03
NUC-10052	B67-10345	06	W00-071	B65-10179	03
NUC-10054	B67-10281	06	W00-076	B66-10225	01
NUC-10055	B67-10347	01	W00-079	B65-10289	01
NUC-10056	B67-10221	01	W00-085	B66-10008	02
NUC-10061	B67-10264	02	W00-089	B65-10372	03
NUC-10065	B67-10261	06	W00-090	B65-10363	01
NUC-10066	B67-10262	01	W00-092	B65-10008	05
NUC-10067	B67-10263	01	W00-093	B66-10037	03
NUC-10068	B67-10260	01	W00-098	B65-10386	05
NUC-10069	B67-10265	03	W00-100	B64-10270	03
NUC-10070	B67-10566	06	W00-101	B64-10271	01
NUC-10073	B67-10348	06	W00-102	B65-10371	05
NUC-10075	B67-10266	03	W00-103	B66-10023	05
NUC-10077	B67-10351	03	W00-104	B64-10282	03
NUC-10082	B67-10343	01	W00-108	B65-10031	05
NUC-10083	B67-10350	03	W00-112	B65-10064	05
NUC-10084	B67-10349	03	W00-114	B66-10318	05
NUC-10086	B67-10352	02	W00-118	B65-10111	05
NUC-10089	B67-10450	06	W00-125	B65-10182	01
NUC-10125	B67-10496	01	W00-130	B65-10323	05
NUC-10126	B67-10536	06	W00-132	B66-10185	03
NUC-10141	B67-10678	06	W00-142	B65-10227	05
NUC-10142	B67-10537	06	W00-151	B65-10341	03
NUC-10143	B67-10665	06	W00-169	B66-10196	03
NUC-10145	B67-10627	03	W00-190	B66-10612	01
NUC-10146	B67-10629	01	W00-194	B65-10379	01
NUC-10147	B68-10147	01	W00-195	B65-10266	05
NUC-10152	B67-10616	01	W00-206	B65-10380	01
NUC-10153	B68-10122	05	W00-207	B65-10387	01
NUC-10161	B69-10036	06	W00-208	B66-10287	01
NUC-10163	B68-10148	01	W00-212	B66-10025	01
NUC-10170	B69-10035	06	W00-214	B66-10030	05
NUC-10189	B68-10450	06	W00-227	B65-10367	05
NUC-10192	B69-10158	06	W00-228	B65-10378	05
NUC-10243	B69-10433	06	W00-231	B66-10001	05
NUC-10301	B68-10006	06	W00-235	B66-10198	01
NUC-10302	B68-10023	03	W00-239	B66-10064	01
NUC-10303	B68-10053	05	W00-246	B65-10374	03
NUC-10304	B68-10024	05	W00-247	B66-10022	05
NUC-10308	B69-10034	06	W00-248	B66-10195	05
NUC-10330	B69-10705	02	W00-249	B65-10397	03
NUC-10334	B69-10524	06	W00-250	B66-10010	02
NUC-10342	B69-10238	06	W00-253	B66-10263	02
NUC-10515	B67-10497	01	W00-256	B66-10159	01
NUC-10521	B67-10617	02	W00-260	B66-10138	03
NUC-10522	B67-10613	02	W00-263	B66-10227	03
NUC-10523	B67-10618	02	W00-266	B66-10214	05
NUC-10524	B67-10628	05	W00-270	B66-10172	05
NUC-10525	B67-10594	05	W00-271	B66-10399	05
NUC-10537	B68-10150	06	W00-272	B66-10331	02
NUC-10540	B69-10239	06	W00-275	B66-10217	05
NUC-10541	B67-10543	06	W00-278	B66-10432	01
NUC-10554	B69-10707	02	W00-286	B67-10082	02
			W00-298	B66-10430	01
			W00-305	B66-10407	01
			W00-318	B66-10611	05
SAN-10001	B67-10611	05	WS-4	B64-10006	05
SAN-10002	B68-10209	05			
SAN-10003	B68-10231	04	WSO-321	B66-10550	05
SAN-10004	B68-10223	01	WSO-329	B67-10047	05
SAN-10006	B68-10212	03	WSO-333	B67-10018	05
SAN-10007	B68-10211	05	WSO-340	B67-10552	01
SAN-10012	B68-10204	03			
SAN-10013	B68-10269	01	XAC-10608	B69-10084	01
SAN-10014	B68-10389	01			
SAN-10019	B68-10266	05	XFR-03838	B68-10100	01
SAN-10020	B68-10267	01	XFR-05421	B68-10250	05
SAN-10021	B68-10318	05			
SAN-10024	B68-10342	01	XGS-01222	B68-10068	01
SAN-10025	B68-10373	03	XGS-08566	B68-10364	01
SAN-10028	B68-10445	06	XGS-09377	B69-10546	01
SAN-10030	B68-10419	03	XGS-09378	B69-10546	01
SAN-10032	B69-10292	03	XGS-10010	B69-10056	01
SAN-10034	B69-10272	01	XGS-10017	B68-10399	01
SAN-10037	B69-10281	01	XGS-10033	B69-10512	01
WLP-10004	B67-10498	05	XGS-11036	B69-10260	02
			XGS-11144	B69-10419	01
W00-4	B63-10420	05	XGS-11379	B68-10012	01
W00-5	B63-10421	02			
W00-029	B65-10348	05	YKS-06467	B69-10369	01
W00-030	B66-10015	01			
W00-041	B64-10278	05			
W00-046	B65-10041	01			

ORIGINATOR/TECH BRIEF NUMBER INDEX

XNP-04235	.....	B69-10271	01
XNP-05254	.....	B69-10557	01
XNP-06234	.....	B69-10313	01
XNP-08124	.....	B68-10020	03
XNP-08898	.....	B69-10186	01
XNP-09698	.....	B69-10030	05
XNP-09704	.....	B69-10016	05
XNP-09745	.....	B69-10020	02
XNP-09768	.....	B69-10120	01
XNP-09771	.....	B69-10119	05
XNP-09802	.....	B69-10028	02
XNP-09808	.....	B69-10032	01
XNP-10849	.....	B68-10535	05

TECH BRIEF/ORIGINATOR NUMBER INDEX

Cumulative Index to Tech Briefs

Issue 10

Tech Brief/Originator Number Index

The left hand column identifies the Tech Brief number, e.g., B69-10063, followed by a two-digit number, e.g., 01, which identifies the subject category containing the entire citation. Following the subject category number is the originator number.

B63-10003	04	.....	ARC-2
B63-10004	03	.....	ARC-3
B63-10006	01	.....	ARC-5
B63-10007	05	.....	ARC-6
B63-10008	05	.....	ARC-7
B63-10009	05	.....	ARC-8
B63-10023	05	.....	FRC-16
B63-10024	01	.....	FRC-17
B63-10027	01	.....	GSFC-36
B63-10033	01	.....	GSFC-42
B63-10091	01	.....	JPL-63
B63-10118	01	.....	JPL-122
B63-10123	05	.....	JPL-135
B63-10139	05	.....	JPL-170
B63-10141	05	.....	JPL-179
B63-10143	05	.....	JPL-182
B63-10170	05	.....	JPL-231
B63-10174	01	.....	JPL-236A
B63-10193	01	.....	JPL-288
B63-10198	05	.....	JPL-303
B63-10200	05	.....	JPL-305
B63-10207	03	.....	JPL-321
B63-10226	05	.....	JPL-354
B63-10227	01	.....	JPL-357
B63-10228	05	.....	JPL-361
B63-10229	01	.....	JPL-362
B63-10234	03	.....	JPL-373
B63-10235	03	.....	JPL-374
B63-10236	05	.....	JPL-375
B63-10237	05	.....	JPL-376
B63-10238	01	.....	JPL-381
B63-10240	05	.....	JPL-384
B63-10241	05	.....	JPL-385
B63-10247	05	.....	JPL-392
B63-10250	01	.....	JPL-397
B63-10251	05	.....	JPL-398
B63-10255	01	.....	JPL-406
B63-10258	01	.....	JPL-410
B63-10260	02	.....	JPL-418
B63-10262	01	.....	JPL-421
B63-10263	03	.....	JPL-424
B63-10264	01	.....	JPL-425
B63-10280	01	.....	JPL-0021
B63-10284	01	.....	JPL-0029
B63-10289	05	.....	JPL-IT-1001
B63-10291	05	.....	JPL-IT-1003
B63-10292	05	.....	JPL-IT-1004
B63-10304	05	.....	LANGLEY-1A
B63-10311	03	.....	LANGLEY-4
B63-10318	03	.....	LANGLEY-6A

B63-10321	01	.....	LANGLEY-10
B63-10337	03	.....	LEWIS-12
B63-10338	01	.....	LEWIS-13
B63-10340	05	.....	LEWIS-15
B63-10341	05	.....	LEWIS-38
B63-10342	01	.....	LEWIS-39
B63-10344	02	.....	LEWIS-41
B63-10345	03	.....	LEWIS-42
B63-10346	02	.....	LEWIS-43
B63-10351	03	.....	LEWIS-47
B63-10354	05	.....	LEWIS-50
B63-10365	03	.....	LEWIS-64
B63-10367	05	.....	LEWIS-66
B63-10368	05	.....	LEWIS-67
B63-10376	05	.....	M-FS-1
B63-10378	03	.....	M-FS-3
B63-10384	05	.....	M-FS-12
B63-10385	05	.....	M-FS-13
B63-10387	05	.....	M-FS-15
B63-10389	03	.....	M-FS-17
B63-10420	05	.....	WOO-4
B63-10421	02	.....	WOO-5
B63-10424	03	.....	JPL-WOO-008
B63-10429	03	.....	ARC-11
B63-10431	05	.....	ARC-13
B63-10435	05	.....	ARC-17
B63-10440	01	.....	LEWIS-73
B63-10442	05	.....	LEWIS-75
B63-10443	01	.....	LEWIS-76
B63-10453	03	.....	M-FS-54
B63-10476	03	.....	GSFC-67
B63-10479	03	.....	M-FS-64
B63-10481	03	.....	M-FS-67
B63-10489	05	.....	LEWIS-106
B63-10493	01	.....	MSC-20
B63-10497	05	.....	M-FS-91
B63-10502	05	.....	M-FS-98
B63-10508	01	.....	WOO-055
B63-10511	01	.....	GSFC-80
B63-10512	01	.....	GSFC-85
B63-10514	01	.....	JPL-513
B63-10517	05	.....	JPL-545
B63-10519	05	.....	MSC-24
B63-10526	05	.....	LANGLEY-23
B63-10528	03	.....	LANGLEY-25
B63-10529	01	.....	LANGLEY-26
B63-10530	05	.....	LANGLEY-28
B63-10536	01	.....	GSFC-91
B63-10537	01	.....	JPL-WOO-029
B63-10546	03	.....	GSFC-82
B63-10547	05	.....	GSFC-92
B63-10551	01	.....	GSFC-100
B63-10553	01	.....	GSFC-111
B63-10554	01	.....	GSFC-112
B63-10555	01	.....	GSFC-113
B63-10556	05	.....	GSFC-115
B63-10557	03	.....	LANGLEY-16
B63-10558	05	.....	LANGLEY-20
B63-10560	05	.....	ARC-20
B63-10561	01	.....	ARC-22
B63-10562	03	.....	ARC-23
B63-10564	05	.....	ARC-25
B63-10567	01	.....	M-FS-61
B63-10568	05	.....	M-FS-69
B63-10571	05	.....	M-FS-84
B63-10572	01	.....	M-FS-86
B63-10579	01	.....	M-FS-123
B63-10590	05	.....	M-FS-122
B63-10596	01	.....	GSFC-93
B63-10597	01	.....	GSFC-114
B63-10599	01	.....	GSFC-119
B63-10600	01	.....	GSFC-120
B63-10603	01	.....	GSFC-132
B63-10606	01	.....	GSFC-129

TECH BRIEF/ORIGINATOR NUMBER INDEX

B63-10609	01	.....	GSFC-137	B64-10320	01	.....	M-FS-219
B63-10612	03	.....	JPL-544	B64-10327	05	.....	GSFC-253
B63-10613	01	.....	JPL-559	B64-10330	01	.....	JPL-SC-065
B64-10001	05	.....	MSC-4A	B64-10348	05	.....	LEWIS-99
B64-10002	01	.....	JPL-447	B64-10349	01	.....	WOO-054
B64-10004	01	.....	ARC-26	B64-10406	05	.....	M-FS-37
B64-10006	05	.....	WS-4	B65-10001	01	.....	GSFC-227
B64-10007	01	.....	GSFC-48	B65-10002	01	.....	GSFC-241
B64-10010	01	.....	GSFC-150	B65-10003	05	.....	MSC-108
B64-10011	05	.....	GSFC-151	B65-10004	03	.....	M-FS-227
B64-10014	05	.....	LEWIS-152	B65-10005	01	.....	M-FS-166
B64-10015	05	.....	MSC-53	B65-10006	01	.....	M-FS-192
B64-10016	01	.....	MSC-57	B65-10007	05	.....	JPL-SC-066
B64-10017	01	.....	MSC-58	B65-10008	05	.....	WOO-092
B64-10019	01	.....	WOO-062	B65-10009	05	.....	LEWIS-182
B64-10021	05	.....	WOO-065	B65-10010	01	.....	MSC-95
B64-10024	01	.....	MSC-14	B65-10011	01	.....	GSFC-34A
B64-10025	04	.....	MSC-17	B65-10012	01	.....	GSFC-243
B64-10028	05	.....	GSFC-143	B65-10013	01	.....	JPL-0031
B64-10031	05	.....	JPL-555	B65-10014	05	.....	M-FS-210
B64-10042	01	.....	LEWIS-37	B65-10015	03	.....	MSC-107
B64-10050	05	.....	M-FS-145	B65-10016	03	.....	MSC-56
B64-10058	05	.....	MSC-42	B65-10017	05	.....	GSFC-237
B64-10064	01	.....	MSC-64	B65-10018	01	.....	MSC-103
B64-10065	01	.....	JPL-596	B65-10019	05	.....	M-FS-228
B64-10066	05	.....	JPL-484	B65-10020	05	.....	JPL-SC-064
B64-10068	03	.....	ARC-28	B65-10021	05	.....	LEWIS-158
B64-10069	05	.....	ARC-29	B65-10022	05	.....	MSC-30
B64-10080	01	.....	JPL-358	B65-10023	01	.....	JPL-591
B64-10084	05	.....	JPL-584	B65-10024	03	.....	NU-0001
B64-10099	03	.....	M-FS-160	B65-10025	01	.....	JPL-SC-069
B64-10108	04	.....	MSC-50	B65-10026	01	.....	GSFC-198
B64-10109	01	.....	MSC-51	B65-10027	05	.....	LEWIS-28
B64-10113	03	.....	GSFC-168	B65-10028	01	.....	GSFC-228
B64-10114	01	.....	GSFC-169	B65-10029	05	.....	M-FS-81
B64-10116	03	.....	LEWIS-144	B65-10030	01	.....	MSC-125
B64-10118	01	.....	MSC-72	B65-10031	05	.....	WOO-108
B64-10119	05	.....	LANGLEY-21	B65-10032	03	.....	LEWIS-154
B64-10121	05	.....	GSFC-59	B65-10033	01	.....	JPL-SC-068
B64-10122	01	.....	JPL-466	B65-10034	03	.....	JPL-SC-071
B64-10124	05	.....	JPL-499	B65-10035	05	.....	M-FS-171
B64-10130	05	.....	LANGLEY-27	B65-10036	02	.....	JPL-304
B64-10138	03	.....	MSC-63A	B65-10037	05	.....	JPL-463
B64-10141	05	.....	MSC-8	B65-10038	05	.....	NU-0003
B64-10142	03	.....	GSFC-161	B65-10039	05	.....	M-FS-224
B64-10143	01	.....	ARC-36	B65-10040	05	.....	JPL-442
B64-10144	01	.....	GSFC-101	B65-10041	01	.....	WOO-046
B64-10145	05	.....	LANGLEY-40	B65-10042	05	.....	LANGLEY-39
B64-10146	04	.....	LANGLEY-44	B65-10043	03	.....	LANGLEY-47
B64-10150	01	.....	GSFC-187	B65-10044	03	.....	M-FS-48
B64-10151	03	.....	GSFC-188	B65-10045	01	.....	LANGLEY-62
B64-10158	01	.....	JPL-628	B65-10046	02	.....	JPL-SC-055
B64-10163	01	.....	M-FS-174	B65-10047	01	.....	M-FS-234
B64-10164	05	.....	M-FS-175	B65-10048	01	.....	GSFC-252
B64-10166	03	.....	MSC-85	B65-10049	05	.....	NU-0009
B64-10170	05	.....	LEWIS-159	B65-10050	01	.....	NU-0010
B64-10171	01	.....	ARC-39	B65-10051	01	.....	NU-0011
B64-10173	01	.....	GSFC-73	B65-10052	01	.....	NU-0015
B64-10178	05	.....	JPL-604	B65-10053	05	.....	NU-0005
B64-10185	05	.....	MSC-46	B65-10054	01	.....	MSC-122
B64-10188	05	.....	JPL-585	B65-10055	01	.....	JPL-82
B64-10200	01	.....	GSFC-190	B65-10056	01	.....	ARC-38
B64-10206	03	.....	JPL-611	B65-10057	01	.....	M-FS-25
B64-10209	01	.....	GSFC-200	B65-10059	01	.....	M-FS-207
B64-10211	05	.....	GSFC-206	B65-10060	05	.....	MSC-102
B64-10222	01	.....	JPL-472	B65-10061	01	.....	JPL-638
B64-10223	05	.....	JPL-478	B65-10062	01	.....	LANGLEY-48
B64-10226	01	.....	JPL-486	B65-10063	05	.....	LANGLEY-90
B64-10237	01	.....	LANGLEY-31	B65-10064	05	.....	WOO-112
B64-10249	05	.....	M-FS-190	B65-10065	03	.....	LEWIS-108
B64-10255	01	.....	MSC-89	B65-10066	01	.....	JPL-SC-072
B64-10258	01	.....	MSC-93	B65-10067	01	.....	LANGLEY-49
B64-10259	01	.....	MSC-92	B65-10068	01	.....	JPL-655
B64-10270	03	.....	WOO-100	B65-10069	01	.....	GSFC-261
B64-10271	01	.....	WOO-101	B65-10070	05	.....	LANGLEY-88
B64-10272	05	.....	LANGLEY-45	B65-10071	02	.....	LANGLEY-92
B64-10277	05	.....	GSFC-234	B65-10072	01	.....	GSFC-274
B64-10278	05	.....	WOO-041	B65-10073	01	.....	LANGLEY-46
B64-10280	01	.....	JPL-504	B65-10074	05	.....	LANGLEY-32
B64-10281	01	.....	GSFC-236	B65-10075	05	.....	LANGLEY-54
B64-10282	03	.....	WOO-104	B65-10076	01	.....	GSFC-240
B64-10283	01	.....	M-FS-197	B65-10077	05	.....	NU-0013
B64-10284	05	.....	WOO-048	B65-10078	05	.....	M-FS-216
B64-10299	01	.....	GSFC-251	B65-10079	01	.....	M-FS-274
B64-10305	01	.....	GSFC-238	B65-10080	01	.....	M-FS-247
B64-10306	05	.....	JPL-0036	B65-10081	02	.....	GSFC-294
B64-10309	01	.....	M-FS-32	B65-10082	02	.....	GSFC-286
B64-10319	03	.....	MSC-118	B65-10083	03	.....	GSFC-295

TECH BRIEF/ORIGINATOR NUMBER INDEX

B65-10084	02	.....	LANGLEY-93	B65-10173	03	.....	GSFC-320
B65-10085	01	.....	ARC-37	B65-10174	05	.....	M-FS-154
B65-10086	01	.....	LANGLEY-55	B65-10175	03	.....	JPL-WOO-021
B65-10087	01	.....	GSFC-280	B65-10176	05	.....	GSFC-49
B65-10088	03	.....	M-FS-14	B65-10177	05	.....	M-FS-303
B65-10089	01	.....	ARC-27	B65-10178	01	.....	GSFC-130
B65-10090	05	.....	LANGLEY-96	B65-10179	03	.....	WOO-071
B65-10091	01	.....	MSC-94	B65-10180	05	.....	M-FS-194
B65-10092	03	.....	M-FS-267	B65-10181	05	.....	M-FS-308
B65-10093	01	.....	GSFC-306	B65-10182	01	.....	WOO-125
B65-10094	05	.....	ARC-40	B65-10183	01	.....	LANGLEY-130
B65-10095	03	.....	MSC-144	B65-10184	01	.....	M-FS-238
B65-10096	01	.....	GSFC-287	B65-10185	05	.....	MSC-80
B65-10097	01	.....	GSFC-262	B65-10186	02	.....	MSC-142
B65-10098	05	.....	M-FS-280	B65-10187	01	.....	JPL-77
B65-10099	05	.....	JPL-264	B65-10188	02	.....	LEWIS-202
B65-10100	02	.....	LANGLEY-33	B65-10189	03	.....	JPL-616
B65-10101	05	.....	LEWIS-185	B65-10190	03	.....	M-FS-279
B65-10102	01	.....	GSFC-267	B65-10191	05	.....	JPL-686
B65-10103	01	.....	GSFC-249	B65-10192	05	.....	LEWIS-208
B65-10104	05	.....	JPL-480	B65-10193	01	.....	LANGLEY-129
B65-10105	01	.....	GSFC-291	B65-10194	01	.....	GSFC-246
B65-10106	03	.....	M-FS-202	B65-10195	01	.....	LANGLEY-34
B65-10107	03	.....	M-FS-236	B65-10196	01	.....	MSC-164
B65-10108	01	.....	MSC-139	B65-10197	01	.....	JPL-SC-060
B65-10109	05	.....	JPL-WOO-031	B65-10198	05	.....	FRC-21
B65-10110	05	.....	M-FS-253	B65-10199	01	.....	GSFC-339
B65-10111	05	.....	WOO-118	B65-10200	01	.....	GSFC-322
B65-10112	01	.....	JPL-WOO-010	B65-10201	05	.....	MSC-154
B65-10113	05	.....	JPL-631	B65-10202	01	.....	LEWIS-125
B65-10114	05	.....	LANGLEY-36	B65-10203	01	.....	ARC-41
B65-10115	05	.....	LEWIS-8B	B65-10204	01	.....	LANGLEY-123
B65-10116	05	.....	MSC-140	B65-10205	05	.....	JPL-658
B65-10117	03	.....	LEWIS-211	B65-10206	01	.....	GSFC-288
B65-10118	01	.....	GSFC-196	B65-10207	05	.....	JPL-0019
B65-10119	01	.....	GSFC-183	B65-10208	01	.....	ARC-34
B65-10120	01	.....	ARC-42	B65-10209	01	.....	M-FS-245
B65-10121	05	.....	JPL-WOO-039	B65-10210	05	.....	M-FS-214
B65-10122	02	.....	LANGLEY-134	B65-10211	02	.....	GSFC-171
B65-10123	01	.....	GSFC-289	B65-10212	01	.....	GSFC-310
B65-10124	01	.....	GSFC-AE-21	B65-10213	01	.....	GSFC-329
B65-10125	01	.....	JPL-413	B65-10214	03	.....	MSC-135
B65-10126	05	.....	GSFC-265	B65-10215	01	.....	M-FS-315
B65-10127	01	.....	GSFC-299	B65-10216	05	.....	GSFC-347
B65-10128	01	.....	JPL-675	B65-10217	03	.....	GSFC-352
B65-10129	02	.....	M-FS-257	B65-10218	01	.....	M-FS-105
B65-10130	05	.....	JPL-198	B65-10219	05	.....	M-FS-340
B65-10131	05	.....	LEWIS-174	B65-10220	03	.....	LANGLEY-116
B65-10132	02	.....	JPL-508	B65-10221	01	.....	M-FS-193
B65-10133	02	.....	M-FS-240	B65-10222	05	.....	JPL-2A
B65-10134	05	.....	GSFC-319	B65-10223	01	.....	JPL-510
B65-10135	05	.....	MSC-149	B65-10224	02	.....	GSFC-356
B65-10136	03	.....	GSFC-281	B65-10225	01	.....	GSFC-317
B65-10137	01	.....	MSC-134	B65-10226	01	.....	GSFC-340
B65-10138	01	.....	GSFC-272	B65-10227	05	.....	WOO-142
B65-10139	01	.....	LEWIS-155	B65-10228	01	.....	GSFC-285
B65-10140	03	.....	M-FS-272	B65-10229	05	.....	MSC-130
B65-10141	05	.....	M-FS-230	B65-10230	05	.....	MSC-112
B65-10142	01	.....	MSC-106	B65-10231	05	.....	LANGLEY-38
B65-10143	01	.....	MSC-133	B65-10232	01	.....	JPL-500
B65-10144	05	.....	JPL-661	B65-10233	01	.....	JPL-SC-073
B65-10145	01	.....	JPL-509	B65-10234	01	.....	GSFC-314
B65-10146	01	.....	M-FS-249	B65-10235	05	.....	HQ-20
B65-10147	05	.....	JPL-345	B65-10236	05	.....	JPL-687
B65-10148	05	.....	GSFC-335	B65-10237	01	.....	GSFC-345
B65-10149	05	.....	LEWIS-136	B65-10238	01	.....	MSC-121
B65-10150	05	.....	LEWIS-192	B65-10239	02	.....	NEO-13
B65-10151	01	.....	GSFC-315	B65-10240	02	.....	MSC-161
B65-10152	01	.....	GSFC-257	B65-10241	05	.....	MSC-168
B65-10153	05	.....	MSC-127	B65-10242	01	.....	GSFC-350
B65-10154	05	.....	LEWIS-170	B65-10243	01	.....	GSFC-342
B65-10156	03	.....	GSFC-366	B65-10244	01	.....	JPL-720
B65-10157	02	.....	LEWIS-171	B65-10245	05	.....	NU-0008
B65-10158	01	.....	GSFC-293	B65-10246	05	.....	NU-0022
B65-10159	01	.....	LANGLEY-104	B65-10247	01	.....	NU-0024
B65-10160	05	.....	NU-0016	B65-10248	05	.....	NU-0025
B65-10161	01	.....	MSC-151	B65-10249	01	.....	NU-0029
B65-10162	03	.....	GSFC-284	B65-10250	03	.....	NU-0030
B65-10163	05	.....	JPL-226	B65-10251	05	.....	LEWIS-190
B65-10164	03	.....	LANGLEY-115	B65-10252	02	.....	LANGLEY-166
B65-10165	01	.....	GSFC-292	B65-10253	02	.....	GSFC-353
B65-10166	05	.....	MSC-137	B65-10254	05	.....	NU-0020
B65-10167	03	.....	LANGLEY-121	B65-10255	01	.....	LEWIS-178
B65-10168	05	.....	MSC-100	B65-10256	05	.....	NU-0023
B65-10169	01	.....	M-FS-250	B65-10257	01	.....	GSFC-361
B65-10170	05	.....	M-FS-289	B65-10258	01	.....	GSFC-370
B65-10171	02	.....	GSFC-231	B65-10259	01	.....	GSFC-387
B65-10172	03	.....	M-FS-235	B65-10260	01	.....	GSFC-391

TECH BRIEF/ORIGINATOR NUMBER INDEX

B65-10261	03	..... HQ-24	B65-10349	01	..... M-FS-376
B65-10262	05	..... LEWIS-131	B65-10350	01	..... MSC-188
B65-10263	01	..... MSC-155	B65-10351	05	..... JPL-371
B65-10264	01	..... FRC-31	B65-10352	01	..... MSC-189
B65-10265	01	..... M-FS-362	B65-10353	01	..... M-FS-297
B65-10266	05	..... WOO-195	B65-10354	03	..... JPL-SC-083
B65-10267	01	..... JPL-SC-074	B65-10355	01	..... GSFC-399
B65-10268	01	..... MSC-179	B65-10356	02	..... LANGLEY-95
B65-10269	01	..... M-FS-363	B65-10357	03	..... M-FS-150
B65-10270	03	..... LEWIS-225	B65-10358	05	..... MSC-236
B65-10271	01	..... GSFC-337	B65-10359	01	..... JPL-SC-167
B65-10272	02	..... LANGLEY-133	B65-10360	05	..... MSC-237
B65-10273	01	..... GSFC-357	B65-10361	01	..... LANGLEY-80
B65-10274	01	..... GSFC-363	B65-10362	01	..... GSFC-446
B65-10275	01	..... JPL-698	B65-10363	01	..... WOO-090
B65-10276	01	..... GSFC-354	B65-10364	03	..... GSFC-388
B65-10277	01	..... ARC-46	B65-10366	03	..... JPL-SC-079
B65-10278	01	..... GSFC-386	B65-10367	05	..... WOO-227
B65-10279	01	..... M-FS-367	B65-10368	02	..... M-FS-415
B65-10280	02	..... LEWIS-160	B65-10369	01	..... ARC-1
B65-10281	01	..... M-FS-331	B65-10370	05	..... LEWIS-212
B65-10282	01	..... GSFC-239	B65-10371	05	..... WOO-102
B65-10283	02	..... GSFC-385	B65-10372	03	..... WOO-089
B65-10284	01	..... GSFC-351	B65-10373	02	..... GSFC-424
B65-10285	05	..... M-FS-358	B65-10374	03	..... WOO-246
B65-10286	01	..... HQ-12	B65-10375	05	..... MSC-238
B65-10287	01	..... GSFC-360	B65-10376	01	..... MSC-261
B65-10288	03	..... LANGLEY-37	B65-10377	01	..... M-FS-323
B65-10289	01	..... WOO-079	B65-10378	05	..... WOO-228
B65-10290	01	..... M-FS-276	B65-10379	01	..... WOO-194
B65-10291	02	..... JPL-694	B65-10380	01	..... WOO-206
B65-10292	02	..... JPL-704	B65-10381	01	..... MSC-231
B65-10293	01	..... JPL-771	B65-10382	01	..... M-FS-417
B65-10294	03	..... M-FS-365	B65-10383	05	..... LANGLEY-145
B65-10295	02	..... JPL-725	B65-10384	03	..... M-FS-485
B65-10296	02	..... LEWIS-232	B65-10385	05	..... MSC-244
B65-10297	02	..... JPL-627	B65-10386	05	..... WOO-098
B65-10298	01	..... GSFC-394	B65-10387	01	..... WOO-207
B65-10299	01	..... ARC-44	B65-10388	05	..... LANGLEY-180
B65-10300	01	..... GSFC-397	B65-10389	01	..... MSC-214
B65-10301	01	..... FRC-28	B65-10390	03	..... MSC-210
B65-10302	03	..... LEWIS-217	B65-10391	05	..... M-FS-394
B65-10303	03	..... WOO-070	B65-10392	01	..... LANGLEY-99
B65-10304	01	..... LEWIS-241	B65-10393	05	..... JPL-SC-135
B65-10305	01	..... GSFC-380	B65-10394	05	..... MSC-282
B65-10306	01	..... HQ-7	B65-10395	02	..... M-FS-482
B65-10307	01	..... GSFC-268	B65-10396	01	..... MSC-173
B65-10308	01	..... GSFC-203	B65-10397	03	..... WOO-249
B65-10309	01	..... GSFC-346	B65-10398	03	..... MSC-253
B65-10310	01	..... GSFC-383	B65-10399	01	..... MSC-242
B65-10311	01	..... GSFC-375	B65-10400	01	..... MSC-241
B65-10312	05	..... LEWIS-163	B65-10401	05	..... MSC-243
B65-10313	01	..... HQ-1	B65-10402	05	..... M-FS-476
B65-10314	01	..... GSFC-382	B66-10001	05	..... WOO-231
B65-10315	01	..... GSFC-395	B66-10002	01	..... LEWIS-107A
B65-10316	03	..... ARC-47	B66-10003	05	..... MSC-263
B65-10317	01	..... JPL-SC-078	B66-10004	02	..... MSC-262
B65-10318	01	..... M-FS-380	B66-10005	03	..... LEWIS-229
B65-10319	05	..... LEWIS-219	B66-10006	01	..... MSC-274
B65-10320	01	..... MSC-158	B66-10007	05	..... MSC-256
B65-10321	03	..... MSC-216	B66-10008	02	..... WOO-085
B65-10322	01	..... MSC-218	B66-10009	03	..... GSFC-425
B65-10323	05	..... WOO-130	B66-10010	02	..... WOO-250
B65-10324	01	..... JPL-SC-101	B66-10011	05	..... LEWIS-246
B65-10325	01	..... ARC-53	B66-10012	01	..... MSC-207
B65-10326	05	..... M-FS-320	B66-10013	01	..... M-FS-532
B65-10327	05	..... GSFC-441	B66-10014	05	..... M-FS-316
B65-10328	01	..... GSFC-442	B66-10015	01	..... WOO-030
B65-10329	01	..... GSFC-440	B66-10016	02	..... GSFC-439
B65-10330	02	..... GSFC-443	B66-10017	02	..... LANGLEY-189
B65-10331	02	..... LEWIS-222	B66-10018	05	..... M-FS-561
B65-10332	04	..... HQ-18	B66-10019	05	..... MSC-131
B65-10333	01	..... GSFC-377	B66-10020	05	..... M-FS-481
B65-10334	05	..... GSFC-308	B66-10021	01	..... LEWIS-269
B65-10335	03	..... LEWIS-126	B66-10022	05	..... WOO-247
B65-10336	03	..... M-FS-348	B66-10023	05	..... WOO-103
B65-10337	03	..... GSFC-444	B66-10024	03	..... M-FS-477
B65-10338	05	..... LEWIS-220	B66-10025	01	..... WOO-212
B65-10339	05	..... GSFC-409	B66-10026	01	..... MSC-219
B65-10340	01	..... JPL-155	B66-10027	03	..... M-FS-528
B65-10341	03	..... WOO-151	B66-10028	01	..... NU-0019
B65-10342	05	..... M-FS-287	B66-10029	03	..... M-FS-307
B65-10343	01	..... GSFC-398	B66-10030	05	..... WOO-214
B65-10344	03	..... LEWIS-193	B66-10031	01	..... LEWIS-268
B65-10345	01	..... LANGLEY-87	B66-10032	05	..... GSFC-423
B65-10346	05	..... M-FS-293	B66-10033	03	..... M-FS-562
B65-10347	01	..... M-FS-371	B66-10034	01	..... MSC-254
B65-10348	05	..... WOO-029	B66-10035	05	..... MSC-313

TECH BRIEF/ORIGINATOR NUMBER INDEX

B66-10036	01	M-FS-215	B66-10125	05	MSC-222
B66-10037	03	WOO-093	B66-10126	01	GSFC-435
B66-10038	01	MSC-255	B66-10127	01	LANGLEY-202
B66-10039	01	M-FS-470	B66-10128	01	M-FS-407
B66-10040	05	GSFC-455	B66-10129	01	GSFC-324
B66-10041	01	GSFC-445	B66-10130	01	JPL-789
B66-10042	01	JPL-SC-115	B66-10131	03	M-FS-475
B66-10043	03	LANGLEY-100	B66-10132	05	MSC-301
B66-10044	03	M-FS-529	B66-10133	01	GSFC-436
B66-10045	02	M-FS-550	B66-10134	01	NU-0046
B66-10046	01	M-FS-498	B66-10135	05	MSC-349
B66-10047	05	LEWIS-25A	B66-10136	05	M-FS-487
B66-10048	01	M-FS-474	B66-10137	05	LANGLEY-155
B66-10049	04	MSC-146	B66-10138	03	WOO-260
B66-10050	01	MSC-199	B66-10139	03	MSC-269
B66-10051	01	GSFC-422	B66-10140	03	NU-0041
B66-10052	05	M-FS-531	B66-10141	01	JPL-SC-107
B66-10053	03	M-FS-497	B66-10142	01	MSC-205
B66-10054	05	MSC-221	B66-10143	02	MSC-200
B66-10055	05	LEWIS-153	B66-10144	01	MSC-194
B66-10056	05	MSC-279	B66-10145	05	M-FS-258
B66-10057	01	ARC-52	B66-10146	05	JPL-685
B66-10058	02	LANGLEY-173	B66-10147	01	JPL-745
B66-10059	05	MSC-298	B66-10148	01	MSC-190
B66-10060	02	ERC-8	B66-10149	05	M-FS-553
B66-10061	05	MSC-275	B66-10150	05	M-FS-555
B66-10062	01	M-FS-369	B66-10151	05	M-FS-564
B66-10063	05	JPL-28	B66-10152	05	MSC-381
B66-10064	01	WOO-239	B66-10153	02	M-FS-560
B66-10065	05	MSC-280	B66-10154	04	MSC-185
B66-10066	01	GSFC-74	B66-10155	05	M-FS-558
B66-10067	01	GSFC-428	B66-10156	02	MSC-382
B66-10068	01	M-FS-522	B66-10157	02	LEWIS-274
B66-10069	05	M-FS-548	B66-10158	01	GSFC-462
B66-10070	03	MSC-215	B66-10159	01	WOO-256
B66-10071	05	MSC-297	B66-10160	01	LEWIS-253
B66-10072	02	M-FS-501	B66-10161	01	LEWIS-218
B66-10073	05	LEWIS-251	B66-10162	01	ARC-56
B66-10074	05	M-FS-527	B66-10163	01	MSC-356
B66-10075	02	JPL-SC-165	B66-10164	01	NU-0021
B66-10076	05	M-FS-321	B66-10165	03	LEWIS-245
B66-10077	05	LANGLEY-195	B66-10166	03	MSC-285
B66-10078	05	ARC-51	B66-10167	05	MSC-227
B66-10079	02	MSC-276	B66-10168	05	M-FS-549
B66-10080	05	MSC-226	B66-10169	05	M-FS-559
B66-10081	03	M-FS-379	B66-10170	01	MSC-245
B66-10082	01	GSFC-447	B66-10171	05	M-FS-586
B66-10083	03	M-FS-435	B66-10172	05	WOO-270
B66-10084	01	NU-0027	B66-10173	02	HQ-9
B66-10085	01	JPL-320	B66-10174	05	M-FS-592
B66-10086	02	M-FS-273	B66-10175	05	JPL-SC-119
B66-10087	03	LEWIS-228	B66-10176	05	M-FS-593
B66-10088	01	MSC-153	B66-10177	01	ERC-15
B66-10089	01	MSC-166	B66-10178	02	LEWIS-266
B66-10090	03	M-FS-512	B66-10179	01	GSFC-433
B66-10091	01	GSFC-389	B66-10180	01	LANGLEY-205
B66-10092	05	MSC-289	B66-10181	02	LEWIS-206
B66-10093	05	M-FS-547	B66-10182	01	JPL-735
B66-10094	01	GSFC-457	B66-10183	02	M-FS-326
B66-10095	02	M-FS-499	B66-10184	04	MSC-5A
B66-10096	02	M-FS-494	B66-10185	03	WOO-132
B66-10097	01	NU-0044	B66-10186	02	LANGLEY-207
B66-10098	02	LEWIS-239	B66-10187	02	LEWIS-273
B66-10099	01	M-FS-478	B66-10188	05	JPL-SC-145
B66-10100	05	M-FS-317	B66-10189	05	M-FS-602
B66-10101	01	JPL-SC-166	B66-10190	05	MSC-521
B66-10102	05	MSC-36	B66-10191	05	M-FS-581
B66-10103	01	LEWIS-259	B66-10192	01	M-FS-594
B66-10104	03	LEWIS-263	B66-10193	01	M-FS-434
B66-10105	01	MSC-250	B66-10194	03	M-FS-466
B66-10106	01	GSFC-431	B66-10195	05	WOO-248
B66-10107	05	MSC-217	B66-10196	03	WOO-169
B66-10108	02	ERC-9	B66-10197	05	M-FS-575
B66-10110	03	MSC-270	B66-10198	01	WOO-235
B66-10111	03	LANGLEY-187	B66-10199	02	MSC-184
B66-10112	01	M-FS-472	B66-10200	01	JPL-665
B66-10113	01	M-FS-468	B66-10201	05	M-FS-536
B66-10114	02	ERC-11	B66-10202	05	M-FS-533
B66-10115	05	LEWIS-247	B66-10203	01	ARC-57
B66-10116	05	M-FS-546	B66-10204	05	M-FS-598
B66-10117	04	JPL-782	B66-10205	01	MSC-186
B66-10118	04	MSC-299	B66-10206	05	M-FS-457
B66-10119	03	NU-0043	B66-10207	03	M-FS-304
B66-10120	03	NU-0042	B66-10208	05	M-FS-611
B66-10121	02	NU-0028	B66-10209	05	M-FS-579
B66-10122	02	JPL-SC-174	B66-10210	05	MSC-321
B66-10123	05	MSC-346	B66-10211	05	M-FS-486
B66-10124	05	NU-0045	B66-10212	05	M-FS-688

TECH BRIEF/ORIGINATOR NUMBER INDEX

B66-10213	05	.....	M-FS-513	B66-10301	05	.....	MSC-631
B66-10214	05	.....	WOO-266	B66-10302	05	.....	LEWIS-92
B66-10215	05	.....	M-FS-569	B66-10303	05	.....	JPL-SC-136
B66-10216	05	.....	LEWIS-275	B66-10304	05	.....	JPL-684
B66-10217	05	.....	WOO-275	B66-10305	03	.....	MSC-525
B66-10218	05	.....	M-FS-580	B66-10306	01	.....	MSC-628
B66-10219	05	.....	GSFC-467	B66-10307	02	.....	M-FS-521
B66-10220	01	.....	M-FS-284	B66-10308	01	.....	GSFC-426
B66-10221	03	.....	LEWIS-188	B66-10309	01	.....	ARC-60
B66-10222	03	.....	LEWIS-226	B66-10310	05	.....	GSFC-476
B66-10223	01	.....	JPL-0033	B66-10311	05	.....	MSC-777
B66-10224	01	.....	M-FS-503	B66-10312	03	.....	MSC-549
B66-10225	01	.....	WOO-076	B66-10313	03	.....	MSC-714
B66-10226	05	.....	M-FS-573	B66-10314	04	.....	MSC-212
B66-10227	03	.....	WOO-263	B66-10315	01	.....	LANGLEY-209
B66-10228	05	.....	M-FS-516	B66-10316	02	.....	MSC-494
B66-10229	05	.....	NU-0048	B66-10317	05	.....	HQ-38
B66-10230	03	.....	LANGLEY-208	B66-10318	05	.....	WOO-114
B66-10231	02	.....	JPL-728	B66-10319	05	.....	M-FS-541
B66-10232	01	.....	JPL-SC-084	B66-10320	01	.....	M-FS-850
B66-10233	05	.....	ARC-55	B66-10321	05	.....	M-FS-783
B66-10234	03	.....	GSFC-469	B66-10322	03	.....	M-FS-900
B66-10235	05	.....	MSC-419	B66-10323	05	.....	M-FS-706
B66-10236	05	.....	MSC-416	B66-10324	01	.....	MSC-267A
B66-10237	05	.....	MSC-475	B66-10325	02	.....	M-FS-800
B66-10238	05	.....	MSC-552	B66-10326	05	.....	M-FS-823
B66-10239	05	.....	MSC-504	B66-10327	03	.....	M-FS-856
B66-10240	05	.....	MSC-515	B66-10328	01	.....	MSC-425
B66-10241	05	.....	MSC-448	B66-10329	01	.....	MSC-358
B66-10242	05	.....	MSC-523	B66-10330	02	.....	MSC-563
B66-10243	05	.....	MSC-506	B66-10331	02	.....	WOO-272
B66-10244	05	.....	MSC-486	B66-10332	04	.....	M-FS-882
B66-10245	01	.....	MSC-81A	B66-10333	01	.....	NU-0071
B66-10246	05	.....	M-FS-725	B66-10334	01	.....	M-FS-716
B66-10247	05	.....	M-FS-640	B66-10335	03	.....	M-FS-801
B66-10248	05	.....	M-FS-720	B66-10336	03	.....	MSC-623
B66-10249	05	.....	M-FS-565	B66-10337	03	.....	MSC-516
B66-10250	05	.....	M-FS-637	B66-10338	05	.....	MSC-230
B66-10251	01	.....	MSC-443	B66-10339	05	.....	MSC-152
B66-10252	04	.....	MSC-320	B66-10340	03	.....	GSFC-495
B66-10253	05	.....	MSC-497	B66-10341	01	.....	M-FS-799
B66-10254	05	.....	M-FS-692	B66-10342	05	.....	M-FS-915
B66-10255	05	.....	M-FS-752	B66-10343	05	.....	M-FS-982
B66-10256	03	.....	M-FS-628	B66-10344	01	.....	HQ-23
B66-10257	02	.....	M-FS-644	B66-10345	05	.....	NU-0051
B66-10258	05	.....	M-FS-703	B66-10346	05	.....	M-FS-722
B66-10259	03	.....	M-FS-469	B66-10347	01	.....	GSFC-509
B66-10260	01	.....	GSFC-485	B66-10348	02	.....	MSC-618
B66-10261	01	.....	JPL-SC-090	B66-10349	01	.....	GSFC-456
B66-10262	05	.....	M-FS-401	B66-10350	01	.....	NU-0018
B66-10263	02	.....	WOO-253	B66-10351	01	.....	GSFC-214
B66-10264	01	.....	JPL-673	B66-10352	05	.....	M-FS-803
B66-10265	05	.....	JPL-786	B66-10353	01	.....	LANGLEY-113
B66-10266	05	.....	NU-0067	B66-10354	05	.....	M-FS-679
B66-10267	05	.....	NU-0070	B66-10355	01	.....	GSFC-181
B66-10268	02	.....	NU-0047	B66-10356	01	.....	M-FS-846
B66-10269	05	.....	M-FS-588	B66-10357	05	.....	M-FS-1126
B66-10270	01	.....	MSC-422	B66-10358	03	.....	M-FS-714
B66-10271	01	.....	JPL-612	B66-10359	01	.....	M-FS-743
B66-10272	01	.....	LANGLEY-214	B66-10360	05	.....	M-FS-659
B66-10273	03	.....	M-FS-762	B66-10361	01	.....	M-FS-441
B66-10274	01	.....	NU-0063	B66-10362	01	.....	M-FS-788
B66-10275	05	.....	NU-0074	B66-10363	01	.....	M-FS-654
B66-10276	05	.....	NU-0062	B66-10364	05	.....	M-FS-827
B66-10277	05	.....	M-FS-685	B66-10365	05	.....	LEWIS-304
B66-10278	05	.....	M-FS-603	B66-10366	05	.....	JPL-SC-117
B66-10279	05	.....	NU-0057	B66-10367	05	.....	M-FS-862
B66-10280	01	.....	GSFC-478	B66-10368	01	.....	M-FS-643
B66-10281	03	.....	LEWIS-187	B66-10369	05	.....	LANGLEY-218
B66-10282	01	.....	NU-0069	B66-10370	05	.....	MSC-648
B66-10283	05	.....	M-FS-693	B66-10371	05	.....	M-FS-707
B66-10284	05	.....	M-FS-517	B66-10372	02	.....	HQ-25
B66-10285	05	.....	MSC-600	B66-10373	03	.....	LEWIS-320
B66-10286	01	.....	MSC-271	B66-10374	01	.....	M-FS-665
B66-10287	01	.....	WOO-208	B66-10375	05	.....	MSC-747
B66-10288	03	.....	M-FS-735	B66-10376	01	.....	GSFC-463
B66-10289	02	.....	M-FS-539	B66-10377	01	.....	LEWIS-267
B66-10290	02	.....	LEWIS-290	B66-10378	05	.....	M-FS-975
B66-10291	01	.....	LEWIS-176	B66-10379	01	.....	LANGLEY-203
B66-10292	01	.....	GSFC-453	B66-10380	03	.....	JPL-SC-097
B66-10293	01	.....	M-FS-471	B66-10381	05	.....	HQ-49
B66-10294	05	.....	KSC-66-10	B66-10382	01	.....	M-FS-384
B66-10295	01	.....	GSFC-474	B66-10383	05	.....	M-FS-753
B66-10296	03	.....	LEWIS-256	B66-10384	05	.....	MSC-654
B66-10297	05	.....	GSFC-499	B66-10385	05	.....	MSC-740
B66-10298	03	.....	M-FS-540	B66-10386	01	.....	JPL-805
B66-10299	03	.....	GSFC-484	B66-10387	03	.....	ARC-58
B66-10300	01	.....	M-FS-443	B66-10388	02	.....	LANGLEY-212

TECH BRIEF/ORIGINATOR NUMBER INDEX

B66-10389	01	.....	M-FS-1021	B66-10478	01	.....	ARG-9
B66-10390	05	.....	MSC-187	B66-10479	03	.....	GSFC-533
B66-10391	01	.....	KSC-66-22	B66-10480	01	.....	GSFC-501
B66-10392	01	.....	LEWIS-322	B66-10481	01	.....	ARC-62
B66-10393	01	.....	GSFC-480	B66-10482	01	.....	LEWIS-195
B66-10394	01	.....	LEWIS-310	B66-10483	02	.....	GSFC-507
B66-10395	03	.....	M-FS-455	B66-10484	05	.....	M-FS-1299
B66-10396	01	.....	JPL-785	B66-10485	05	.....	M-FS-1397
B66-10397	01	.....	M-FS-848	B66-10486	01	.....	JPL-757
B66-10398	03	.....	MSC-259	B66-10487	03	.....	M-FS-938
B66-10399	05	.....	WOO-271	B66-10488	01	.....	MSC-789
B66-10400	03	.....	M-FS-1366	B66-10489	05	.....	NU-0049
B66-10401	01	.....	M-FS-359	B66-10490	01	.....	LEWIS-184
B66-10402	05	.....	M-FS-361	B66-10491	01	.....	ARC-72
B66-10403	05	.....	MSC-163	B66-10492	01	.....	GSFC-454
B66-10404	01	.....	M-FS-421	B66-10493	01	.....	JPL-SC-140
B66-10405	05	.....	M-FS-403	B66-10494	01	.....	KSC-66-18
B66-10406	04	.....	HQ-47	B66-10495	05	.....	MSC-143
B66-10407	01	.....	WOO-305	B66-10496	01	.....	LEWIS-236
B66-10408	05	.....	M-FS-893	B66-10497	01	.....	ARG-83
B66-10409	01	.....	M-FS-1374	B66-10498	05	.....	ARG-99
B66-10410	05	.....	LANGLEY-219	B66-10499	02	.....	ARG-109
B66-10411	05	.....	M-FS-1084	B66-10500	01	.....	ARG-61
B66-10412	01	.....	M-FS-888	B66-10501	01	.....	MSC-673
B66-10413	01	.....	JPL-195	B66-10502	01	.....	JPL-778
B66-10414	01	.....	JPL-SC-111	B66-10503	01	.....	M-FS-1137
B66-10415	05	.....	M-FS-923	B66-10504	01	.....	M-FS-1136
B66-10416	05	.....	M-FS-1069	B66-10505	01	.....	M-FS-1258
B66-10417	05	.....	M-FS-1344	B66-10506	01	.....	M-FS-1135
B66-10418	05	.....	M-FS-1538	B66-10507	02	.....	MSC-871
B66-10419	01	.....	ARC-65	B66-10508	02	.....	LEWIS-313
B66-10420	01	.....	MSC-193	B66-10509	01	.....	ARG-82
B66-10421	03	.....	M-FS-761	B66-10510	01	.....	M-FS-908
B66-10422	05	.....	M-FS-1064	B66-10511	01	.....	GSFC-490
B66-10423	01	.....	M-FS-656	B66-10512	01	.....	ARG-117
B66-10424	05	.....	M-FS-1051	B66-10513	05	.....	M-FS-1696
B66-10425	05	.....	M-FS-1300	B66-10514	05	.....	M-FS-1529
B66-10426	01	.....	LEWIS-240	B66-10515	04	.....	JPL-962
B66-10427	01	.....	M-FS-1585	B66-10516	01	.....	GSFC-541
B66-10428	05	.....	MSC-524	B66-10517	03	.....	M-FS-1617
B66-10429	01	.....	MSC-781	B66-10518	01	.....	GSFC-522
B66-10430	01	.....	WOO-298	B66-10519	03	.....	LEWIS-337
B66-10431	01	.....	MSC-192	B66-10520	01	.....	LEWIS-349
B66-10432	01	.....	WOO-278	B66-10521	01	.....	LEWIS-328
B66-10433	01	.....	JPL-SC-152	B66-10522	05	.....	ARG-81
B66-10434	05	.....	LEWIS-276	B66-10523	05	.....	ARG-44
B66-10435	02	.....	LEWIS-17	B66-10524	01	.....	LANGLEY-204
B66-10436	01	.....	JPL-SC-191	B66-10525	01	.....	M-FS-723
B66-10437	01	.....	M-FS-664	B66-10526	01	.....	GSFC-451
B66-10438	01	.....	M-FS-909	B66-10527	03	.....	ARG-22
B66-10439	01	.....	ERC-10	B66-10528	03	.....	LEWIS-332
B66-10440	01	.....	JPL-SC-176	B66-10529	01	.....	GSFC-493
B66-10441	01	.....	LANGLEY-267	B66-10530	05	.....	NEO-8
B66-10442	01	.....	JPL-SC-113	B66-10531	01	.....	MSC-400
B66-10443	05	.....	MSC-806	B66-10532	02	.....	MSC-246
B66-10444	01	.....	JPL-SC-177	B66-10533	01	.....	ARC-73
B66-10445	03	.....	M-FS-295	B66-10534	01	.....	ARC-71
B66-10446	05	.....	GSFC-513	B66-10535	03	.....	LEWIS-333
B66-10447	01	.....	M-FS-1163	B66-10536	01	.....	ARC-70
B66-10448	03	.....	M-FS-1213	B66-10537	05	.....	KSC-66-19
B66-10449	01	.....	M-FS-867	B66-10538	03	.....	LEWIS-283
B66-10450	05	.....	LEWIS-288	B66-10539	01	.....	M-FS-1133
B66-10451	03	.....	JPL-758	B66-10540	03	.....	M-FS-1540
B66-10452	01	.....	M-FS-1480	B66-10541	01	.....	M-FS-1608
B66-10453	03	.....	JPL-793	B66-10542	01	.....	M-FS-1180
B66-10454	03	.....	MSC-537	B66-10543	01	.....	ARG-104
B66-10455	05	.....	MSC-798	B66-10544	01	.....	MSC-859
B66-10456	01	.....	MSC-405	B66-10545	05	.....	M-FS-1639
B66-10457	05	.....	MSC-753	B66-10546	05	.....	M-FS-1573
B66-10458	03	.....	MSC-800	B66-10547	02	.....	ARC-61
B66-10459	05	.....	MSC-949	B66-10548	01	.....	KSC-66-39
B66-10460	05	.....	MSC-752	B66-10549	01	.....	ARC-69
B66-10461	01	.....	MSC-420	B66-10550	05	.....	WOO-321
B66-10462	01	.....	JPL-816	B66-10551	03	.....	LEWIS-336
B66-10463	05	.....	M-FS-1111	B66-10552	01	.....	M-FS-1546
B66-10464	05	.....	M-FS-1117	B66-10553	01	.....	M-FS-871
B66-10465	01	.....	JPL-798	B66-10554	02	.....	M-FS-1563
B66-10466	01	.....	M-FS-830	B66-10555	01	.....	M-FS-1664
B66-10467	03	.....	ARG-4	B66-10556	01	.....	M-FS-1181
B66-10468	04	.....	ARG-2	B66-10557	01	.....	ARC-68
B66-10469	01	.....	GSFC-213	B66-10558	03	.....	LEWIS-350
B66-10470	05	.....	LEWIS-291	B66-10559	01	.....	ARG-90
B66-10471	05	.....	ARG-54	B66-10560	02	.....	ARG-74
B66-10472	05	.....	ARG-17	B66-10561	01	.....	HQ-62
B66-10473	05	.....	ARG-66	B66-10562	05	.....	ARG-42
B66-10474	02	.....	ARG-97	B66-10563	01	.....	JPL-SC-143
B66-10476	01	.....	HQ-44	B66-10564	01	.....	JPL-809
B66-10477	05	.....	M-FS-1785	B66-10565	02	.....	M-FS-1784

TECH BRIEF/ORIGINATOR NUMBER INDEX

B66-10566	01	.....	MSC-1120	B66-10654	02	.....	M-FS-1927
B66-10567	05	.....	M-FS-1401	B66-10655	05	.....	M-FS-1925
B66-10568	01	.....	M-FS-1829	B66-10656	05	.....	M-FS-1822
B66-10569	01	.....	M-FS-1077	B66-10657	02	.....	M-FS-1818
B66-10570	05	.....	M-FS-525	B66-10658	01	.....	JPL-906
B66-10571	05	.....	ARG-43	B66-10659	01	.....	HQ-60
B66-10572	03	.....	LEWIS-338	B66-10660	02	.....	LANGLEY-288
B66-10573	05	.....	M-FS-811	B66-10661	01	.....	M-FS-1659
B66-10574	01	.....	M-FS-1426	B66-10662	05	.....	M-FS-883
B66-10575	05	.....	KSC-66-44	B66-10663	05	.....	M-FS-1312
B66-10576	01	.....	GSFC-545	B66-10664	01	.....	JPL-801
B66-10577	01	.....	HQ-58	B66-10665	05	.....	M-FS-807
B66-10578	03	.....	M-FS-1484	B66-10666	03	.....	LEWIS-357
B66-10579	01	.....	M-FS-1313	B66-10667	05	.....	M-FS-1144
B66-10580	01	.....	LANGLEY-229	B66-10668	01	.....	M-FS-1536
B66-10581	01	.....	ERC-26	B66-10669	01	.....	M-FS-1206
B66-10582	05	.....	M-FS-1264	B66-10670	01	.....	MSC-1119
B66-10583	02	.....	M-FS-1476	B66-10671	01	.....	LEWIS-281
B66-10584	01	.....	M-FS-1605	B66-10672	05	.....	JPL-SC-134
B66-10585	05	.....	MSC-312	B66-10673	03	.....	JPL-836
B66-10586	03	.....	MSC-1161	B66-10674	05	.....	M-FS-1730
B66-10587	05	.....	MSC-627	B66-10675	01	.....	M-FS-1941
B66-10588	05	.....	M-FS-772	B66-10676	05	.....	LEWIS-341
B66-10589	05	.....	MSC-1038	B66-10677	05	.....	LEWIS-370
B66-10590	01	.....	M-FS-1263	B66-10678	05	.....	LEWIS-359
B66-10591	01	.....	NU-0089	B66-10679	01	.....	JPL-521
B66-10592	01	.....	LANGLEY-287	B66-10680	01	.....	MSC-1227
B66-10593	05	.....	LEWIS-294	B66-10681	03	.....	M-FS-1896
B66-10594	03	.....	ARG-199	B66-10682	02	.....	JPL-926
B66-10595	05	.....	M-FS-1840	B66-10683	05	.....	M-FS-1771
B66-10596	02	.....	M-FS-1550	B66-10684	03	.....	M-FS-902
B66-10597	05	.....	M-FS-1420	B66-10685	01	.....	JPL-934
B66-10598	01	.....	HQ-36	B66-10686	05	.....	M-FS-1556
B66-10599	01	.....	LEWIS-302	B66-10687	01	.....	M-FS-1269
B66-10600	01	.....	ARG-107	B66-10688	05	.....	M-FS-1796
B66-10601	05	.....	ARG-151	B66-10689	01	.....	GSFC-527
B66-10602	02	.....	LANGLEY-190	B66-10690	01	.....	M-FS-1752
B66-10603	01	.....	M-FS-860	B66-10691	01	.....	GSFC-560
B66-10604	05	.....	MSC-543	B66-10692	01	.....	GSFC-555
B66-10605	01	.....	MSC-626	B66-10693	02	.....	M-FS-1747
B66-10606	01	.....	LEWIS-284	B66-10694	05	.....	M-FS-1738
B66-10607	01	.....	HQ-57	B66-10695	05	.....	JPL-864
B66-10608	05	.....	MSC-715	B66-10696	01	.....	JPL-867
B66-10609	03	.....	MSC-990	B66-10697	05	.....	JPL-849
B66-10610	05	.....	M-FS-599	B66-10698	05	.....	GSFC-515
B66-10611	05	.....	WOO-318	B66-10699	01	.....	JPL-879
B66-10612	01	.....	WOO-190	B66-10700	02	.....	M-FS-869
B66-10613	05	.....	M-FS-737	B66-10701	03	.....	MSC-1193
B66-10614	01	.....	M-FS-1265	B66-10702	05	.....	NU-0077
B66-10615	02	.....	JPL-846	B66-10703	05	.....	NU-0090
B66-10616	03	.....	M-FS-1543	B66-10704	05	.....	NU-0083
B66-10617	01	.....	GSFC-559	B66-10705	03	.....	NU-0084
B66-10618	05	.....	GSFC-547	B66-10706	01	.....	NU-0087
B66-10619	01	.....	MSC-989	B66-10707	05	.....	NU-0085
B66-10620	05	.....	M-FS-1685	B66-10708	05	.....	NU-0086
B66-10621	01	.....	JPL-803	B66-10709	01	.....	NU-0082
B66-10622	01	.....	GSFC-486	B66-10710	03	.....	NU-0088
B66-10623	01	.....	LANGLEY-182	B66-10711	05	.....	NU-0092
B66-10624	01	.....	ARC-74	B66-10712	05	.....	NU-0093
B66-10625	01	.....	GSFC-197	B66-10713	05	.....	NU-0094
B66-10626	05	.....	KSC-66-20	B67-10001	01	.....	MSC-603
B66-10627	05	.....	KSC-66-8	B67-10002	01	.....	MSC-604
B66-10628	05	.....	KSC-66-14	B67-10003	03	.....	MSC-1049
B66-10629	01	.....	M-FS-1606	B67-10004	05	.....	JPL-129
B66-10630	02	.....	LEWIS-321	B67-10005	04	.....	JPL-792
B66-10631	03	.....	M-FS-1845	B67-10006	05	.....	LEWIS-292
B66-10632	01	.....	LANGLEY-289	B67-10007	03	.....	LEWIS-307
B66-10633	05	.....	MSC-971	B67-10008	02	.....	MSC-960
B66-10634	05	.....	KSC-66-12	B67-10009	01	.....	LEWIS-305
B66-10635	05	.....	M-FS-1831	B67-10010	05	.....	LEWIS-331
B66-10636	01	.....	M-FS-1769	B67-10011	05	.....	JPL-910
B66-10637	01	.....	LANGLEY-174	B67-10012	03	.....	JPL-845
B66-10638	02	.....	M-FS-1598	B67-10013	01	.....	ARC-50
B66-10639	03	.....	JPL-734	B67-10014	03	.....	M-FS-1424
B66-10640	01	.....	LEWIS-303	B67-10015	01	.....	JPL-689
B66-10641	05	.....	M-FS-1485	B67-10016	03	.....	ARG-5
B66-10642	05	.....	JPL-SC-163	B67-10017	01	.....	GSFC-502
B66-10643	03	.....	M-FS-1830	B67-10018	05	.....	WSO-333
B66-10644	01	.....	M-FS-1819	B67-10019	05	.....	M-FS-2016
B66-10645	01	.....	M-FS-965	B67-10020	01	.....	JPL-903
B66-10646	03	.....	M-FS-1658	B67-10021	02	.....	JPL-890
B66-10647	04	.....	MSC-616	B67-10022	01	.....	M-FS-1895
B66-10648	05	.....	MSC-1046	B67-10023	05	.....	M-FS-1817
B66-10649	04	.....	PRC-36	B67-10024	02	.....	NU-0098
B66-10650	01	.....	M-FS-1754	B67-10025	01	.....	LEWIS-260
B66-10651	03	.....	M-FS-1862	B67-10026	03	.....	LEWIS-363
B66-10652	02	.....	M-FS-1916	B67-10027	01	.....	NU-0096
B66-10653	01	.....	M-FS-1946	B67-10028	01	.....	KSC-66-38

TECH BRIEF/ORIGINATOR NUMBER INDEX

B67-10029 01 JPL-884
 B67-10030 01 M-FS-1268
 B67-10031 01 KSC-66-13
 B67-10032 03 ARG-232
 B67-10033 03 ARG-211
 B67-10034 03 ARG-150
 B67-10035 01 ARG-235
 B67-10036 02 ARG-119
 B67-10037 02 ARG-247
 B67-10038 01 LEWIS-343
 B67-10039 05 M-FS-1763
 B67-10040 01 M-FS-1597
 B67-10041 01 JPL-874
 B67-10042 01 LEWIS-325
 B67-10043 05 LEWIS-375
 B67-10044 03 LEWIS-278
 B67-10045 05 M-FS-1607
 B67-10046 01 NU-0108
 B67-10047 05 WSO-329
 B67-10048 05 M-FS-1774
 B67-10049 03 M-FS-702
 B67-10050 03 ARG-226
 B67-10051 03 ARG-230
 B67-10052 05 ARG-125
 B67-10053 01 ARG-170
 B67-10054 02 ARG-207
 B67-10055 01 HQ-56
 B67-10056 04 M-FS-1756
 B67-10057 02 M-FS-1944
 B67-10058 03 JPL-861
 B67-10059 05 NU-0091
 B67-10060 01 GSFC-546
 B67-10061 01 GSFC-432
 B67-10062 03 NU-0095
 B67-10063 05 LEWIS-340
 B67-10064 05 M-FS-1852
 B67-10065 01 M-FS-1733
 B67-10066 05 M-FS-2009
 B67-10067 05 M-FS-1922
 B67-10068 02 HQ-26
 B67-10069 03 M-FS-568
 B67-10070 03 HQ-50
 B67-10071 02 HQ-55
 B67-10072 02 GSFC-540
 B67-10073 05 MSC-1093
 B67-10074 01 MSC-1078
 B67-10075 02 M-FS-1811
 B67-10076 01 M-FS-2221
 B67-10077 01 M-FS-1496
 B67-10078 03 M-FS-1913
 B67-10079 03 M-FS-1812
 B67-10080 01 LEWIS-309
 B67-10081 05 ARC-63
 B67-10082 02 WOO-286
 B67-10083 03 MSC-924
 B67-10084 01 MSC-1080
 B67-10085 01 MSC-831
 B67-10086 01 MSC-832
 B67-10087 01 M-FS-2061
 B67-10088 02 M-FS-1882
 B67-10089 03 M-FS-1959
 B67-10090 01 M-FS-1814
 B67-10091 01 M-FS-937
 B67-10092 01 GSFC-574
 B67-10093 01 NU-0114
 B67-10094 05 NU-0115
 B67-10095 03 MSC-1137
 B67-10096 05 M-FS-2049
 B67-10097 01 M-FS-906
 B67-10098 05 M-FS-2042
 B67-10099 01 M-FS-2063
 B67-10100 03 M-FS-2143
 B67-10101 01 M-FS-2494
 B67-10102 03 GSFC-572
 B67-10103 01 MSC-1231
 B67-10104 01 KSC-67-98
 B67-10105 05 M-FS-2039
 B67-10106 01 JPL-1019
 B67-10107 05 M-FS-1923
 B67-10108 01 M-FS-1517
 B67-10109 02 MSC-1135
 B67-10110 02 MSC-407
 B67-10111 01 MSC-1176
 B67-10112 03 MSC-1133
 B67-10113 03 M-FS-2309
 B67-10114 04 MSC-726
 B67-10115 01 LEWIS-390
 B67-10116 01 MSC-1103

B67-10117 05 HQ-27
 B67-10118 01 JPL-915
 B67-10119 01 MSC-720
 B67-10120 02 MSC-647
 B67-10121 03 M-FS-2032
 B67-10122 03 M-FS-2478
 B67-10123 05 M-FS-2147
 B67-10124 03 M-FS-1975
 B67-10125 01 M-FS-2243
 B67-10126 02 M-FS-2142
 B67-10127 01 NUC-10009
 B67-10128 02 JPL-731
 B67-10129 04 ARG-208
 B67-10130 01 ARG-85
 B67-10131 02 ARG-191
 B67-10132 03 NPO-10062
 B67-10133 03 ARG-217
 B67-10134 02 ARG-96
 B67-10135 01 ARC-10002
 B67-10136 01 M-FS-1516
 B67-10137 01 MSC-1178
 B67-10138 03 M-FS-2254
 B67-10139 01 ARC-10003
 B67-10140 01 M-FS-2417
 B67-10141 03 M-FS-2455
 B67-10142 01 M-FS-2343
 B67-10143 01 M-FS-2448
 B67-10144 01 M-FS-2394
 B67-10145 01 M-FS-2277
 B67-10146 01 M-FS-2437
 B67-10147 03 LEWIS-382
 B67-10148 03 LEWIS-381
 B67-10149 03 M-FS-2446
 B67-10150 01 M-FS-1871
 B67-10151 01 M-FS-2434
 B67-10152 01 ERC-65
 B67-10153 01 ERC-37
 B67-10154 05 HQ-77
 B67-10155 01 MSC-1263
 B67-10156 01 MSC-1240
 B67-10157 01 JPL-818
 B67-10158 05 NUC-10013
 B67-10159 03 M-FS-2397
 B67-10160 01 NPO-10126
 B67-10161 01 M-FS-1867
 B67-10162 01 MSC-11002
 B67-10163 03 M-FS-2475
 B67-10164 02 MSC-228
 B67-10165 01 JPL-931
 B67-10166 01 HQ-61
 B67-10167 05 HQ-90
 B67-10168 03 JPL-892
 B67-10169 06 NPO-10124
 B67-10170 01 MSC-1144
 B67-10171 01 NPO-10130
 B67-10172 06 NPO-10125
 B67-10173 06 NPO-10131
 B67-10174 05 JPL-946
 B67-10175 01 GSFC-551
 B67-10176 01 ERC-48
 B67-10177 05 M-FS-2318
 B67-10178 05 M-FS-2167
 B67-10179 01 M-FS-1172
 B67-10180 05 M-FS-2297
 B67-10181 01 M-FS-520
 B67-10182 03 M-FS-2021
 B67-10183 05 M-FS-2399
 B67-10184 03 ARG-115
 B67-10185 03 ARG-113
 B67-10186 03 ARG-116
 B67-10187 03 ARG-48
 B67-10188 04 ARG-100
 B67-10189 03 ARG-29
 B67-10190 01 MSC-1063
 B67-10191 03 ARG-149
 B67-10192 01 LEWIS-388
 B67-10193 06 NPO-10019
 B67-10194 03 NUC-10047
 B67-10195 05 NUC-10048
 B67-10196 01 GSFC-473
 B67-10197 03 LEWIS-10108
 B67-10198 05 LANGLEY-319
 B67-10199 01 ARC-75
 B67-10200 05 NUC-10050
 B67-10201 01 JPL-840
 B67-10202 05 ARG-184
 B67-10203 01 NPO-10142
 B67-10204 01 NPO-10068

TECH BRIEF/ORIGINATOR NUMBER INDEX

B67-10205	01	.....	NPO-10144	B67-10293	05	.....	ARG-13
B67-10206	01	.....	NPO-10164	B67-10294	01	.....	ARG-147
B67-10207	04	.....	NPO-10123	B67-10295	02	.....	ARG-203
B67-10208	03	.....	M-FS-2054	B67-10296	02	.....	ARG-120
B67-10209	03	.....	M-FS-1972	B67-10297	02	.....	M-FS-12731
B67-10210	05	.....	M-FS-2443	B67-10298	01	.....	MSC-206
B67-10211	05	.....	M-FS-2519	B67-10299	03	.....	M-FS-11816
B67-10212	05	.....	M-FS-2003	B67-10300	01	.....	MSC-12033
B67-10213	01	.....	M-FS-2166	B67-10301	03	.....	M-FS-2349
B67-10214	05	.....	M-FS-2477	B67-10302	03	.....	LANGLEY-10027
B67-10215	01	.....	M-FS-2557	B67-10303	01	.....	GSFC-523
B67-10216	02	.....	LEWIS-10111	B67-10304	04	.....	ARG-205
B67-10217	06	.....	NPO-10129	B67-10305	04	.....	ARG-251
B67-10218	02	.....	NPO-10036	B67-10306	06	.....	M-FS-2234
B67-10219	05	.....	NPO-10039	B67-10307	06	.....	M-FS-12916
B67-10220	01	.....	NPO-10173	B67-10308	05	.....	M-FS-985
B67-10221	01	.....	NUC-10056	B67-10309	06	.....	M-FS-1475
B67-10222	06	.....	NUC-10044	B67-10310	06	.....	M-FS-12976
B67-10223	06	.....	NUC-10045	B67-10311	01	.....	ARG-163
B67-10224	06	.....	NUC-10049	B67-10312	03	.....	ARG-158
B67-10225	05	.....	NPO-10186	B67-10313	01	.....	ARG-189
B67-10226	01	.....	M-FS-2442	B67-10314	01	.....	M-FS-1879
B67-10227	03	.....	M-FS-1880	B67-10315	03	.....	ARG-209
B67-10228	03	.....	M-FS-2390	B67-10316	02	.....	ARG-124
B67-10229	01	.....	M-FS-1707	B67-10317	01	.....	ARG-128
B67-10230	01	.....	KSC-67-16	B67-10318	01	.....	ARG-276
B67-10231	01	.....	ERC-33	B67-10319	06	.....	NPO-10031
B67-10232	03	.....	LEWIS-123	B67-10320	03	.....	NPO-10232
B67-10233	06	.....	MSC-1210	B67-10321	05	.....	M-FS-2540
B67-10234	01	.....	JPL-762	B67-10322	03	.....	LANGLEY-10077
B67-10235	06	.....	NUC-10046	B67-10323	06	.....	NPO-10127
B67-10236	03	.....	ARG-210	B67-10324	03	.....	ARG-277
B67-10237	05	.....	ARG-130	B67-10325	05	.....	M-FS-12777
B67-10238	05	.....	ARG-136	B67-10326	02	.....	M-FS-12144
B67-10239	01	.....	KSC-67-94	B67-10327	06	.....	M-FS-13024
B67-10240	06	.....	KSC-10073	B67-10328	06	.....	M-FS-13030
B67-10241	05	.....	M-FS-2267	B67-10329	06	.....	M-FS-1910
B67-10242	01	.....	MSC-921	B67-10330	06	.....	M-FS-13087
B67-10243	03	.....	MSC-11032	B67-10331	06	.....	M-FS-13094
B67-10244	05	.....	KSC-67-80	B67-10332	04	.....	MSC-599
B67-10245	04	.....	NPO-10149	B67-10333	01	.....	M-FS-12795
B67-10246	01	.....	NPO-10140	B67-10334	01	.....	M-FS-916
B67-10247	02	.....	NPO-10180	B67-10335	01	.....	M-FS-1753
B67-10248	01	.....	MSC-1045	B67-10336	01	.....	M-FS-11980
B67-10249	01	.....	MSC-999	B67-10337	02	.....	MSC-1189
B67-10250	01	.....	M-FS-2427	B67-10338	01	.....	MSC-10033
B67-10251	01	.....	JPL-SC-091	B67-10339	01	.....	M-FS-11974
B67-10252	04	.....	MSC-11018	B67-10340	03	.....	LEWIS-10257
B67-10253	01	.....	MSC-11007	B67-10341	05	.....	M-FS-12141
B67-10254	01	.....	MSC-10987	B67-10342	02	.....	M-FS-13153
B67-10255	01	.....	M-FS-2559	B67-10343	01	.....	NUC-10082
B67-10256	05	.....	M-FS-2159	B67-10344	06	.....	NUC-10051
B67-10257	01	.....	M-FS-709	B67-10345	06	.....	NUC-10052
B67-10258	01	.....	HQN-10020	B67-10346	03	.....	NUC-10018
B67-10259	01	.....	LEWIS-393	B67-10347	01	.....	NUC-10055
B67-10260	01	.....	NUC-10068	B67-10348	06	.....	NUC-10073
B67-10261	06	.....	NUC-10065	B67-10349	03	.....	NUC-10084
B67-10262	01	.....	NUC-10066	B67-10350	03	.....	NUC-10083
B67-10263	01	.....	NUC-10067	B67-10351	03	.....	NUC-10077
B67-10264	02	.....	NUC-10061	B67-10352	02	.....	NUC-10086
B67-10265	03	.....	NUC-10069	B67-10353	05	.....	M-FS-12561
B67-10266	03	.....	NUC-10075	B67-10354	03	.....	M-FS-12506
B67-10267	01	.....	ARC-66	B67-10355	05	.....	LEWIS-90335
B67-10268	01	.....	LEWIS-348	B67-10356	01	.....	M-FS-13075
B67-10269	01	.....	LEWIS-311	B67-10357	01	.....	JPL-907
B67-10270	01	.....	HQ-96	B67-10358	05	.....	LEWIS-10101
B67-10271	05	.....	MSC-11109	B67-10359	01	.....	LEWIS-10201
B67-10272	05	.....	M-FS-12763	B67-10360	05	.....	LEWIS-10205
B67-10273	05	.....	M-FS-2238	B67-10361	01	.....	KSC-10058
B67-10274	01	.....	NPO-10175	B67-10362	01	.....	LEWIS-10127
B67-10275	01	.....	NPO-10001	B67-10363	01	.....	M-FS-13063
B67-10276	01	.....	M-FS-1875	B67-10364	05	.....	LEWIS-10109
B67-10277	01	.....	M-FS-1937	B67-10365	03	.....	M-FS-1541
B67-10278	06	.....	M-FS-2298	B67-10366	03	.....	M-FS-13620
B67-10279	06	.....	MSC-1246	B67-10367	01	.....	M-FS-13486
B67-10280	06	.....	M-FS-2259	B67-10368	01	.....	MSC-11043
B67-10281	06	.....	NUC-10054	B67-10369	01	.....	MSC-10984
B67-10282	03	.....	M-FS-2348	B67-10370	01	.....	MSC-10983
B67-10283	05	.....	KSC-10056	B67-10371	02	.....	MSC-12044
B67-10284	01	.....	M-FS-2573	B67-10372	02	.....	MSC-11022
B67-10285	05	.....	M-FS-1854	B67-10373	05	.....	M-FS-2576
B67-10286	03	.....	LEWIS-10104	B67-10374	03	.....	M-FS-13172
B67-10287	06	.....	M-FS-12821	B67-10375	03	.....	M-FS-12869
B67-10288	02	.....	M-FS-2556	B67-10376	01	.....	M-FS-2194
B67-10289	01	.....	M-FS-12733	B67-10377	05	.....	M-FS-13127
B67-10290	03	.....	MSC-11222	B67-10378	01	.....	M-FS-2308
B67-10291	05	.....	MSC-11010	B67-10379	05	.....	M-FS-12341
B67-10292	05	.....	M-FS-2314	B67-10380	05	.....	M-FS-12530

TECH BRIEF/ORIGINATOR NUMBER INDEX

B67-10381	03	.....	M-FS-12720	B67-10469	01	.....	M-FS-11967
B67-10382	01	.....	KSC-10092	B67-10470	01	.....	LEWIS-10133
B67-10383	03	.....	LEWIS-10018	B67-10471	01	.....	M-FS-13370
B67-10384	01	.....	LEWIS-389	B67-10472	05	.....	M-FS-13120
B67-10385	05	.....	M-FS-13102	B67-10473	05	.....	MSC-10988
B67-10386	01	.....	M-FS-1849	B67-10474	02	.....	MSC-11232
B67-10387	01	.....	MSC-10043	B67-10475	01	.....	MSC-265
B67-10388	02	.....	M-FS-12744	B67-10476	06	.....	NPO-10326
B67-10389	01	.....	M-FS-12704	B67-10477	02	.....	ARG-216
B67-10390	01	.....	M-FS-13227	B67-10478	06	.....	M-FS-12331
B67-10391	02	.....	M-FS-13383	B67-10479	06	.....	M-FS-13971
B67-10392	03	.....	M-FS-12524	B67-10480	06	.....	GSFC-10142
B67-10393	05	.....	M-FS-13006	B67-10481	01	.....	GSFC-519
B67-10394	02	.....	M-FS-13308	B67-10482	01	.....	ARC-10009
B67-10395	04	.....	HQ-10055	B67-10483	05	.....	ARC-11225
B67-10396	01	.....	M-FS-13096	B67-10484	03	.....	ARG-10025
B67-10397	03	.....	ARG-10008	B67-10485	02	.....	KSC-67-111
B67-10398	02	.....	ARG-165	B67-10487	01	.....	GSFC-10091
B67-10399	01	.....	ARG-10010	B67-10488	05	.....	MSC-11242
B67-10400	05	.....	ARG-10014	B67-10489	06	.....	LANGLEY-10096
B67-10401	05	.....	ARG-49	B67-10490	06	.....	LANGLEY-10117
B67-10402	01	.....	M-FS-12580	B67-10491	03	.....	LANGLEY-10042
B67-10403	05	.....	M-FS-12882	B67-10492	06	.....	M-FS-13866
B67-10404	01	.....	LEWIS-391	B67-10493	06	.....	M-FS-13262
B67-10405	06	.....	M-FS-1741	B67-10494	06	.....	MSC-10075
B67-10406	06	.....	M-FS-12686	B67-10495	06	.....	MSC-10079
B67-10407	06	.....	M-FS-13016	B67-10496	01	.....	NUC-10125
B67-10408	04	.....	MSC-11017	B67-10497	01	.....	NUC-10515
B67-10409	03	.....	MSC-11194	B67-10498	05	.....	WLP-10004
B67-10410	01	.....	JPL-812	B67-10499	01	.....	ARG-10048
B67-10411	06	.....	M-FS-12728	B67-10500	04	.....	ARG-10032
B67-10412	01	.....	M-FS-12219	B67-10501	03	.....	ARG-10030
B67-10413	02	.....	M-FS-13068	B67-10502	03	.....	ARG-255
B67-10414	06	.....	MSC-10064	B67-10503	01	.....	NPO-10821
B67-10415	06	.....	MSC-1157	B67-10504	06	.....	NPO-10359
B67-10416	01	.....	ERC-10011	B67-10505	01	.....	JPL-943
B67-10417	03	.....	NPO-10011	B67-10506	01	.....	LEWIS-10137
B67-10418	05	.....	NPO-10316	B67-10507	01	.....	M-FS-13084
B67-10419	05	.....	NPO-10315	B67-10508	02	.....	GSFC-10052
B67-10420	02	.....	NPO-10322	B67-10509	06	.....	LANGLEY-10090
B67-10421	03	.....	ARG-262	B67-10510	06	.....	MSC-11524
B67-10422	01	.....	M-FS-13373	B67-10511	06	.....	JPL-727
B67-10423	05	.....	M-FS-13305	B67-10512	05	.....	M-FS-12023
B67-10424	01	.....	M-FS-12681	B67-10513	01	.....	M-FS-13083
B67-10425	01	.....	M-FS-13580	B67-10514	01	.....	NPO-09831
B67-10426	01	.....	M-FS-13663	B67-10515	01	.....	KSC-10002
B67-10427	05	.....	M-FS-12060	B67-10516	02	.....	LANGLEY-137
B67-10428	02	.....	M-FS-12449	B67-10517	01	.....	LANGLEY-210
B67-10429	03	.....	M-FS-12066	B67-10518	05	.....	M-FS-1321
B67-10430	02	.....	M-FS-13372	B67-10519	01	.....	M-FS-13069
B67-10431	02	.....	M-FS-11955	B67-10520	06	.....	M-FS-13010
B67-10432	03	.....	M-FS-597	B67-10521	06	.....	M-FS-12817
B67-10433	01	.....	MSC-11363	B67-10522	06	.....	M-FS-13012
B67-10434	01	.....	M-FS-1887	B67-10523	06	.....	M-FS-13999
B67-10435	01	.....	MSC-11004	B67-10524	06	.....	M-FS-12084
B67-10436	03	.....	MSC-10965	B67-10525	05	.....	M-FS-13772
B67-10437	03	.....	KSC-10133	B67-10526	05	.....	M-FS-12987
B67-10438	01	.....	M-FS-420	B67-10527	03	.....	M-FS-13594
B67-10439	03	.....	M-FS-12381	B67-10528	05	.....	M-FS-1415
B67-10440	03	.....	M-FS-13462	B67-10529	05	.....	M-FS-13015
B67-10441	03	.....	M-FS-11968	B67-10530	06	.....	LANGLEY-10079
B67-10442	03	.....	MSC-11365	B67-10531	06	.....	LANGLEY-10093
B67-10443	02	.....	M-FS-13374	B67-10532	03	.....	M-FS-13952
B67-10444	01	.....	GSFC-566	B67-10533	03	.....	M-FS-13906
B67-10445	05	.....	KSC-10075	B67-10534	01	.....	M-FS-13569
B67-10446	01	.....	GSFC-561	B67-10535	01	.....	M-FS-13664
B67-10447	01	.....	GSFC-570	B67-10536	06	.....	NUC-10126
B67-10448	01	.....	M-FS-12684	B67-10537	06	.....	NUC-10142
B67-10449	01	.....	GSFC-512	B67-10538	01	.....	NUC-10007
B67-10450	06	.....	NUC-10089	B67-10539	05	.....	NUC-10008
B67-10451	03	.....	M-FS-12064	B67-10540	01	.....	NUC-10001
B67-10452	02	.....	M-FS-12422	B67-10541	05	.....	ARG-242
B67-10453	05	.....	LEWIS-10122	B67-10542	02	.....	NUC-10010
B67-10454	03	.....	M-FS-13892	B67-10543	06	.....	NUC-10541
B67-10455	03	.....	M-FS-13757	B67-10544	01	.....	M-FS-13481
B67-10456	06	.....	NUC-10042	B67-10545	01	.....	M-FS-12938
B67-10457	06	.....	NUC-10043	B67-10546	01	.....	LEWIS-10326
B67-10458	01	.....	LEWIS-10144	B67-10547	05	.....	M-FS-13546
B67-10459	01	.....	M-FS-13086	B67-10548	01	.....	GSFC-10521
B67-10460	01	.....	M-FS-12447	B67-10549	06	.....	PRC-10017
B67-10461	01	.....	LEWIS-10149	B67-10550	01	.....	LEWIS-10324
B67-10462	02	.....	M-FS-13582	B67-10551	03	.....	GSFC-10004
B67-10463	03	.....	M-FS-12500	B67-10552	01	.....	WSO-340
B67-10464	05	.....	LEWIS-10282	B67-10553	01	.....	NPO-10338
B67-10465	02	.....	M-FS-12534	B67-10554	01	.....	LEWIS-10328
B67-10466	05	.....	M-FS-12019	B67-10555	05	.....	LEWIS-10280
B67-10467	01	.....	LEWIS-10173	B67-10556	04	.....	ARG-177
B67-10468	01	.....	MSC-11023	B67-10557	01	.....	JPL-807

TECH BRIEF/ORIGINATOR NUMBER INDEX

B67-10558	01	.....	M-FS-13598	B67-10646	01	.....	GSFC-08259
B67-10559	01	.....	GSFC-532	B67-10647	03	.....	M-FS-12705
B67-10560	01	.....	JPL-819	B67-10648	02	.....	ERC-10026
B67-10561	01	.....	JPL-649	B67-10649	01	.....	M-FS-14107
B67-10562	01	.....	MSC-11147	B67-10650	01	.....	M-FS-14108
B67-10563	05	.....	M-FS-12849	B67-10651	06	.....	GSFC-10231
B67-10564	02	.....	M-FS-12867	B67-10652	01	.....	M-FS-14020
B67-10565	01	.....	M-FS-12518	B67-10653	02	.....	M-FS-14041
B67-10566	06	.....	NUC-10070	B67-10654	06	.....	NPO-10220
B67-10567	05	.....	NUC-10034	B67-10655	05	.....	M-FS-13304
B67-10568	06	.....	NUC-10011	B67-10656	01	.....	GSFC-10221
B67-10569	01	.....	GSFC-10022	B67-10657	01	.....	NPO-10843
B67-10570	03	.....	MSC-11342	B67-10658	01	.....	HQ-10031
B67-10571	01	.....	GSFC-10085	B67-10659	03	.....	HQ-10032
B67-10572	01	.....	MSC-11327	B67-10660	03	.....	HQ-10035
B67-10573	03	.....	MSC-11496	B67-10661	01	.....	HQ-10037
B67-10574	01	.....	M-FS-1214	B67-10662	01	.....	HQ-10018
B67-10575	01	.....	NPO-10008	B67-10663	04	.....	HQ-33
B67-10576	01	.....	MSC-11595	B67-10664	05	.....	NUC-10024
B67-10577	03	.....	ARG-10056	B67-10665	06	.....	NUC-10143
B67-10578	03	.....	ARG-10045	B67-10666	06	.....	LANGLEY-10191
B67-10579	03	.....	ARG-10050	B67-10667	05	.....	M-FS-14079
B67-10580	03	.....	ARG-10039	B67-10668	01	.....	GSFC-217
B67-10581	05	.....	M-FS-13776	B67-10669	01	.....	ARC-10054
B67-10582	03	.....	ARG-10055	B67-10670	05	.....	M-FS-12968
B67-10583	03	.....	ARG-10013	B67-10671	02	.....	NPO-10468
B67-10584	03	.....	LEWIS-10316	B67-10672	01	.....	NPO-10404
B67-10585	01	.....	NPO-10201	B67-10673	05	.....	M-FS-12986
B67-10586	03	.....	GSFC-10360	B67-10674	01	.....	GSFC-10184
B67-10587	01	.....	GSFC-10396	B67-10675	01	.....	MSC-10013
B67-10588	05	.....	M-FS-14026	B67-10676	01	.....	NPO-10166
B67-10589	03	.....	MSC-11395	B67-10677	05	.....	MSC-12052
B67-10590	04	.....	ARG-178	B67-10678	06	.....	NUC-10141
B67-10591	05	.....	LEWIS-10277	B68-10001	01	.....	GSFC-10284
B67-10592	03	.....	ARG-10082	B68-10002	01	.....	GSFC-90549
B67-10593	03	.....	M-FS-13434	B68-10003	01	.....	GSFC-556
B67-10594	05	.....	NUC-10525	B68-10004	05	.....	M-FS-13638
B67-10595	01	.....	M-FS-12955	B68-10005	06	.....	NPO-10429
B67-10596	03	.....	ARG-241	B68-10006	06	.....	NUC-10301
B67-10597	02	.....	ARG-10071	B68-10007	01	.....	LEWIS-10362
B67-10598	01	.....	ARC-10033	B68-10008	01	.....	GSFC-09561
B67-10599	03	.....	GSFC-10007	B68-10009	06	.....	GSFC-10362
B67-10600	03	.....	M-FS-12988	B68-10010	02	.....	MSC-11026
B67-10601	02	.....	LANGLEY-285	B68-10011	05	.....	MSC-11562
B67-10602	02	.....	M-FS-14022	B68-10012	01	.....	XGS-11379
B67-10603	01	.....	LANGLEY-68	B68-10013	02	.....	M-FS-14088
B67-10604	04	.....	ARG-10046	B68-10014	05	.....	M-FS-12807
B67-10605	02	.....	ARG-10009	B68-10015	01	.....	M-FS-14265
B67-10606	01	.....	GSFC-10021	B68-10016	01	.....	M-FS-13954
B67-10607	05	.....	M-FS-13303	B68-10017	01	.....	GSFC-03429
B67-10608	03	.....	M-FS-13991	B68-10018	01	.....	MSC-12078
B67-10609	02	.....	GSFC-10170	B68-10019	01	.....	KSC-67-120
B67-10610	02	.....	KSC-10009	B68-10020	03	.....	XNP-08124
B67-10611	05	.....	SAN-10001	B68-10021	02	.....	GSFC-C7971
B67-10612	06	.....	M-FS-13789	B68-10022	05	.....	MSC-11494
B67-10613	02	.....	NUC-10522	B68-10023	03	.....	NUC-10302
B67-10614	01	.....	GSFC-10003	B68-10024	05	.....	NUC-10304
B67-10615	01	.....	GSFC-10003A	B68-10025	06	.....	LEWIS-10254
B67-10616	01	.....	NUC-10152	B68-10026	05	.....	M-FS-14096
B67-10617	02	.....	NUC-10521	B68-10027	01	.....	M-FS-11970
B67-10618	02	.....	NUC-10523	B68-10028	01	.....	M-FS-12428
B67-10619	05	.....	JPL-847	B68-10029	03	.....	M-FS-12410
B67-10620	01	.....	M-FS-13590	B68-10030	01	.....	M-FS-14690
B67-10621	02	.....	M-FS-13544	B68-10031	03	.....	M-FS-14023
B67-10622	05	.....	M-FS-13031	B68-10032	03	.....	LEWIS-10380
B67-10623	05	.....	LEWIS-10135	B68-10033	06	.....	M-FS-14296
B67-10624	01	.....	MSC-1173	B68-10034	03	.....	M-FS-14019
B67-10625	06	.....	M-FS-1506	B68-10035	05	.....	GSFC-10283
B67-10626	06	.....	ARG-10052	B68-10036	05	.....	MSC-533
B67-10627	03	.....	NUC-10145	B68-10037	05	.....	MSC-11464
B67-10628	05	.....	NUC-10524	B68-10038	05	.....	M-FS-1697
B67-10629	01	.....	NUC-10146	B68-10039	05	.....	M-FS-91326
B67-10630	06	.....	NPO-10042	B68-10040	05	.....	LEWIS-10329
B67-10631	06	.....	M-FS-13058	B68-10041	05	.....	LEWIS-324
B67-10632	06	.....	NPO-10265	B68-10042	05	.....	LANGLEY-10193
B67-10633	02	.....	NPO-10402	B68-10043	03	.....	M-FS-13131
B67-10634	03	.....	NPO-10373	B68-10044	06	.....	M-FS-14314
B67-10635	01	.....	M-FS-13111	B68-10045	06	.....	NPO-10150
B67-10636	02	.....	M-FS-12583	B68-10046	03	.....	LEWIS-10379
B67-10637	01	.....	LANGLEY-217	B68-10047	05	.....	MSC-11609
B67-10638	05	.....	LEWIS-10123	B68-10048	03	.....	M-FS-12547
B67-10639	05	.....	LEWIS-10134	B68-10049	03	.....	M-FS-1422
B67-10640	02	.....	ARG-10037	B68-10050	06	.....	M-FS-13155
B67-10641	03	.....	ARG-10068	B68-10051	01	.....	M-FS-12396
B67-10642	01	.....	NPO-09828	B68-10052	05	.....	MSC-90645
B67-10643	01	.....	GSFC-10213	B68-10053	05	.....	NUC-10303
B67-10644	02	.....	GSFC-10188	B68-10054	01	.....	GSFC-10183
B67-10645	03	.....	M-FS-14059	B68-10055	06	.....	LANGLEY-10017

TECH BRIEF/ORIGINATOR NUMBER INDEX

B68-10056	01	.....	ERC-19	B68-10144	01	.....	LEWIS-10394
B68-10057	05	.....	MSC-11167	B68-10145	01	.....	LEWIS-10402
B68-10058	01	.....	NPO-10118	B68-10146	03	.....	M-FS-14575
B68-10059	01	.....	NPO-09975	B68-10147	01	.....	NUC-10147
B68-10060	02	.....	MSC-11354	B68-10148	01	.....	NUC-10163
B68-10061	01	.....	KSC-10127	B68-10149	01	.....	M-FS-14545
B68-10062	03	.....	LEWIS-10131	B68-10150	06	.....	NUC-10537
B68-10063	01	.....	LEWIS-90339	B68-10151	01	.....	MSC-11656
B68-10064	05	.....	LANGLEY-90194	B68-10152	01	.....	NPO-10348
B68-10065	01	.....	ARC-10083	B68-10153	03	.....	M-FS-14283
B68-10066	03	.....	MSC-11555	B68-10154	02	.....	M-FS-18003
B68-10067	01	.....	M-FS-13901	B68-10155	01	.....	MSC-11594
B68-10068	01	.....	XGS-01222	B68-10156	01	.....	MSC-11473
B68-10069	01	.....	GSFC-10271	B68-10157	01	.....	MSC-12074
B68-10070	01	.....	M-FS-14185	B68-10158	06	.....	M-FS-18045
B68-10071	02	.....	MSC-12055	B68-10159	06	.....	M-FS-12226
B68-10072	05	.....	M-FS-13399	B68-10160	02	.....	M-FS-13085
B68-10073	01	.....	M-FS-13621	B68-10161	05	.....	M-FS-14743
B68-10074	01	.....	M-FS-14042	B68-10162	05	.....	M-FS-14004
B68-10075	05	.....	M-FS-14134	B68-10163	01	.....	MSC-11231
B68-10076	04	.....	ARG-90239	B68-10164	06	.....	ARC-10130
B68-10077	02	.....	ARG-10109	B68-10165	05	.....	LEWIS-10432
B68-10078	05	.....	M-FS-13290	B68-10166	01	.....	M-FS-14115
B68-10079	01	.....	GSFC-483	B68-10167	03	.....	MSC-11645
B68-10080	05	.....	M-FS-14342	B68-10168	05	.....	KSC-10196
B68-10081	02	.....	M-FS-14357	B68-10169	04	.....	ARG-10064
B68-10082	05	.....	NPO-10228	B68-10170	02	.....	MSC-11560
B68-10083	01	.....	ARG-10114	B68-10171	01	.....	M-FS-14634
B68-10084	01	.....	XAC-10608	B68-10172	03	.....	ARG-90259
B68-10085	03	.....	LEWIS-10376	B68-10173	01	.....	ARG-90164
B68-10086	01	.....	MSC-12060	B68-10174	02	.....	ARG-10094
B68-10087	01	.....	ARG-90260	B68-10175	01	.....	ARC-10060
B68-10088	01	.....	ARG-90237	B68-10176	05	.....	LEWIS-10403
B68-10089	01	.....	GSFC-10212	B68-10177	03	.....	MSC-11604
B68-10090	02	.....	NPO-10337	B68-10178	02	.....	MSC-10964
B68-10091	01	.....	M-FS-14574	B68-10179	02	.....	M-FS-14328
B68-10092	03	.....	LANGLEY-10051	B68-10180	05	.....	M-FS-14821
B68-10093	01	.....	M-FS-13599	B68-10181	02	.....	ARG-10102
B68-10094	03	.....	LEWIS-10115	B68-10182	01	.....	ARG-10120
B68-10095	03	.....	LEWIS-10378	B68-10183	01	.....	M-FS-14790
B68-10096	06	.....	NPO-10502	B68-10184	03	.....	M-FS-14817
B68-10097	06	.....	LEWIS-10252	B68-10185	01	.....	ARG-10124
B68-10098	02	.....	ARG-90088	B68-10186	02	.....	M-FS-14217
B68-10099	05	.....	M-FS-13362	B68-10187	06	.....	NPO-10598
B68-10100	01	.....	XFR-03838	B68-10188	01	.....	FRC-10012
B68-10101	03	.....	ARG-10086	B68-10189	03	.....	ARG-10051
B68-10102	03	.....	ARG-10087	B68-10190	02	.....	ARG-10035
B68-10103	03	.....	ARG-10075	B68-10191	03	.....	ARG-90175
B68-10104	03	.....	GSFC-10343	B68-10192	03	.....	M-FS-13649
B68-10105	03	.....	MSC-11241	B68-10193	06	.....	ARG-90143
B68-10106	01	.....	MSC-11369	B68-10194	03	.....	ARG-10115
B68-10107	05	.....	LEWIS-10117	B68-10195	03	.....	ARG-10062
B68-10108	02	.....	M-FS-14310	B68-10196	03	.....	ARG-10067
B68-10109	03	.....	ARG-10059	B68-10197	03	.....	ARG-10074
B68-10110	05	.....	MSC-12072	B68-10198	03	.....	ARG-10092
B68-10111	05	.....	MSC-12071	B68-10199	03	.....	ARG-10099
B68-10112	01	.....	M-FS-14608	B68-10200	03	.....	ARG-10108
B68-10113	02	.....	NPO-10174	B68-10201	03	.....	ARG-10119
B68-10114	01	.....	MSC-12059	B68-10202	01	.....	ARG-90193
B68-10115	05	.....	MSC-11108	B68-10203	01	.....	NPO-10350
B68-10116	01	.....	MSC-11597	B68-10204	03	.....	SAN-10012
B68-10117	05	.....	MSC-11377	B68-10205	01	.....	MSC-11587
B68-10118	01	.....	LEWIS-10129	B68-10206	04	.....	ERC-10003
B68-10119	02	.....	M-FS-14076	B68-10207	01	.....	GSFC-10185
B68-10120	05	.....	MSC-11323	B68-10208	06	.....	NPO-10589
B68-10121	01	.....	MSC-12123	B68-10209	05	.....	SAN-10002
B68-10122	05	.....	NUC-10153	B68-10210	01	.....	ARC-10146
B68-10123	05	.....	LANGLEY-10106	B68-10211	05	.....	SAN-10007
B68-10124	01	.....	LANGLEY-89	B68-10212	03	.....	SAN-10006
B68-10125	05	.....	M-FS-14496	B68-10213	01	.....	MSC-11599
B68-10126	02	.....	M-FS-14248	B68-10214	03	.....	LEWIS-10278
B68-10127	06	.....	M-FS-14198	B68-10215	03	.....	LEWIS-10106
B68-10128	02	.....	MSC-716	B68-10216	06	.....	LEWIS-10395
B68-10129	01	.....	M-FS-13801	B68-10217	06	.....	M-FS-14654
B68-10130	01	.....	M-FS-13948	B68-10218	01	.....	M-FS-14661
B68-10131	01	.....	M-FS-14552	B68-10219	05	.....	M-FS-13007
B68-10132	05	.....	LANGLEY-10033	B68-10220	01	.....	MSC-11447
B68-10133	01	.....	MSC-11148	B68-10221	03	.....	M-FS-14151
B68-10134	05	.....	LEWIS-10396	B68-10222	05	.....	M-FS-14105
B68-10135	02	.....	LEWIS-10265	B68-10223	01	.....	SAN-10004
B68-10136	02	.....	GSFC-10547	B68-10224	01	.....	LEWIS-10344
B68-10137	06	.....	NPO-10438	B68-10225	05	.....	M-FS-12218
B68-10138	01	.....	LEWIS-90254	B68-10226	06	.....	LANGLEY-10290
B68-10139	06	.....	NPO-10501	B68-10227	06	.....	ERC-10116
B68-10140	01	.....	MSC-11388	B68-10228	02	.....	M-FS-14679
B68-10141	01	.....	LANGLEY-10176	B68-10229	05	.....	M-FS-14480
B68-10142	03	.....	NPO-10298	B68-10230	01	.....	MSC-11666
B68-10143	02	.....	M-FS-14388	B68-10231	04	.....	SAN-10003

TECH BRIEF/ORIGINATOR NUMBER INDEX

B68-10232	06	.....	M-FS-14468	B68-10320	04	.....	ARG-10196
B68-10233	01	.....	FRC-10031	B68-10321	01	.....	GSFC-10222
B68-10234	02	.....	MSC-11554	B68-10322	02	.....	GSFC-438
B68-10235	05	.....	LANGLEY-10092	B68-10323	01	.....	LEWIS-10487
B68-10236	01	.....	ARG-90142	B68-10324	04	.....	MSC-11697
B68-10237	05	.....	MSC-11606	B68-10325	01	.....	GSFC-10358
B68-10238	01	.....	MSC-12101	B68-10326	02	.....	ARG-10101
B68-10239	05	.....	M-FS-14582	B68-10327	01	.....	GSFC-10067
B68-10240	02	.....	M-FS-14696	B68-10328	01	.....	ARG-10110
B68-10241	01	.....	MSC-11600	B68-10329	02	.....	MSC-11353
B68-10242	01	.....	MSC-12068	B68-10330	01	.....	MSC-12001
B68-10243	02	.....	ARG-90250	B68-10331	05	.....	LEWIS-10162
B68-10244	01	.....	NPO-10548	B68-10332	05	.....	M-FS-18037
B68-10245	02	.....	MSC-11688	B68-10333	01	.....	M-FS-14996
B68-10246	01	.....	MSC-11869	B68-10334	03	.....	M-FS-14720
B68-10247	05	.....	M-FS-14579	B68-10335	06	.....	ARC-10141
B68-10248	05	.....	LEWIS-10267	B68-10336	01	.....	GSFC-10576
B68-10249	05	.....	LEWIS-10408	B68-10337	01	.....	LEWIS-10297
B68-10250	05	.....	XFR-05421	B68-10338	05	.....	NPO-10547
B68-10251	03	.....	M-FS-18185	B68-10339	02	.....	M-FS-14845
B68-10252	02	.....	M-FS-14133	B68-10340	03	.....	LEWIS-10544
B68-10253	03	.....	LEWIS-10377	B68-10341	01	.....	LANGLEY-10289
B68-10254	01	.....	GSFC-10198	B68-10342	01	.....	SAN-10024
B68-10255	02	.....	GSFC-10686	B68-10343	05	.....	LEWIS-10382
B68-10256	03	.....	M-FS-14764	B68-10344	03	.....	LEWIS-10283
B68-10257	05	.....	M-FS-14530	B68-10345	02	.....	M-FS-20143
B68-10258	01	.....	M-FS-13898	B68-10346	02	.....	M-FS-14929
B68-10259	02	.....	M-FS-14583	B68-10347	02	.....	ERC-10151
B68-10260	02	.....	M-FS-14267	B68-10348	02	.....	M-FS-14915
B68-10261	05	.....	M-FS-14652	B68-10349	02	.....	M-FS-20039
B68-10262	01	.....	M-FS-14713	B68-10350	01	.....	ERC-10031
B68-10263	01	.....	M-FS-14656	B68-10351	03	.....	M-FS-14856
B68-10264	01	.....	M-FS-14672	B68-10352	05	.....	LANGLEY-10281
B68-10265	02	.....	M-FS-18076	B68-10353	05	.....	M-FS-14972
B68-10266	05	.....	SAN-10019	B68-10354	06	.....	NPO-10603
B68-10267	01	.....	SAN-10020	B68-10355	03	.....	M-FS-18150
B68-10268	01	.....	M-FS-14542	B68-10356	06	.....	LEWIS-10399
B68-10269	01	.....	SAN-10013	B68-10357	01	.....	M-FS-20084
B68-10270	05	.....	LEWIS-10397	B68-10358	03	.....	ARC-10098
B68-10271	03	.....	GSFC-10687	B68-10359	05	.....	ARG-10160
B68-10272	01	.....	GSFC-10066	B68-10360	03	.....	M-FS-14806
B68-10273	01	.....	GSFC-10688	B68-10361	06	.....	LEWIS-10458
B68-10274	03	.....	M-FS-14991	B68-10362	01	.....	MSC-15108
B68-10275	02	.....	M-FS-14268	B68-10363	02	.....	M-FS-14522
B68-10276	02	.....	M-FS-14802	B68-10364	01	.....	XGS-08566
B68-10277	05	.....	MSC-10285	B68-10365	01	.....	ARC-10174
B68-10278	03	.....	ARG-10049	B68-10366	04	.....	ARG-10161
B68-10279	03	.....	LEWIS-10128	B68-10367	01	.....	LEWIS-10366
B68-10280	01	.....	ARG-10057	B68-10368	03	.....	ARG-10148
B68-10281	03	.....	ARG-10085	B68-10369	03	.....	LEWIS-10424
B68-10282	02	.....	M-FS-18062	B68-10370	01	.....	LEWIS-10401
B68-10283	01	.....	ARG-10136	B68-10371	05	.....	M-FS-20140
B68-10284	05	.....	ARG-10100	B68-10372	05	.....	ARG-10027
B68-10285	03	.....	M-FS-18174	B68-10373	03	.....	SAN-10025
B68-10286	05	.....	M-FS-18179	B68-10374	06	.....	MSC-11774
B68-10287	06	.....	M-FS-14715	B68-10375	06	.....	MSC-11777
B68-10288	05	.....	M-FS-14270	B68-10376	06	.....	MSC-11780
B68-10289	01	.....	MSC-11825	B68-10377	06	.....	MSC-11781
B68-10290	01	.....	KSC-10186	B68-10378	03	.....	KSC-10237
B68-10291	01	.....	ARG-10138	B68-10379	01	.....	LANGLEY-10091
B68-10292	06	.....	ARG-10146	B68-10380	03	.....	LEWIS-10355
B68-10293	02	.....	ARG-10154	B68-10381	03	.....	LEWIS-10325
B68-10294	02	.....	ARG-10191	B68-10382	01	.....	LEWIS-10437
B68-10295	05	.....	LEWIS-10483	B68-10383	05	.....	M-FS-18337
B68-10296	06	.....	M-FS-14695	B68-10384	01	.....	GSFC-10413
B68-10297	05	.....	NPO-10007	B68-10385	03	.....	M-FS-18327
B68-10298	02	.....	ARG-10210	B68-10386	01	.....	LEWIS-10143
B68-10299	05	.....	M-FS-18194	B68-10387	05	.....	MSC-13060
B68-10300	05	.....	M-FS-14710	B68-10388	01	.....	LEWIS-10388
B68-10301	01	.....	M-FS-12590	B68-10389	01	.....	SAN-10014
B68-10302	03	.....	M-FS-13152	B68-10390	03	.....	M-FS-14910
B68-10303	01	.....	M-FS-14713	B68-10391	03	.....	M-FS-20187
B68-10304	02	.....	MSC-11584	B68-10392	03	.....	M-FS-20185
B68-10305	01	.....	MSC-11824	B68-10393	05	.....	M-FS-14841
B68-10306	01	.....	M-FS-14323	B68-10394	03	.....	M-FS-18191
B68-10307	01	.....	M-FS-14581	B68-10395	05	.....	M-FS-20176
B68-10308	01	.....	M-FS-14034	B68-10396	02	.....	M-FS-14808
B68-10309	01	.....	M-FS-14691	B68-10397	01	.....	M-FS-20202
B68-10310	01	.....	M-FS-14531	B68-10398	05	.....	MSC-11839
B68-10311	01	.....	M-FS-14791	B68-10399	01	.....	XGS-10017
B68-10312	01	.....	M-FS-14541	B68-10400	01	.....	ARG-10141
B68-10313	01	.....	M-FS-14803	B68-10401	05	.....	M-FS-14874
B68-10314	01	.....	MSC-13086	B68-10402	01	.....	NPO-10185
B68-10315	01	.....	GSFC-10305	B68-10403	06	.....	MSC-15002
B68-10316	01	.....	NPO-10233	B68-10404	01	.....	M-FS-14937
B68-10317	01	.....	GSFC-10108	B68-10405	06	.....	LEWIS-10352
B68-10318	05	.....	SAN-10021	B68-10406	02	.....	M-FS-20058
B68-10319	01	.....	LEWIS-10446	B68-10407	05	.....	ARG-10182

TECH BRIEF/ORIGINATOR NUMBER INDEX

B68-10408	03	.....	ARG-10200	B68-10540	05	.....	MSC-15022
B68-10409	03	.....	ARG-10205	B68-10541	01	.....	ERC-10198
B68-10410	06	.....	NPO-10752	B68-10542	01	.....	LANGLEY-10294
B68-10411	01	.....	LEWIS-10543	B68-10543	01	.....	LEWIS-10353
B68-10412	01	.....	M-FS-20127	B68-10544	01	.....	M-FS-13737
B68-10413	01	.....	M-FS-20246	B68-10545	01	.....	M-FS-20152
B68-10414	03	.....	ARG-10208	B68-10546	02	.....	M-FS-14309
B68-10415	01	.....	ARG-10183	B68-10547	01	.....	NPO-10230
B68-10416	06	.....	M-FS-15002	B68-10548	02	.....	M-FS-14815
B68-10417	05	.....	M-FS-18416	B68-10549	05	.....	M-FS-14772
B68-10418	02	.....	ARG-10177	B68-10550	05	.....	M-FS-20126
B68-10419	03	.....	SAN-10030	B68-10551	05	.....	KSC-09955
B68-10420	01	.....	ARG-10144	B68-10552	03	.....	NPO-10783
B68-10421	06	.....	NPO-10588	B68-10553	03	.....	NPO-10785
B68-10422	06	.....	M-FS-15020	B68-10554	04	.....	LANGLEY-10407
B68-10423	06	.....	LEWIS-10409	B68-10555	01	.....	MSC-11827
B68-10424	04	.....	ARG-10195	B68-10556	02	.....	LEWIS-10443
B68-10425	03	.....	ARG-10065	B68-10557	03	.....	GSFC-10173
B68-10426	02	.....	ARG-10173	B68-10558	01	.....	LEWIS-10281
B68-10427	04	.....	ARG-10192	B68-10559	01	.....	ERC-10152
B68-10429	01	.....	M-FS-14914	B68-10560	02	.....	KSC-09957
B68-10430	01	.....	M-FS-20091	B68-10561	03	.....	LEWIS-10479
B68-10431	01	.....	GSFC-10487	B68-10562	01	.....	ERC-10150
B68-10432	01	.....	M-FS-20049	B68-10563	01	.....	ERC-10087
B68-10433	03	.....	LEWIS-10518	B68-10564	02	.....	ERC-10178
B68-10434	01	.....	M-FS-20013	B68-10565	01	.....	M-FS-15018
B68-10435	06	.....	ERC-10206	B68-10566	01	.....	M-FS-20224
B68-10436	01	.....	NPO-10563	B68-10567	05	.....	LEWIS-10720
B68-10437	01	.....	ERC-10055	B68-10568	03	.....	M-FS-20209
B68-10438	01	.....	ERC-10136	B68-10569	02	.....	M-FS-14787
B68-10439	05	.....	M-FS-18298	B68-10570	02	.....	M-FS-14788
B68-10440	05	.....	LEWIS-10574	B68-10571	02	.....	M-FS-20088
B68-10441	05	.....	LEWIS-10296	B68-10572	01	.....	M-FS-14698
B68-10443	01	.....	M-FS-14993	B68-10573	05	.....	M-FS-14456
B68-10444	05	.....	KSC-10167	B68-10574	02	.....	M-FS-20292
B68-10445	06	.....	SAN-10028	B68-10575	05	.....	M-FS-16166
B68-10446	06	.....	LANGLEY-10376	B68-10576	06	.....	M-FS-13969
B68-10447	06	.....	M-FS-13202	B69-10001	02	.....	ARG-10235
B68-10448	06	.....	M-FS-15001	B69-10002	02	.....	ARG-10186
B68-10449	06	.....	NPO-10756	B69-10003	02	.....	ARG-10226
B68-10450	06	.....	NUC-10189	B69-10004	03	.....	ARG-10204
B68-10451	06	.....	LEWIS-10255	B69-10005	02	.....	ARG-10190
B68-10452	06	.....	LANGLEY-10375	B69-10006	03	.....	ARG-10240
B68-10453	06	.....	ARC-10168	B69-10007	06	.....	M-FS-12623
B68-10454	03	.....	ARG-10170	B69-10008	05	.....	M-FS-14146
B68-10455	03	.....	ARG-10181	B69-10009	05	.....	M-FS-20299
B68-10456	01	.....	LEWIS-10712	B69-10010	03	.....	ARG-10223
B68-10457	06	.....	ERC-10209	B69-10011	02	.....	GSFC-10568
B68-10500	04	.....	MSC-12206	B69-10012	01	.....	M-FS-14673
B68-10501	01	.....	MSC-90180	B69-10013	01	.....	M-FS-20153
B68-10502	01	.....	NPO-10238	B69-10014	01	.....	M-FS-14976
B68-10503	05	.....	ERC-10097	B69-10015	01	.....	LEWIS-90297
B68-10504	02	.....	M-FS-14851	B69-10016	05	.....	XNP-09704
B68-10505	01	.....	M-FS-14789	B69-10017	02	.....	NPO-10515
B68-10506	02	.....	NPO-10467	B69-10018	05	.....	MSC-15174
B68-10507	05	.....	NPO-10243	B69-10019	05	.....	M-FS-20306
B68-10508	02	.....	M-FS-20188	B69-10020	02	.....	XNP-09745
B68-10509	05	.....	M-FS-14837	B69-10021	05	.....	M-FS-14460
B68-10510	02	.....	MSC-15170	B69-10022	04	.....	ARG-10145
B68-10511	01	.....	M-FS-14511	B69-10023	06	.....	ARG-10134
B68-10512	05	.....	MSC-13061	B69-10024	02	.....	ARG-10229
B68-10513	01	.....	LEWIS-10373	B69-10025	03	.....	LEWIS-10578
B68-10514	01	.....	NPO-10560	B69-10026	03	.....	ARG-10234
B68-10515	05	.....	M-FS-14980	B69-10027	01	.....	ARG-10282
B68-10516	01	.....	NPO-10584	B69-10028	02	.....	XNP-09802
B68-10517	02	.....	M-FS-18345	B69-10029	03	.....	ARG-10244
B68-10518	01	.....	GSFC-90536	B69-10030	05	.....	XNP-09698
B68-10519	02	.....	GSFC-10109	B69-10031	06	.....	M-FS-15010
B68-10520	03	.....	LEWIS-10551	B69-10032	01	.....	XNP-09808
B68-10521	02	.....	MSC-10966	B69-10033	03	.....	ARG-10306
B68-10522	03	.....	M-FS-18151	B69-10034	06	.....	NUC-10308
B68-10523	03	.....	M-FS-18189	B69-10035	06	.....	NUC-10170
B68-10524	03	.....	NPO-10070	B69-10036	06	.....	NUC-10161
B68-10525	01	.....	M-FS-14785	B69-10037	01	.....	GSFC-10675
B68-10526	03	.....	LEWIS-10444	B69-10038	06	.....	M-FS-15051
B68-10527	03	.....	LEWIS-10535	B69-10039	06	.....	NPO-10805
B68-10528	03	.....	LEWIS-10393	B69-10040	06	.....	PRC-10032
B68-10529	01	.....	M-FS-15016	B69-10041	06	.....	M-FS-15028
B68-10530	05	.....	M-FS-16196	B69-10042	02	.....	ARG-10266
B68-10531	05	.....	M-FS-18146	B69-10043	02	.....	ARG-10260
B68-10532	03	.....	M-FS-14979	B69-10044	05	.....	ARG-10219
B68-10533	02	.....	LEWIS-10695	B69-10045	01	.....	ARG-10232
B68-10534	05	.....	M-FS-20083	B69-10046	05	.....	ARG-10242
B68-10535	05	.....	XNP-10849	B69-10047	02	.....	ARG-10274
B68-10536	03	.....	M-FS-20175	B69-10048	03	.....	ARG-10224
B68-10537	05	.....	ERC-10093	B69-10049	03	.....	LEWIS-90252
B68-10538	05	.....	ERC-10102	B69-10050	01	.....	LEWIS-90298
B68-10539	01	.....	ARC-10042	B69-10051	05	.....	M-FS-14836

TECH BRIEF/ORIGINATOR NUMBER INDEX

B69-10052	05	.....	M-FS-18211	B69-10140	01	.....	LEWIS-10375
B69-10053	03	.....	ARG-10202	B69-10141	05	.....	M-FS-14538
B69-10054	03	.....	ARG-10222	B69-10142	02	.....	MSC-10953
B69-10055	03	.....	M-FS-18335	B69-10143	01	.....	MSC-10955
B69-10056	01	.....	XGS-10010	B69-10144	05	.....	M-FS-14600
B69-10057	02	.....	ARG-10316	B69-10145	05	.....	M-FS-16413
B69-10058	03	.....	ARG-10228	B69-10146	06	.....	M-FS-18456
B69-10059	05	.....	M-FS-18133	B69-10147	03	.....	HQ-10039
B69-10060	02	.....	M-FS-14854	B69-10148	06	.....	LANGLEY-10037
B69-10061	03	.....	MSC-15185	B69-10149	01	.....	ARG-10318
B69-10062	05	.....	M-FS-14254	B69-10150	05	.....	M-FS-20361
B69-10063	01	.....	GSFC-10387	B69-10151	01	.....	LEWIS-10715
B69-10064	01	.....	GSFC-10375	B69-10152	01	.....	M-FS-20157
B69-10065	03	.....	M-FS-20381	B69-10153	01	.....	GSFC-10155
B69-10066	03	.....	M-FS-20294	B69-10154	03	.....	LEWIS-10309
B69-10067	03	.....	M-FS-20254	B69-10155	01	.....	ARG-10297
B69-10068	03	.....	M-FS-18192	B69-10156	01	.....	LEWIS-10797
B69-10069	05	.....	M-FS-14272	B69-10157	06	.....	ARG-10299
B69-10070	01	.....	GSFC-10241	B69-10158	06	.....	M-FS-14447
B69-10071	05	.....	M-FS-18383	B69-10159	06	.....	ARG-10269
B69-10072	03	.....	LEWIS-10733	B69-10160	04	.....	ARG-10246
B69-10073	01	.....	LEWIS-10711	B69-10161	01	.....	ARG-10215
B69-10074	03	.....	LEWIS-10264	B69-10162	01	.....	ARG-10168
B69-10075	02	.....	GSFC-10682	B69-10163	04	.....	ARG-10273
B69-10076	05	.....	LEWIS-10705	B69-10164	05	.....	MSC-91215
B69-10077	02	.....	GSFC-10580	B69-10165	02	.....	ARG-10359
B69-10078	02	.....	ARG-10221	B69-10166	02	.....	ARG-10365
B69-10079	03	.....	ARG-10245	B69-10167	02	.....	ARG-10322
B69-10080	02	.....	ARG-10295	B69-10168	03	.....	ARG-10341
B69-10081	03	.....	ARG-10288	B69-10169	06	.....	ARG-10335
B69-10082	02	.....	ARG-10187	B69-10170	03	.....	ARG-10328
B69-10083	05	.....	ARG-10130	B69-10171	06	.....	GSFC-10575
B69-10084	03	.....	MSC-15443	B69-10172	02	.....	HQ-10377
B69-10085	05	.....	M-FS-20348	B69-10173	01	.....	KSC-10335
B69-10086	05	.....	M-FS-20307	B69-10174	06	.....	LEWIS-10765
B69-10087	04	.....	M-FS-18207	B69-10175	06	.....	LEWIS-10734
B69-10088	04	.....	ARG-10256	B69-10176	03	.....	ARC-10015
B69-10089	02	.....	ARG-10247	B69-10177	04	.....	ARG-10312
B69-10090	01	.....	ARG-10276	B69-10178	05	.....	M-FS-18453
B69-10091	02	.....	ARG-10261	B69-10179	03	.....	M-FS-18331
B69-10092	03	.....	ARG-10237	B69-10180	05	.....	M-FS-16508
B69-10093	01	.....	NPO-10839	B69-10181	06	.....	M-FS-20458
B69-10094	01	.....	ARG-10257	B69-10182	05	.....	M-FS-20423
B69-10095	01	.....	NPO-11000	B69-10183	05	.....	M-FS-20453
B69-10096	01	.....	M-FS-20063	B69-10184	05	.....	M-FS-18547
B69-10097	01	.....	M-FS-20169	B69-10185	02	.....	LEWIS-10528
B69-10098	03	.....	M-FS-18526	B69-10186	01	.....	XNP-08898
B69-10099	02	.....	M-FS-14988	B69-10187	06	.....	NPO-10835
B69-10100	05	.....	M-FS-18402	B69-10188	04	.....	KSC-10233
B69-10101	01	.....	M-FS-20064	B69-10189	02	.....	M-FS-20229
B69-10102	02	.....	ARG-10252	B69-10190	05	.....	M-FS-20429
B69-10103	06	.....	NPO-10836	B69-10191	01	.....	ARG-10158
B69-10104	06	.....	NPO-10804	B69-10192	03	.....	M-FS-20456
B69-10105	06	.....	NPO-10735	B69-10193	02	.....	HQ-10234
B69-10106	06	.....	M-FS-18141	B69-10194	02	.....	ARG-10250
B69-10107	02	.....	MSC-13097	B69-10195	03	.....	ARG-10264
B69-10108	03	.....	M-FS-20409	B69-10196	03	.....	ARG-10275
B69-10109	05	.....	M-FS-15059	B69-10197	04	.....	ARG-10258
B69-10110	05	.....	ARG-10289	B69-10198	03	.....	ARG-10344
B69-10111	06	.....	LEWIS-10471	B69-10199	05	.....	KSC-10262
B69-10112	02	.....	LEWIS-10774	B69-10200	03	.....	LEWIS-10793
B69-10113	01	.....	LEWIS-10763	B69-10201	02	.....	M-FS-18135
B69-10114	01	.....	GSFC-10216	B69-10202	05	.....	M-FS-16496
B69-10115	01	.....	MSC-13099	B69-10203	04	.....	ARG-10310
B69-10116	01	.....	ARG-10309	B69-10204	02	.....	ARG-10308
B69-10117	01	.....	ARC-10105	B69-10205	04	.....	ARG-10326
B69-10118	03	.....	LEWIS-10576	B69-10206	03	.....	ARG-10303
B69-10119	05	.....	XNP-09771	B69-10207	04	.....	ARG-10314
B69-10120	01	.....	XNP-09768	B69-10208	04	.....	ARG-10331
B69-10121	01	.....	GSFC-10605	B69-10209	05	.....	ARG-10352
B69-10122	02	.....	LEWIS-10777	B69-10210	02	.....	ARG-10162
B69-10123	03	.....	LEWIS-10231	B69-10211	02	.....	ARG-10220
B69-10124	04	.....	MSC-12250	B69-10212	01	.....	LANGLEY-10496
B69-10125	01	.....	M-FS-20014	B69-10213	01	.....	GSFC-10056
B69-10126	01	.....	M-FS-20177	B69-10214	02	.....	ARG-10355
B69-10127	05	.....	GSFC-10783	B69-10215	01	.....	KSC-10060
B69-10128	05	.....	LEWIS-10686	B69-10216	01	.....	MSC-13098
B69-10129	01	.....	M-FS-16390	B69-10217	01	.....	LEWIS-10885
B69-10130	01	.....	ARC-10191	B69-10218	01	.....	NPO-11155
B69-10131	01	.....	LEWIS-10724	B69-10219	06	.....	LEWIS-10743
B69-10132	06	.....	LEWIS-10789	B69-10220	01	.....	GSFC-10546
B69-10133	01	.....	NPO-11004	B69-10221	01	.....	MSC-13114
B69-10134	06	.....	MSC-13239	B69-10222	06	.....	LEWIS-10820
B69-10135	01	.....	HQ-10343	B69-10223	04	.....	HQ-10421
B69-10136	03	.....	LEWIS-10794	B69-10224	01	.....	HQ-10273
B69-10137	05	.....	GSFC-10830	B69-10225	01	.....	MSC-12259
B69-10138	03	.....	LEWIS-10828	B69-10226	02	.....	LANGLEY-10442
B69-10139	06	.....	NPO-10770	B69-10227	05	.....	GSFC-10764

TECH BRIEF/ORIGINATOR NUMBER INDEX

B69-10228	01	.....	LEWIS-10760	B69-10317	04	.....	NPO-10715
B69-10229	05	.....	KSC-10356	B69-10318	01	.....	LEWIS-10871
B69-10230	01	.....	MSC-13110	B69-10319	04	.....	KSC-10398
B69-10231	05	.....	KSC-10361	B69-10320	05	.....	LEWIS-10837
B69-10232	06	.....	ARC-10221	B69-10321	02	.....	LEWIS-10813
B69-10233	01	.....	GSFC-10746	B69-10322	01	.....	GSFC-10116
B69-10234	02	.....	GSFC-10592	B69-10323	01	.....	KSC-10393
B69-10235	03	.....	MSC-13242	B69-10324	02	.....	GSFC-10593
B69-10236	04	.....	LANGLEY-10495	B69-10325	01	.....	NPO-11001
B69-10237	03	.....	M-FS-20482	B69-10326	01	.....	NPO-11073
B69-10238	06	.....	NUC-10342	B69-10327	01	.....	NPO-10694
B69-10239	06	.....	NUC-10540	B69-10328	05	.....	NPO-11118
B69-10240	03	.....	ARG-10363	B69-10329	01	.....	LEWIS-10918
B69-10241	03	.....	ARG-10377	B69-10330	03	.....	MSC-15487
B69-10242	05	.....	ARG-10387	B69-10331	05	.....	NPO-10626
B69-10243	06	.....	MSC-12238	B69-10332	02	.....	NPO-10682
B69-10244	01	.....	MSC-13199	B69-10333	01	.....	NPO-11163
B69-10245	05	.....	MSC-15499	B69-10334	06	.....	NPO-11158
B69-10246	01	.....	NPO-10842	B69-10335	05	.....	M-FS-12964
B69-10247	01	.....	HQ-10073	B69-10336	02	.....	NPO-10604
B69-10248	02	.....	HQ-10106	B69-10337	06	.....	NPO-11162
B69-10249	02	.....	LEWIS-10880	B69-10338	01	.....	NPO-11088
B69-10250	03	.....	LEWIS-10812	B69-10339	03	.....	M-FS-20448
B69-10251	01	.....	KSC-09348	B69-10340	01	.....	GSFC-10614
B69-10252	03	.....	LEWIS-10829	B69-10341	02	.....	GSFC-10706
B69-10253	01	.....	GSFC-10581	B69-10342	05	.....	ARG-10324
B69-10254	03	.....	ARG-10356	B69-10343	05	.....	ARG-10338
B69-10255	02	.....	ARG-10128	B69-10344	02	.....	ARG-10388
B69-10256	03	.....	ARG-10348	B69-10345	05	.....	ARG-10290
B69-10257	03	.....	ARG-10403	B69-10346	05	.....	MSC-15537
B69-10258	02	.....	ARG-10345	B69-10347	01	.....	MSC-15223
B69-10259	01	.....	M-FS-20419	B69-10348	05	.....	MSC-15529
B69-10260	02	.....	XGS-11036	B69-10349	01	.....	NPO-10169
B69-10261	05	.....	MSC-15046	B69-10350	05	.....	MSC-15531
B69-10262	03	.....	LEWIS-10899	B69-10351	01	.....	ARG-10315
B69-10263	05	.....	LEWIS-10900	B69-10352	03	.....	LEWIS-10874
B69-10264	05	.....	M-FS-20504	B69-10354	01	.....	KSC-10368
B69-10265	03	.....	LEWIS-10888	B69-10355	05	.....	M-FS-20403
B69-10266	03	.....	LEWIS-10817	B69-10356	01	.....	M-FS-18540
B69-10267	06	.....	LEWIS-10764	B69-10357	03	.....	M-FS-16517
B69-10268	04	.....	LEWIS-10878	B69-10358	05	.....	NPO-10311
B69-10269	01	.....	NPO-10539	B69-10359	01	.....	KSC-10151
B69-10270	01	.....	NPO-11057	B69-10360	03	.....	MSC-13217
B69-10271	01	.....	XNP-04235	B69-10362	01	.....	NPO-11170
B69-10272	01	.....	SAN-10034	B69-10364	01	.....	NPO-10853
B69-10273	04	.....	MSC-13250	B69-10365	02	.....	NPO-11009
B69-10274	01	.....	GSFC-10658	B69-10366	03	.....	M-FS-20405
B69-10275	02	.....	KSC-06786	B69-10367	05	.....	M-FS-20562
B69-10276	02	.....	LEWIS-10345	B69-10368	06	.....	HQ-10391
B69-10277	04	.....	M-FS-20437	B69-10369	01	.....	XKS-06467
B69-10278	05	.....	M-FS-14010	B69-10370	06	.....	MSC-13179
B69-10279	05	.....	M-FS-20502	B69-10371	02	.....	M-FS-20414
B69-10280	05	.....	MSC-10951	B69-10372	03	.....	M-FS-20364
B69-10281	01	.....	SAN-10037	B69-10373	05	.....	M-FS-18441
B69-10282	05	.....	M-FS-16481	B69-10375	05	.....	MSC-15470
B69-10283	03	.....	M-FS-20454	B69-10376	01	.....	LEWIS-90271
B69-10284	05	.....	M-FS-20427	B69-10377	03	.....	ARG-10436
B69-10286	02	.....	ARG-10342	B69-10378	01	.....	M-FS-20439
B69-10287	03	.....	HQ-10279	B69-10379	05	.....	MSC-15348
B69-10288	05	.....	M-FS-16480	B69-10380	01	.....	NPO-10303
B69-10289	01	.....	NPO-10669	B69-10381	01	.....	NPO-10302
B69-10290	01	.....	NPO-11031	B69-10382	01	.....	NPO-10301
B69-10291	02	.....	MSC-11085	B69-10383	01	.....	NPO-11133
B69-10292	03	.....	SAN-10032	B69-10384	01	.....	NPO-11033
B69-10293	03	.....	LEWIS-10805	B69-10385	01	.....	HQ-10123
B69-10294	04	.....	GSFC-10563	B69-10386	01	.....	MSC-12148
B69-10295	05	.....	ARC-10052	B69-10387	02	.....	M-FS-20471
B69-10296	05	.....	NPO-10637	B69-10388	05	.....	MSC-10950
B69-10297	01	.....	M-FS-15075	B69-10390	01	.....	M-FS-20435
B69-10298	05	.....	NPO-11059	B69-10391	06	.....	LANGLEY-10480
B69-10299	03	.....	NPO-10834	B69-10392	01	.....	KSC-10209
B69-10300	06	.....	LANGLEY-10441	B69-10393	05	.....	M-FS-16411
B69-10301	02	.....	M-FS-20240	B69-10394	06	.....	M-FS-14716
B69-10302	05	.....	M-FS-20353	B69-10396	05	.....	M-FS-18404
B69-10303	05	.....	M-FS-20484	B69-10397	03	.....	M-FS-20417
B69-10304	04	.....	NPO-11171	B69-10398	05	.....	M-FS-18581
B69-10305	05	.....	M-FS-16293	B69-10399	05	.....	M-FS-18052
B69-10306	01	.....	LEWIS-10343	B69-10400	05	.....	M-FS-18373
B69-10307	01	.....	LEWIS-10873	B69-10401	01	.....	M-FS-14524
B69-10308	01	.....	HQ-10290	B69-10402	01	.....	M-FS-18144
B69-10309	03	.....	HQ-10145	B69-10403	05	.....	M-FS-18465
B69-10310	05	.....	M-FS-20293	B69-10404	05	.....	M-FS-20339
B69-10311	02	.....	NPO-11002	B69-10405	02	.....	GSFC-10743
B69-10312	01	.....	HQ-10214	B69-10406	03	.....	NPO-10695
B69-10313	01	.....	XNP-06234	B69-10407	01	.....	LANGLEY-10263
B69-10314	01	.....	HQ-10433	B69-10408	05	.....	M-FS-14971
B69-10315	01	.....	KSC-67-15	B69-10409	06	.....	M-FS-16551
B69-10316	01	.....	KSC-10381	B69-10410	01	.....	ARG-10147

TECH BRIEF/ORIGINATOR NUMBER INDEX

B69-10411	02	.....	ARG-10419	B69-10513	01	.....	M-FS-18269
B69-10412	03	.....	ARG-10424	B69-10514	05	.....	M-FS-16549
B69-10413	03	.....	ARG-10409	B69-10516	01	.....	HQ-10318
B69-10414	03	.....	ARG-10371	B69-10519	05	.....	MSC-15372
B69-10415	02	.....	ARG-10445	B69-10520	02	.....	KSC-10267
B69-10416	01	.....	ARG-10333	B69-10522	03	.....	MSC-13261
B69-10417	03	.....	M-FS-14959	B69-10523	01	.....	MSC-10956
B69-10418	01	.....	M-FS-20487	B69-10524	06	.....	WUC-10334
B69-10419	01	.....	XGS-11144	B69-10526	01	.....	MSC-15662
B69-10421	02	.....	M-FS-20172	B69-10527	05	.....	KSC-10358
B69-10422	05	.....	M-FS-20481	B69-10528	02	.....	HQ-10200
B69-10423	03	.....	ARG-10469	B69-10529	02	.....	HQ-10227
B69-10424	02	.....	ARG-10444	B69-10530	03	.....	MSC-15592
B69-10425	03	.....	ARG-10415	B69-10531	03	.....	MSC-15225
B69-10427	01	.....	NPO-10562	B69-10533	01	.....	M-FS-16327
B69-10428	02	.....	ARG-10425	B69-10536	03	.....	HQ-10461
B69-10429	01	.....	ARG-10480	B69-10537	01	.....	HQ-10424
B69-10430	03	.....	ARG-10416	B69-10538	01	.....	NPO-10214
B69-10431	02	.....	ARG-10428	B69-10539	01	.....	M-FS-14737
B69-10432	06	.....	ARG-10448	B69-10540	03	.....	M-FS-90591
B69-10433	06	.....	NUC-10243	B69-10541	02	.....	M-FS-20438
B69-10434	06	.....	M-FS-15062	B69-10543	03	.....	M-FS-14500
B69-10435	06	.....	M-FS-15043	B69-10544	05	.....	M-FS-92155
B69-10436	01	.....	LANGLEY-10228	B69-10545	05	.....	M-FS-12134
B69-10437	05	.....	M-FS-20474	B69-10546	01	.....	XGS-09377
B69-10438	01	.....	M-FS-14722	B69-10547	05	.....	NPO-11095
B69-10439	01	.....	NPO-11130	B69-10548	01	.....	MSC-12178
B69-10440	01	.....	NPO-10713	B69-10550	01	.....	HQ-10441
B69-10441	01	.....	ERC-10138	B69-10552	03	.....	MSC-15611
B69-10443	01	.....	ERC-10148	B69-10553	01	.....	MSC-13389
B69-10444	02	.....	ERC-10114	B69-10554	02	.....	MSC-13279
B69-10445	01	.....	ARG-10479	B69-10556	02	.....	KSC-10380
B69-10446	02	.....	LEWIS-10916	B69-10557	01	.....	XNP-05254
B69-10447	02	.....	M-FS-20160	B69-10559	03	.....	M-FS-20219
B69-10448	05	.....	M-FS-14685	B69-10560	02	.....	M-FS-13775
B69-10450	05	.....	M-FS-16600	B69-10562	02	.....	M-FS-14816
B69-10451	03	.....	LEWIS-10737	B69-10563	02	.....	MSC-15193
B69-10452	01	.....	GSFC-10127	B69-10564	03	.....	M-FS-12646
B69-10453	01	.....	GSFC-10369	B69-10566	06	.....	M-FS-16410
B69-10454	06	.....	M-FS-20290	B69-10568	01	.....	NPO-11106
B69-10456	05	.....	M-FS-20426	B69-10569	01	.....	NPO-11064
B69-10457	03	.....	M-FS-18480	B69-10570	01	.....	NPO-11134
B69-10458	05	.....	M-FS-16476	B69-10571	04	.....	NPO-11206
B69-10459	05	.....	M-FS-20317	B69-10572	03	.....	NPO-11198
B69-10460	01	.....	HQ-10417	B69-10573	05	.....	NPO-11177
B69-10461	01	.....	HQ-10231	B69-10574	06	.....	M-FS-15054
B69-10462	02	.....	HQ-10447	B69-10577	02	.....	M-FS-15033
B69-10463	05	.....	M-FS-18604	B69-10578	01	.....	GSFC-10656
B69-10464	03	.....	M-FS-20397	B69-10580	03	.....	M-FS-20250
B69-10465	01	.....	HQ-10043	B69-10581	03	.....	MSC-15040
B69-10466	02	.....	HQ-10440	B69-10584	01	.....	NPO-11054
B69-10467	02	.....	M-FS-20002	B69-10585	01	.....	GSFC-10769
B69-10468	03	.....	LEWIS-10718	B69-10588	05	.....	M-FS-14062
B69-10469	02	.....	MSC-13194	B69-10590	05	.....	M-FS-14754
B69-10470	01	.....	HQ-10445	B69-10591	02	.....	GSFC-10860
B69-10471	05	.....	M-FS-20019	B69-10592	03	.....	NPO-11207
B69-10472	01	.....	NPO-10544	B69-10593	04	.....	NPO-11197
B69-10474	01	.....	NPO-11140	B69-10594	02	.....	MSC-13146
B69-10475	04	.....	NPO-10510	B69-10595	03	.....	MSC-15194
B69-10476	01	.....	LEWIS-10782	B69-10596	03	.....	NPO-11015
B69-10477	01	.....	LANGLEY-11007	B69-10597	01	.....	MSC-11585
B69-10479	01	.....	LANGLEY-10222	B69-10598	04	.....	MSC-13249
B69-10480	01	.....	HQ-10226	B69-10599	03	.....	M-FS-16113
B69-10481	01	.....	HQ-10151	B69-10601	01	.....	M-FS-14909
B69-10483	05	.....	HQ-10047	B69-10602	03	.....	M-FS-14502
B69-10484	01	.....	MSC-15556	B69-10603	01	.....	ARG-10482
B69-10485	05	.....	MSC-11486	B69-10604	02	.....	M-FS-20031
B69-10487	01	.....	MSC-12247	B69-10605	03	.....	M-FS-18650
B69-10488	03	.....	NPO-11196	B69-10606	03	.....	M-FS-14421
B69-10490	01	.....	MSC-12135	B69-10607	01	.....	M-FS-13570
B69-10493	04	.....	HQ-10177	B69-10608	06	.....	ARG-10475
B69-10494	01	.....	MSC-11196	B69-10609	05	.....	M-FS-20037
B69-10495	05	.....	MSC-13195	B69-10611	03	.....	ARG-10462
B69-10496	05	.....	MSC-11402	B69-10612	01	.....	ARG-10478
B69-10497	01	.....	M-FS-14805	B69-10613	01	.....	ARG-10452
B69-10498	01	.....	NPO-10854	B69-10614	01	.....	ARG-10483
B69-10499	05	.....	NPO-10704	B69-10615	05	.....	ARC-10166
B69-10501	03	.....	NPO-11091	B69-10616	03	.....	ARG-10497
B69-10502	01	.....	NPO-10648	B69-10618	01	.....	ARG-10376
B69-10503	01	.....	NPO-10112	B69-10620	02	.....	ARG-10461
B69-10504	02	.....	NPO-11200	B69-10621	01	.....	ARG-90261
B69-10506	05	.....	NPO-11193	B69-10622	02	.....	ARG-10481
B69-10507	01	.....	MSC-13276	B69-10627	03	.....	ARG-10453
B69-10508	02	.....	NPO-11087	B69-10629	03	.....	MSC-15555
B69-10509	05	.....	MSC-15633	B69-10630	01	.....	ARG-10360
B69-10510	02	.....	HQ-10418	B69-10631	01	.....	ARG-10347
B69-10511	03	.....	GSFC-10703	B69-10633	02	.....	M-FS-14747
B69-10512	01	.....	XGS-10033	B69-10634	05	.....	MSC-10959

TECH BRIEF/ORIGINATOR NUMBER INDEX

B69-10635	03	.....	MSC-13335	B69-10816	05	.....	MSC-10962
B69-10636	03	.....	M-FS-14962	B69-10823	02	.....	M-FS-16556
B69-10639	01	.....	NPO-11003				
B69-10640	01	.....	ARG-10503				
B69-10641	03	.....	ARG-10490				
B69-10642	03	.....	ARG-10506				
B69-10645	02	.....	ARG-10421				
B69-10647	03	.....	ARG-10459				
B69-10649	05	.....	M-FS-18548				
B69-10652	01	.....	M-FS-20208				
B69-10653	01	.....	M-FS-20239				
B69-10654	02	.....	ARG-10494				
B69-10655	01	.....	ARG-10339				
B69-10656	06	.....	ARG-10463				
B69-10660	03	.....	NPO-11229				
B69-10661	05	.....	HQ-10315				
B69-10662	02	.....	HQ-10349				
B69-10663	02	.....	HQ-10348				
B69-10665	01	.....	HQ-10431				
B69-10666	01	.....	HQ-10476				
B69-10669	06	.....	LEWIS-10819				
B69-10670	01	.....	M-FS-13821				
B69-10671	01	.....	MSC-13365				
B69-10673	01	.....	HQ-10412				
B69-10674	02	.....	M-FS-14886				
B69-10676	01	.....	M-FS-20532				
B69-10677	01	.....	M-FS-12799				
B69-10678	01	.....	M-FS-20499				
B69-10682	03	.....	GSFC-10690				
B69-10684	05	.....	LEWIS-10298				
B69-10686	06	.....	ERC-10036				
B69-10687	01	.....	ERC-10322				
B69-10689	01	.....	ERC-10254				
B69-10690	01	.....	ERC-10229				
B69-10691	01	.....	ERC-10250				
B69-10692	03	.....	M-FS-16179				
B69-10695	01	.....	NPO-10688				
B69-10696	05	.....	NPO-10679				
B69-10697	01	.....	NPO-10231				
B69-10699	01	.....	LEWIS-10920				
B69-10700	02	.....	HQ-10350				
B69-10704	05	.....	GSFC-10607				
B69-10705	02	.....	NUC-10330				
B69-10707	02	.....	NUC-10554				
B69-10711	03	.....	LEWIS-11030				
B69-10712	02	.....	LEWIS-11031				
B69-10713	01	.....	LEWIS-11032				
B69-10714	02	.....	LEWIS-11044				
B69-10715	04	.....	GSFC-10565				
B69-10716	02	.....	KSC-10388				
B69-10720	06	.....	FRC-10015				
B69-10722	01	.....	NPO-10706				
B69-10723	31	.....	NPO-11228				
B69-10725	01	.....	NPO-11180				
B69-10730	03	.....	M-FS-18605				
B69-10731	01	.....	GSFC-10569				
B69-10732	01	.....	ERC-10161				
B69-10733	02	.....	NPO-11220				
B69-10734	01	.....	GSFC-10603				
B69-10736	01	.....	M-FS-14556				
B69-10737	03	.....	LANGLEY-10200				
B69-10740	03	.....	MSC-10947				
B69-10741	01	.....	MSC-13072				
B69-10742	01	.....	MSC-15660				
B69-10744	03	.....	HQ-10235				
B69-10746	01	.....	HQ-10541				
B69-10747	01	.....	MSC-11836				
B69-10748	01	.....	MSC-90534				
B69-10749	03	.....	MSC-12230				
B69-10750	01	.....	MSC-13268				
B69-10756	01	.....	M-FS-20545				
B69-10760	06	.....	M-FS-15055				
B69-10764	01	.....	LEWIS-11014				
B69-10767	02	.....	ARG-10362				
B69-10771	02	.....	ARG-10500				
B69-10772	02	.....	ARG-10372				
B69-10776	01	.....	M-FS-20529				
B69-10779	02	.....	M-FS-20537				
B69-10780	03	.....	M-FS-20566				
B69-10781	02	.....	M-FS-20497				
B69-10782	01	.....	M-FS-02191				
B69-10783	02	.....	M-FS-14101				
B69-10785	05	.....	M-FS-14063				
B69-10788	03	.....	M-FS-18585				
B69-10793	02	.....	HQ-10246				
B69-10804	05	.....	M-FS-20657				
B69-10807	01	.....	M-FS-20444				
B69-10810	02	.....	MSC-13370				

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D. C. 20546
OFFICIAL BUSINESS

FIRST CLASS MAIL



POSTAGE AND FEES PAID
NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION

POSTMASTER: If Undeliverable (Section 158
Postal Manual) Do Not Return

"The aeronautical and space activities of the United States shall be conducted so as to contribute . . . to the expansion of human knowledge of phenomena in the atmosphere and space. The Administration shall provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof."

— NATIONAL AERONAUTICS AND SPACE ACT OF 1958

NASA TECHNOLOGY UTILIZATION PUBLICATIONS

These describe science or technology derived from NASA's activities that may be of particular interest in commercial and other non-aerospace applications. Publications include:

TECH BRIEFS: Single-page descriptions of individual innovations, devices, methods, or concepts.

TECHNOLOGY SURVEYS: Selected surveys of NASA contributions to entire areas of technology.

OTHER TU PUBLICATIONS: These include handbooks, reports, conference proceedings, special studies, and selected bibliographies.

Technology Utilization publications are part of NASA's formal series of scientific and technical publications. Others include Technical Reports, Technical Notes, Technical Memorandums, Contractor Reports, Technical Translations, and Special Publications.

Details on their availability may be obtained from:

Details on the availability of these publications may be obtained from:

National Aeronautics and
Space Administration
Code UT
Washington, D.C. 20546

National Aeronautics and
Space Administration
Code US
Washington, D.C. 20546

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Washington, D.C. 20546